



Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region

Executive Summary



prepared for

**Genesee Transportation Council
New York State Department of Transportation**

prepared by

Cambridge Systematics, Inc.

with

**Bergmann Associates
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June 30, 2012

Disclaimer

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Executive Summary

The competitiveness of a region's economy is inextricably linked to the strength of that region's transportation network. In order to thrive, a business must have fast, low-cost, secure access to the varied inputs it requires – including labor – and must have similarly fast, low-cost, and secure access to regional, national, and international markets for its outputs. Employees – the residents of the region – also demand superb access to goods – whether those goods were produced across town or halfway around the world. A top-notch, multimodal transportation network can be a region's gateway to prosperity.

The Genesee Transportation Council (GTC) and the New York State Department of Transportation, in cooperation with its partners, has undertaken this study, entitled "Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region," to help determine how transportation investments can be leveraged to increase regional economic competitiveness and maximize economic growth. Throughout the report, the term "Genesee-Finger Lakes Region" (simply "the region") refers to a nine-county study area consisting of Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates Counties.

The primary objectives of the study are the following:

- Develop goods movement strategies that will position the transportation system of the Genesee-Finger Lakes Region as a distinguishing factor in retaining and attracting both traditional and emerging-technology manufacturing firms as well as enhancing the viability of agriculture;
- Establish relationships between GTC and the business community that will endure beyond the completion of this project; and
- Help educate the public and key stakeholders in the Genesee-Finger Lakes Region about the importance of freight transportation.

The Final Report provides the region with detailed information about its economy and freight transportation system, and is intended to help guide future freight transportation and economic development decisions.

Regional Freight and Economic Profile

Development of a Regional Freight and Economic Profile is the first step in understanding how transportation investments ripple through the supply chain, business decisions, and ultimately consumer preferences that will determine the region's future success. This profile summarizes key trends and issues regarding population, employment, and goods movement in the region.

Key and Emerging Industries

Although its share of the regional economy is declining, manufacturing, and particularly "advanced" manufacturing, continues to grow and will likely remain a key pillar of the regional economy for the foreseeable future. Among the region's top 50 firms by employment, 12 are classified as "manufacturing" firms. These firms together contribute over 29,800 jobs to the region. Agriculture and food production remain significant economic engines for the Genesee-

Finger Lakes Region, especially for the mostly rural counties. Although the range of agriculture and food products produced in the Genesee-Finger Lakes Region is diverse, dairy products forms the largest agricultural subsector in New York State (Cornell University Program on Dairy Markets and Policy). The region also hosts a number of nationally-known food and beverage importers and processors.

In the coming decades, a number of emerging industries, including advanced manufacturing, alternative energy, technology, healthcare, tourism, and biotech and life science, will grow in importance to the region's economy. Like the already established manufacturing, agriculture, retail trade, and construction sectors, the emerging industries are also users of the Genesee-Finger Lakes Region's freight transportation services and network. The effectiveness of this system will be a factor contributing to the emerging industries' ability to compete and prosper in the region. The freight logistics structure of the Genesee-Finger Lakes Region (the types of commodities that are moved, the transportation network, and goods movement services) will inevitably change based on the needs of emerging industries, the evolving supply chain strategies of existing industries, and the spending power and preferences of the region's consumers.

Commodity/Vehicle Traffic Flows

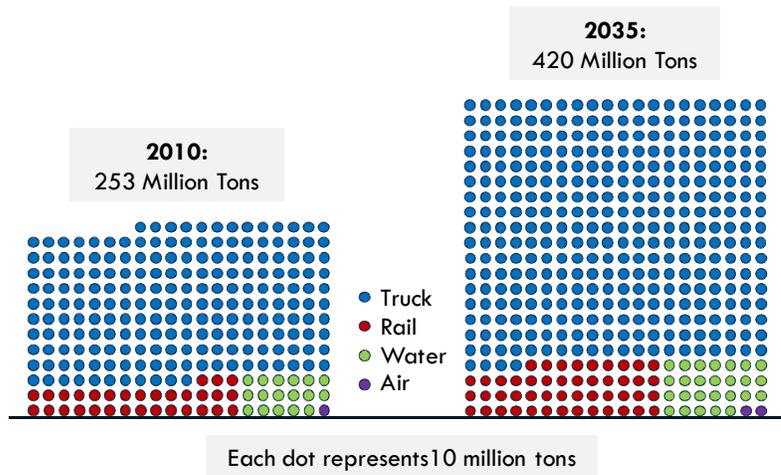
The commodity flow analysis performed for this study shows that in 2010:

- An estimated 253 million tons of freight moved into, out of, within, or through the region by truck, rail, water, or air;
- About two-thirds of the freight movement is reported as "through" movements, with neither an origin nor a destination in the Genesee-Finger Lakes Region. Inbound and outbound freight each account for about 15 percent of freight movement in the region;
- The New York City metropolitan area is the region's single-largest trading partner for both imports and exports, followed by the combined Buffalo-Toronto metropolitan area;
- Places within a one-day drive of the Genesee-Finger Lakes Region account for 74 percent of imports and 90 percent of exports by value, and more than 75 percent of imports and exports when measured by value; and
- About 30 percent of the region's imports and exports by weight (about 50 percent by value) fall into a commodity category called "Secondary Traffic," which represents freight flows through distribution centers—for example, retail goods bound for store shelves.

By 2035:

- Freight tonnage is expected to grow by 66 percent, from 253 million tons today to 420 million tons by 2035, as shown in Figure ES.1; and
- In the "business as usual" scenario assumed in these figures, the share of commodity freight moved by truck in the future is expected to increase slightly, from 80 percent to 82 percent.

Figure ES.1 Distribution of Total Annual Tonnage by Mode, 2010 and 2035



Source: IHS/Global Insight Transearch Database, via New York State Department of Transportation

Freight Infrastructure Summary

The region's freight infrastructure consists of:

- The Interstate Highway System and several key New York State highways that connect major freight-generating and receiving facilities to customers within and outside the region;
- A rail network composed of Class-I railroad lines connecting the region to other parts of the continent and a short line railroad network providing many rail customers with access to the Class-I networks;
- Truck-rail transloading and intermodal terminals within and just beyond the limits of the region, which provide the Genesee-Finger Lakes Region's shippers and receivers with multi-modal surface transportation options;
- An international airport offering cargo services, and larger airports within a one-day drive which offer more service options; and
- Lakeside seaports serving niche markets, and larger seaports beyond the region that serve as gateways for international containerized cargo.

Figure ES.2 shows the core of the Genesee-Finger Lakes Regional Freight Network. It is important to note that this map shows the facilities that are most important for interregional movements of freight and goods. Local roadways also play a crucial role in the "last mile" of freight transportation.

Two Class-I railroads own trackage in the Genesee-Finger Lakes Region: CSX and Norfolk Southern (NS). CSX traffic is routed along the Water Level Route between the Buffalo and Albany areas. Norfolk Southern's Southern Tier Line passes through parts of Genesee, Wyoming, and Livingston Counties. Like the CSX Water Level Route, most of the traffic on the Southern Tier Line is traveling through the region between Buffalo and points west and Binghamton and points south and east. In addition, the NS Corning Secondary serves as a connection between many of the short line railroads operating in the Finger Lakes region, especially the Finger Lakes Railroad, with the NS Southern Tier Line.

A third Class-I Railroad, Canadian Pacific, operates in the region using trackage rights agreements with CSX and NS. The CSX and NS main lines are also accessed by several of the region's six short line railroads through interchange at several points along the main lines.

Organization and Public Policy

The goods movement system in the Genesee-Finger Lakes Region operates within a matrix of institutional and commercial relationships, regulations, and public policies that govern the activities and decisions of all the players.

Commercial relationships influence how freight moves throughout the region, and where goods come from and are shipped to. Manufacturers and retailers located in the region are part of a complex supply chain that extends around the globe. The commercial relationships at each link in the supply chain govern how goods move, and the consumers of transportation services determine how quickly freight needs to move, at what cost, and so on. Manufacturers, in turn, have relationships with retailers that govern how much their products cost on retail shelves, how much needs to be produced, the timing of production and shipment, use of warehousing vs. just-in-time manufacturing and delivery, and who absorbs risks.

Freight movement is governed by a host of federal, state, regional, and local regulations and agencies. Even though federal regulations are broad and targeted at improving the overall performance of the nation's freight transportation system, federal policies can create significant local impacts. For example, in 2011 the FMCSA introduced new Hours-of-Service regulations (49 CFR Part 395), which put limits in place for when and how long commercial motor vehicle (CMV) drivers may drive. As the volume of traffic in the Genesee-Finger Lakes Region increases, GTC, NYSDOT, the NYS Thruway Authority, and their partners may need to examine and address the needs for expanding or developing new public and private rest facilities to meet growing demand.

Needs Assessment

Substantial outreach to stakeholders via the project Steering Committee, face-to-face interviews with a representative cross-section of industries throughout the region, three sub-regional focus groups held in various parts of the region to gather local input, a fourth focus group consisting of freight rail industry representatives, and an online survey directed to major shippers/receivers, carriers, and logistics firms, provided input for an analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT) and needs assessment. The results of the SWOT analysis are discussed in detail in Section 4 of the Final Report.

As shown in Table ES.1, the Needs Assessment is structured to align with the goals and objectives of GTC, as detailed in the *Long Range Transportation Plan for the Genesee-Finger Lakes Region*

2035, namely: **safety; security; accessibility and mobility; environment, community, and mobility; and management and operations.**

Table ES.1 Genesee-Finger Lakes Region Freight Transportation Needs

Goal Topic Area	Needs
Safety	<ul style="list-style-type: none"> • Ensure roadway geometric design can safely accommodate freight traffic • Address driver fatigue and distracted driving • Continue education and training programs for freight operators and the public
Security	<ul style="list-style-type: none"> • Protect against threats • Improve the resiliency of the freight transportation system and its ability to recover from service disruptions and incidents
Access and Mobility	<ul style="list-style-type: none"> • Implement targeted capacity expansions and operational improvements • Improve access to the freight transportation system • Coordinate land use, economic development, and transportation investment policies and strategies • Address low-clearance and weight-restricted bridges on the highway and rail networks • Preserve existing rail service and rights-of-way for future rail system expansion • Improve air cargo service • Maintain reliable access to seaports outside the region • Improve the reliability and decrease the travel time and cost associated with international border crossings • Explore the feasibility and benefits of designating additional roadways in the region as Interstate Highways
Environment, Community, and Energy	<ul style="list-style-type: none"> • Retrofit and replace truck and locomotive fleets to reduce emissions and improve energy efficiency • Avoid and mitigate the impacts of freight movement • Facilitate participation by freight stakeholders in the transportation planning process
Management and Operations	<ul style="list-style-type: none"> • Provide tax and capital improvement incentives for the use of non-highway modes for freight transportation where feasible • Improve design and operational standards to accommodate modern, efficient freight vehicles • Investigate the feasibility of implementing Positive Train Control on Class I and short-line railroads where required by FRA and, where not required, where operational benefits would outweigh the costs of implementation • Improve incident response times to reduce non-recurring delay on roadways • Provide better information on system condition and operations to freight system users • Improve existing rail interchanges (physical improvements, new or relocated sidings, and institutional changes to streamline procedures) so both Class I and short-line operators benefit.

Identification, Evaluation and Prioritization of Alternatives

The SWOT analysis and Needs Assessment guides the identification of freight transportation system projects, operational strategies, and policy changes (collectively referred to as alternatives) to address these needs. In order to develop the prioritized list of alternatives in this section, first a long list of freight improvement alternatives was compiled from three sources:

- A review of previous studies completed in the region that identified options for improving freight transportation;
- A review of best practices and innovations in freight and goods movement from other parts of the country; and
- Input received from stakeholders during focus groups, public meetings, and meetings with representatives of the region's key existing and emerging industries.

The result was an unfiltered, unconstrained compilation of alternatives for improving the freight transportation system in the Genesee-Finger Lakes Region to help businesses remain competitive. The unconstrained compilation of alternatives was filtered through an initial screening process to eliminate those with fatal flaws (for example, those that were clearly inconsistent with local and regional plans, or those with potential for significant adverse environmental or community impacts). Then the remainder were evaluated using the criteria and performance measures described in Section 4.4 of the Final Report, "Performance-Based Planning for Freight Transportation." Finally, a set of prioritization criteria were used to group projects into recommended near-term, medium-term, and long-term actions.

Linking the evaluation process to GTC's goals and objectives, higher priority should be given to alternatives that:

- Keep regional freight transportation costs competitive by improving the efficiency of freight movement (**Efficiency**);
- Preserve and improve access to the freight transportation system for existing and emerging industries (**Access**);
- Are designed to accommodate freight transportation operations safely and securely, while mitigating community and environmental impacts of freight (**Mitigation**);
- Create employment in the transportation sector in the Genesee-Finger Lakes Region (**Jobs**); and
- Are cost-effective, considering up-front capital costs and ongoing operating and maintenance costs, and considering the share of public vs. private-sector funding needed to implement the alternative (**Cost-Effectiveness**).

Alternatives are evaluated against these five categories of priority factors and assigned a score in each category. The readiness of the alternative in terms of its ability to be implemented is considered as a final step to determine which priority tier to assign each alternative. Projects that are far enough along in the planning process that they can be implemented quickly are prioritized above those projects that require further planning, design, or evaluation.

Summary of Recommendations

Near-Term Recommendations

Near-term recommendations meet immediate needs and have benefits on a regional, state-wide, or national scale and/or rank high on the Cost-Effectiveness scale. They should be implemented as soon as resources are available. They include "shovel-ready" projects, operational strategies

that require relatively little design work before implementation, and policy changes and institutional changes that can be implemented in the near-term.

Near-term, regional priorities include the following **capital projects** or groups of projects:

- Address low-clearance and weight restricted bridges on major freight corridors and on access routes to development sites of regional priority.
- Implement planned improvements to the I-390/I-490 interchange, shown in Figure ES.5, to alleviate peak-period congestion and prevent this congestion from spreading to off-peak hours.
- Replace the Portage Bridge, shown in Figure ES.5, on the Southern Tier rail line to eliminate a major weight and speed restriction on the line.
- Complete remaining projects identified in the series of Transportation & Industrial Access Site Reports published in 2007, with projects located in all nine counties in the study area, plus the City of Rochester, and also improve access to the Livonia Gateway Park Road project and the Western NY Science and Technology Advanced Manufacturing Park (STAMP) facility.
- Construct rail sidings to major regional landfills to facilitate the shift of inbound municipal solid waste from truck to rail.
- New York State Route 63 Corridor Near-Term Improvements to address immediate needs, balancing operational needs of local and through freight traffic against safety concerns.
- Implement efficiency, access, and safety improvements on major regional freight corridors, as recommended by completed corridor and local area studies throughout the region.

Figure ES.5 I-390/I-490 Interchange (Left), Portage Bridge (Right)



Source: New York State Department of Transportation

Medium-Term Recommendations

Alternatives that are classified as **medium-term recommendations** may not be immediately ready to be implemented, but they have the potential to improve the status of the region's transportation system as a distinguishing competitive feature relative to other regions, serving the needs of existing businesses and enhancing the region's attractiveness to new business.

Alternatives that suggest capital investments should be priorities for further planning and development to determine if the projects are cost-effective and can be implemented quickly.

Medium-term recommendations include the following **capital projects** and **project concepts**:

- Substantial capacity and operational improvements in the New York State Route 63 corridor, balancing the operational needs of local and through freight traffic against the safety concerns raised by small communities along the route.
- Improve productivity of truck operations by increasing allowable weight and length of trucks on roadways that are designed to safely accommodate them.
- Identify the appropriate location(s) for a regional-scale rail/highway intermodal transfer facility and identify potential customers to justify private rail investment in new intermodal rail service to the region.
- Identify possible locations for local businesses to access regional short line railroads at smaller cross dock and transload facilities throughout the region.
- Investigate the feasibility of developing a multimodal logistics center or “freight village” at the Lyons Industrial Park, taking advantage of freight and goods movement opportunities provided by the intersection of the CSX main line and the Corning Secondary (former Norfolk Southern service and potential Finger Lakes Railway service), the Erie Canal (with an opportunity for connecting barge service to the Port of Oswego), and access to the NY State Thruway. The proposed site layout for the Lyons Industrial Park is illustrated in Figure ES.6.

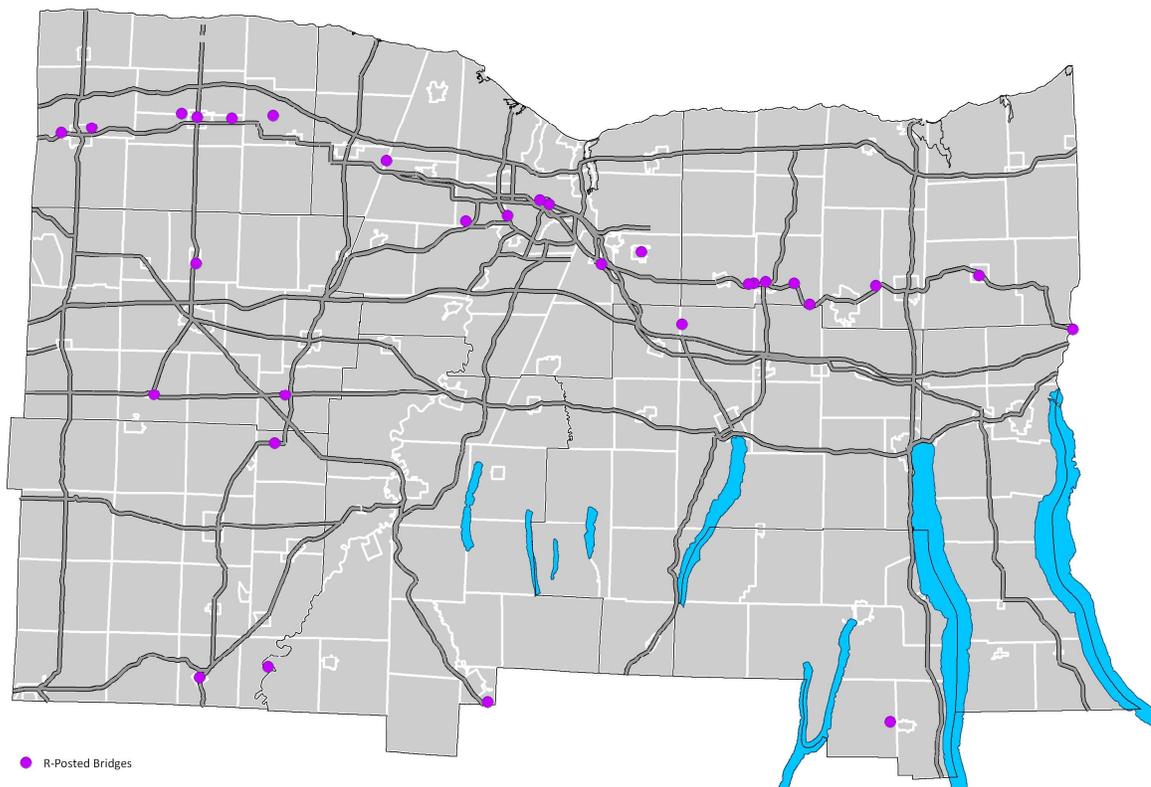
Figure ES.6 Lyons Industrial Park Freight Village Proposed Site Layout



- Preserve right of way and make necessary infrastructure improvements to re-instate rail service along Norfolk Southern's Corning Secondary Line between Geneva and Lyons.
- Investigate the feasibility of implementing rail improvements described in the "Seneca Army Depot Industrial Rail Facility" concept plan.
- Make improvements to overhead clearance restrictions and sidings on the Rochester & Southern Railroad (RSR) line to allow for improved connections to Rochester and Monroe County from Norfolk Southern's Southern Tier line.

- Preserve rail right of way and make necessary infrastructure improvements to re-instate rail service along the former Falls Road rail corridor between Brockport and Rochester.
- Take action to preserve rights of way on other lines identified in the Regional Right of Way Preservation Study, with higher priority given to lines on which potential new customers have been identified.
- Address weight, width, and clearance restrictions on roadway crossings of the Erie Canal to improve truck access to those portions of the region located north of the Erie Canal. Weight-restricted bridges throughout the region are illustrated in Figure ES.7.

Figure ES.7 Weight-Restricted Roadway Bridges in the Genesee-Finger Lakes Region



Source: New York State Department of Transportation

- Identify and implement safety improvements to reduce truck accidents at the S curves on I-490 between the Genesee River and Goodman Street.
- Extend Pre-Emption Street (Co. Road #5) from North Street to New York State Route 5 and U.S. Route 20 in the City of Geneva via an overpass across the Norfolk Southern Corning Secondary rail tracks. An overpass is required due to the presence of a rail switching yard at that location.

Transportation System Management and Operation (TSM&O) strategies that could improve freight transportation in the medium-term include the following:

- Work with navigation system developers and fleet dispatchers to update truck driver information systems with better information about bridge clearance, width, and weight restrictions, and establish signed truck route networks to guide drivers along safe and appropriate routes where feasible.

- Where suitable alternate routes do not exist, explore the feasibility of constructing new truck bypasses using innovative funding sources and financing strategies that include private sector participation.
- Work with SmartWay Transport Partnership, New York State Energy Research and Development Authority, and others to access low-interest loan programs and grants for auxiliary power units, aerodynamic vehicle retrofit kits, truck stop electrification, and other measures to reduce freight transportation fuel consumption and emissions.
- Reduce delays associated with Canada-U.S. border crossing inspections and related traffic congestion upstream of border crossings through a combination of infrastructure improvements, traffic management strategies, and policy changes.
- Change the designation of "New York State Route 390 " to "Interstate Highway 390" north of the I-490 interchange to make redevelopment parcels along the highway more attractive to national site location consultants.
- Improve the efficiency and lower costs associated with interchanges of rail cars between rail operators.
- Review existing truck stop demand, identify gaps, and build additional truck parking facilities where there is demand for overnight and daytime truck parking to help truck drivers comply with Federal hours-of-service regulations.

Long-Term Recommendations

The following **long-term recommendations** have the potential to be transformative in terms of their impact on the region's freight transportation system and the region's economic competitiveness. They will require further study and planning before they can be considered priorities from a regional perspective.

- To facilitate trade with Canada, explore options to move freight across the border by non-highway modes, including a roll-on/roll-off highway trailer-on-flatcar (TOFC) rail shuttle service or ferry service between Ontario and the Genesee-Finger Lakes Region and the necessary support infrastructure to connect the landing point with existing major regional freight corridors.
- Address growing congestion in the New York City metropolitan area (including northern New Jersey) that increases costs of transporting air cargo and marine cargo between the Genesee-Finger Lakes Region and that region's airports and seaports. Also closely monitor and address congestion and delays on routes connecting the two regions that may affect this region's ability to conduct business with global trading partners.
- Extend the main runway at Greater Rochester International Airport to accommodate larger freight aircraft and identify potential customers to justify new air cargo service to one or more destinations.

Next Steps

Implementation of freight transportation improvements will require coordinated efforts on the part of many public and private sector stakeholders. Stakeholders and participants are involved in the freight transportation planning process in different capacities depending on, for example, the type of infrastructure or policy being addressed, the scope of the project or policy change, and an

alternative's stage in the planning, development, and implementation process. This section provides examples of recommendations and the roles and responsibilities of typical stakeholders in advancing projects, operational strategies, and policy changes that are considered regional priorities.

Roles, Responsibilities, and Partnerships

Develop Policies that Guide Freight Transportation Planning and Investment. The *Long Range Transportation Plan for the Genesee-Finger Lakes Region (LRTP 2035)*, developed by GTC and its member agencies, lays out the policy framework in which regional freight transportation investment decisions are made. GTC also evaluates and assesses freight and goods movement needs from a regional perspective. Owners and operators of the system have their own policies and procedures that affect how, when, and where freight and goods move through the region. For the portions of the system under their control, they may collect their own data and conduct their own need assessments.

Identify and Evaluate Alternatives Against Goals and Objectives. At a regional level, GTC is responsible for facilitating discussions among its members and regional stakeholders regarding various options to address freight and goods movement needs. GTC's member agencies provide the MPO with information about various improvement alternatives and potential policy changes, and GTC serves as the forum for making decisions that would have regional impacts. NYSDOT is in the lead for evaluating alternatives that affect state-owned facilities and for alternatives that would have statewide impacts, while GTC member agencies and other local governments often take the lead for projects on their facilities that would likely have primarily local impacts.

Prioritize Alternatives and Select Projects for Funding. The Transportation Improvement Program (TIP), a Federally-mandated product of the regional planning process, identifies and schedules the transportation improvements in the region that will receive Federal funding within, at a minimum, four years from its adoption by GTC. Development of the TIP requires a considerable amount of coordination among the agencies that build, operate, and maintain freight transportation infrastructure. At the same time, NYSDOT is responsible for coordinating among MPOs and regions of the state without MPOs as it develops the State Transportation Improvement Program (STIP), and U.S. DOT's modal administrations play a role in allocating Federal funding to the Genesee-Finger Lakes Region for freight transportation projects of national significance. Private sector owners and operators of freight infrastructure and services make their own prioritization and funding decisions based on their own goals and objectives.

Design and Implement Projects and Policy Initiatives. Freight transportation system owners and operators, both public and private, play lead roles in designing and implementing freight projects. Policies may be developed in part by GTC, but implementation of these policies via projects and operational strategies is a function of local, state, and Federal stakeholders, many of which are members of GTC.

Measure and Track System Performance. GTC has a lead role in measuring and tracking the performance of the regional freight transportation system and sharing this information with system owners and operators so that they can make adjustments to operating procedures or make investments in capital or operational strategies. NYSDOT, GTC member agencies, and local governments can play lead roles for the state and local freight transportation systems,

respectively, while private-sector owners and operators monitor the performance of their systems as a matter of good business practice. All of these stakeholders must share information and best practices so that lessons from previous investments, strategies, and policy changes can be used to make future investments, strategies and policy changes more effective.

Implementation Challenges

Resource constraints and institutional and regulatory obstacles are among the most common implementation challenges. Freight transportation improvements are also constrained by existing institutional agreements and regulations. This is not to say that all regulations are problematic, but it is important to balance regulatory and institutional obstacles that may prevent one or more potential solutions from being realized.

Funding, Financing, and Costs

While traditional funding programs are already well known to GTC and its stakeholders, a number of new financing tools have been created or modified through recent legislation and can be used to supplement traditional finance. The following are examples of tools and grant programs available for freight transportation system improvements. These tools and programs rely on the revenue sources listed above and are not in and of themselves revenue sources:

- Private Activity Bonds
- Transportation Infrastructure Finance and Innovation Act (TIFIA)
- TIGER Grants Program
- Rail Rehabilitation and Finance (RRIF)

Existing and proposed **New York State** funding and financing programs including the following:

- NYS Consolidated Local Street & Highway Improvement Program
- New York State Industrial Access Program (IAP)
- Regional Economic Development Council Grant Programs
- State Infrastructure Banks (SIB)

The following financing tools are used elsewhere, but are not permitted and/or are not widely used in New York State:

- Grant Anticipation Revenue Vehicles (GARVEE) Bonds
- Value Capture

Finding revenue to pay for freight transportation system improvements is one part of the problem. Another approach to sustainable transportation funding is to reduce capital and operating costs so that over a project's lifecycle, the project can utilize funding that can reasonably be expected to be available.

Timeline and Process

GTC, NYSDOT, and other regional stakeholders would be well-served by integrating the recommendations of this study into the existing regional transportation planning process, ensuring that prerequisite project and policy changes are in place before new recommendations are advanced. Although there is no single freight project or policy change that can be classified as

“urgent”, GTC and its partners should ensure that the flexibility exists to quickly implement projects (e.g., access improvements) should an economic development opportunity arise.

Defining and Monitoring Success

Section 4 of the Final Report lays out a list of project-level and system-level performance measures that can be integrated into GTC’s planning process to help monitor how well investments and policy changes are performing, relative to the region’s goals and objectives. One of the biggest challenges in performance-based planning is defining “success” and then collecting, managing, and reporting on the data necessary to monitor “success.” The initial system level measures that GTC will develop benchmarks, desired changes, and likely changes for will be those that are consistent with the existing performance measures of the current LRTP. These include the following on the Highway Component of the Regional Freight Network (see Table ES.2). Going forward, GTC anticipates developing additional freight performance measures consistent with the approach used to develop those for the LRTP.

Table ES.2 System Level Performance Measures for the GTC Region

LRTP Key Area	Performance Measure
Safety	Number of Fatalities
System Preservation	Pavement Fair or Better
System Preservation	Non-Deficient Bridges
Mobility	Travel Time Index
Environment	Emissions of Nitrogen Oxides
Environment	Emissions of Volatile Organic Compounds
Environment	Emissions of Carbon Dioxide
Environment	Direct Energy Usage



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Acknowledgements

The Genesee Transportation Council would like to thank the members of the project Steering Committee for their active involvement and invaluable assistance in the preparation of this report:

- Greg Albert and David Zorn, Genesee/Finger Lakes Regional Planning Council
- Claudia Burcke, Greater Rochester Enterprise
- Carolyn Baker-Scott, City of Rochester Economic Development Department
- Mark Christian, New York State Department of Transportation, Main Office
- Peg Churchill, Wayne County Industrial Development Agency
- Barbara Cutrona, Rochester Business Alliance
- Angela Ellis, Livingston County Planning Department
- Daniel Hallowell and Charles McGarry, New York State Department of Transportation, Region 4 Office
- Harriet Haynes, Seneca County Planning Department
- Kris Hughes, Ontario County Planning Department
- Ken Johnson, New York State Motor Truck Association
- Thomas Goodwin, Monroe County Department of Planning
- Sharon Lilla, Wayne County Planning
- Robert McNary and Ed Muszynski, Empire State Development Corporation
- Deborah Najarro, Railroads of New York and Finger Lakes Railway
- Terry Rice and Scott Leathersich, Monroe County Department of Transportation
- Robert Rohauer, CSX Transportation
- Chris Suozzi, Genesee County Economic Development Center
- Paul Zakrzewski, New York State Thruway

Additional thanks are offered to those too numerous to name here who attended a focus group meeting, participated in an in-person interview, completed an online survey, and/or provided feedback on various interim products of the study.

This report was prepared for the Genesee Transportation Council by Cambridge Systematics, Inc. (www.camsys.com), with the support of its partners, Bergmann Associates and Halcrow, Inc.

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1

Introduction

The competitiveness of a region’s economy is inextricably linked to the strength of that region’s transportation network. In order to thrive, a business must have fast, low-cost, secure access to the varied inputs it requires – including labor – and must have similarly fast, low-cost, and secure access to regional, national, and international markets for its outputs. Employees – the residents of the region – also demand superb access to goods – whether those goods were produced across town or halfway around the world. A top-notch, multimodal transportation network can be a region’s gateway to prosperity.

The Genesee Transportation Council (GTC) and the New York State Department of Transportation, in cooperation with its partners, has undertaken this study, entitled “Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region,” to help determine how transportation investments can be leveraged to increase regional economic competitiveness and maximize economic growth. Throughout the report, the term “Genesee-Finger Lakes Region” (simply “the region”) refers to a nine-county study area consisting of Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates Counties.

The primary objectives of the study are the following:

- Develop goods movement strategies that will position the transportation system of the Genesee-Finger Lakes Region as a distinguishing factor in retaining and attracting both traditional and emerging-technology manufacturing firms as well as enhancing the viability of agriculture;
- Establish relationships between GTC and the business community that will endure beyond the completion of this project; and
- Help educate the public and key stakeholders in the Genesee-Finger Lakes Region about the importance of freight transportation.

This Final Report provides the region with detailed information about its economy and freight transportation system, and is intended to help guide future freight transportation and economic development decisions. The report consists of the following sections:

- **Section 1: Introduction** provides an overview of the full Report.
- **Section 2: The Genesee-Finger Lakes Region** contains an overview of the study area.

- **Section 3: Regional Freight and Economic Profile** provides a detailed analysis of existing conditions in the region’s economy and freight transportation system.
- **Section 4: Needs Assessment/SWOT Analysis** contains an analysis of regional Strengths, Weaknesses, Opportunities and Threats (SWOT) and accompanying assessment of needed freight transportation investments, strategies, and policy changes.
- **Section 5: Identification, Evaluation and Prioritization of Alternatives** describes in detail the process for prioritizing freight transportation improvement alternatives and determining what near, medium, and long-term actions the region should take in order to meet the goals set for its freight transportation systems.
- **Section 6: Next Steps** contains a detailed implementation plan for GTC and its stakeholders moving forward.

2

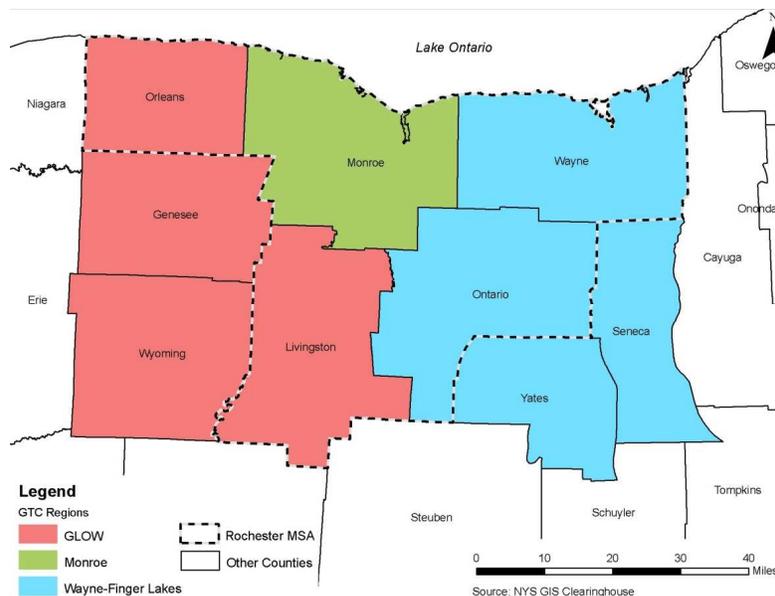
The Genesee-Finger Lakes Region

Throughout this report, the term Genesee-Finger Lakes Region (“the region”) refers to the entire nine-county study area (Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming and Yates Counties). For purposes of this analysis, statistics are occasionally presented for three subregions:

- **GLOW:** Genesee, Livingston, Orleans, and Wyoming Counties;
- **Wayne-Finger Lakes (WFL):** Wayne, Ontario, Seneca, and Yates Counties; and
- **Monroe:** Monroe County.

Most data presented in this report are for the entire nine-county region, but in certain cases, which are clearly specified, data are only available for the Rochester Metropolitan Statistical Area (U.S. Office of Management and Budget definition). The term Rochester Metropolitan Statistical Area (“Rochester MSA”) corresponds to Livingston, Monroe, Ontario, Orleans, and Wayne Counties.

Figure 2.1 Genesee-Finger Lakes Region and Sub-Regions Used in This Report



3

Regional Freight and Economic Profile

This Regional Freight and Economic Profile is the first step in understanding how transportation investments ripple through the supply chain, business decisions, and ultimately consumer preferences that will determine the region's future success. The information contained in this profile will help answer several questions:

- Does the transportation system serve the needs of existing industries?
- Are there opportunities to enhance portions of the transportation system to attract new business?
- Is the freight transportation system flexible enough to accommodate the needs of emerging industry sectors?
- How will regulatory and policy changes impact transportation and economic development in the region, and how can the region anticipate these changes?

The Regional Freight and Economic Profile is divided into five subsections:

- **3.1 Economic Structure** summarizes the existing and predicted future economic structure of the Genesee-Finger Lakes Region and discusses the critical established and emerging industries that will be the focus of the region's future economic growth.
- **3.2 Industry Logistics Profile** includes a discussion of how these established and emerging industries use the freight transportation system, and anticipates how their transportation needs may change in the coming years.
- **3.3 Freight Infrastructure** provides an inventory of the transportation infrastructure and services that link the supply chains of the region's industries.
- **3.4 Commodity/Vehicle Traffic Flows** establishes a baseline of existing freight demand, capacity, and characteristics in the Genesee-Finger Lakes Region and projects how freight demand will grow and shift through 2035.
- **3.5 Organization and Public Policy** describes the institutional and regulatory framework that governs decisions related to the region's freight transportation system.

3.1 Economic Structure

The economic structure of the region reflects a combination of factors including overall population, labor force, employment in key established and emerging industries, and the contribution of each industry to the overall regional economy. All of the trends discussed in this section should be taken with a grain of salt: they are based on what has happened in the past three decades. Therefore, they do not capture the recession of the late 2000s, which may have had structural rather than cyclical impacts on the national and global economy; nor do they foresee significant policy changes and transportation investments that could potentially alter the region's future.

As the region looks ahead, relevant questions include the following:

- **Population:** Will past population trends continue into the future? What can the region do to attract and retain young people who could become a new generation of entrepreneurs and a source of new ideas and creativity?
- **Employment and labor force:** What skills do workers in the Genesee-Finger Lakes Region possess that give the region a competitive advantage? What skills are needed by established and emerging industries?
- **Output by industry:** Which industries will drive the region's economy in the future? What are their transportation needs?

The following sections introduce each of these concepts and set the stage for an analysis of the region's Strengths, Weaknesses, Opportunities, and Threats (SWOT analysis) that will occur in the next Section in this report.

3.1.1 Population

Population in the Genesee-Finger Lakes Region grew an estimated 8 percent from 1980 to 2010, from 1.1 to 1.2 million people (see Figure 3.1). The three major subregions illustrated in Figure 2.1—GLOW, Wayne-Finger Lakes, and Monroe County—all grew slowly compared to the Nation’s 36.3 percent population gain over the same 30-year period (see Figure 3.2). The GLOW subregion’s population rose 8.1 percent, corresponding to an annual growth rate of 0.26 percent, and Monroe County’s population increased 6 percent, or 0.19 percent per year. Growth of the Wayne-Finger Lakes subregion’s population was 14.7 percent (0.46 percent annual), making it the only subregion whose growth exceeded that of New York State over the 30-year period. New York State’s population grew 10.4 percent from 1980 to 2010, or 0.33 percent per year.

According to projections produced in 2009 by the Cornell Program on Applied Demographics, the Genesee-Finger Lakes Region’s population could level off or decrease modestly through 2035, although they project that the Wayne-Finger Lakes subregion will experience moderate growth through 2020 before starting following the same trend as the region. Cornell projections show the Region’s age distribution trending older. However, projections published in 2003 by the Genesee/Finger Lakes Regional Planning Council (G/FLRPC) show a total regional population growth of 5.1 percent from 2000 to 2040, with a net gain of 61,553 people.

The range of population forecasts reflects differing assumptions between the two studies. Neither one is necessarily wrong or right, but both predict either very slow population growth or none at all based on assumptions that “business as usual” will prevail in the region. Will the region aggressively pursue economic development that leads to population increases, or will business-as-usual policies and practices prevent new and emerging industries from taking hold and growing? What matters is that the region has opportunities to shape the extent to which population grows or declines, and, more importantly, where this growth occurs.

Figure 3.1 Genesee-Finger Lakes Region Population Change 1980-2010

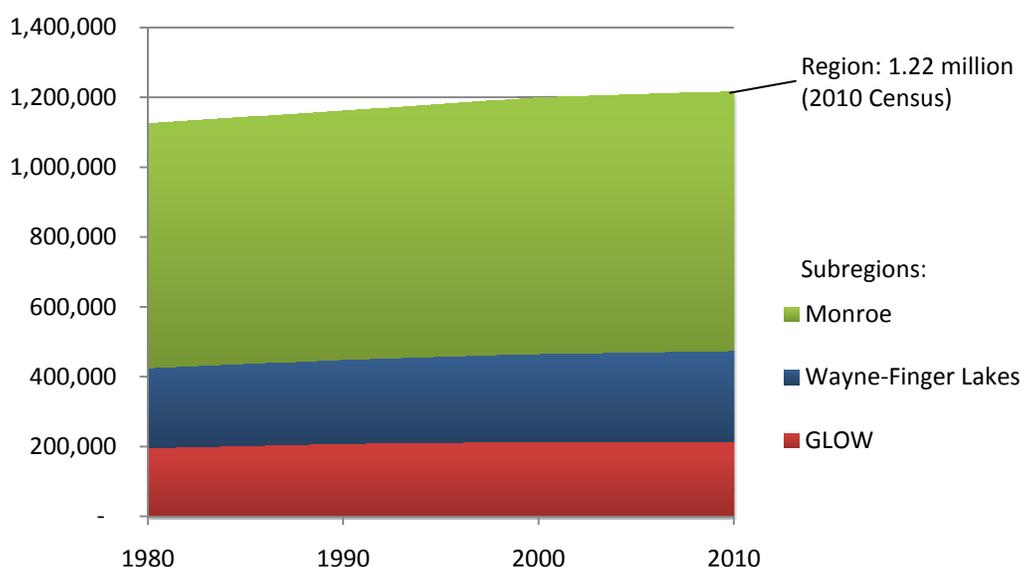
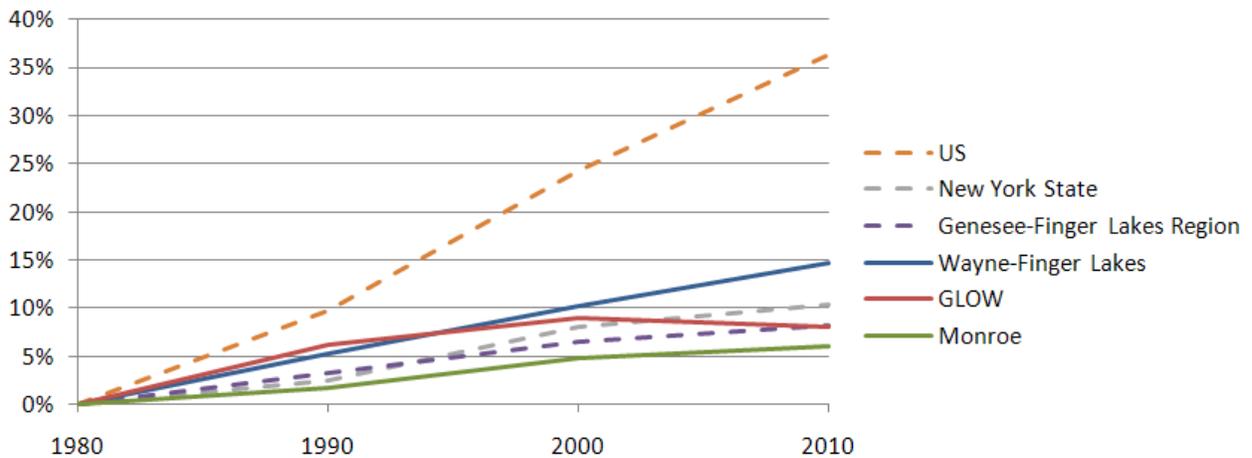
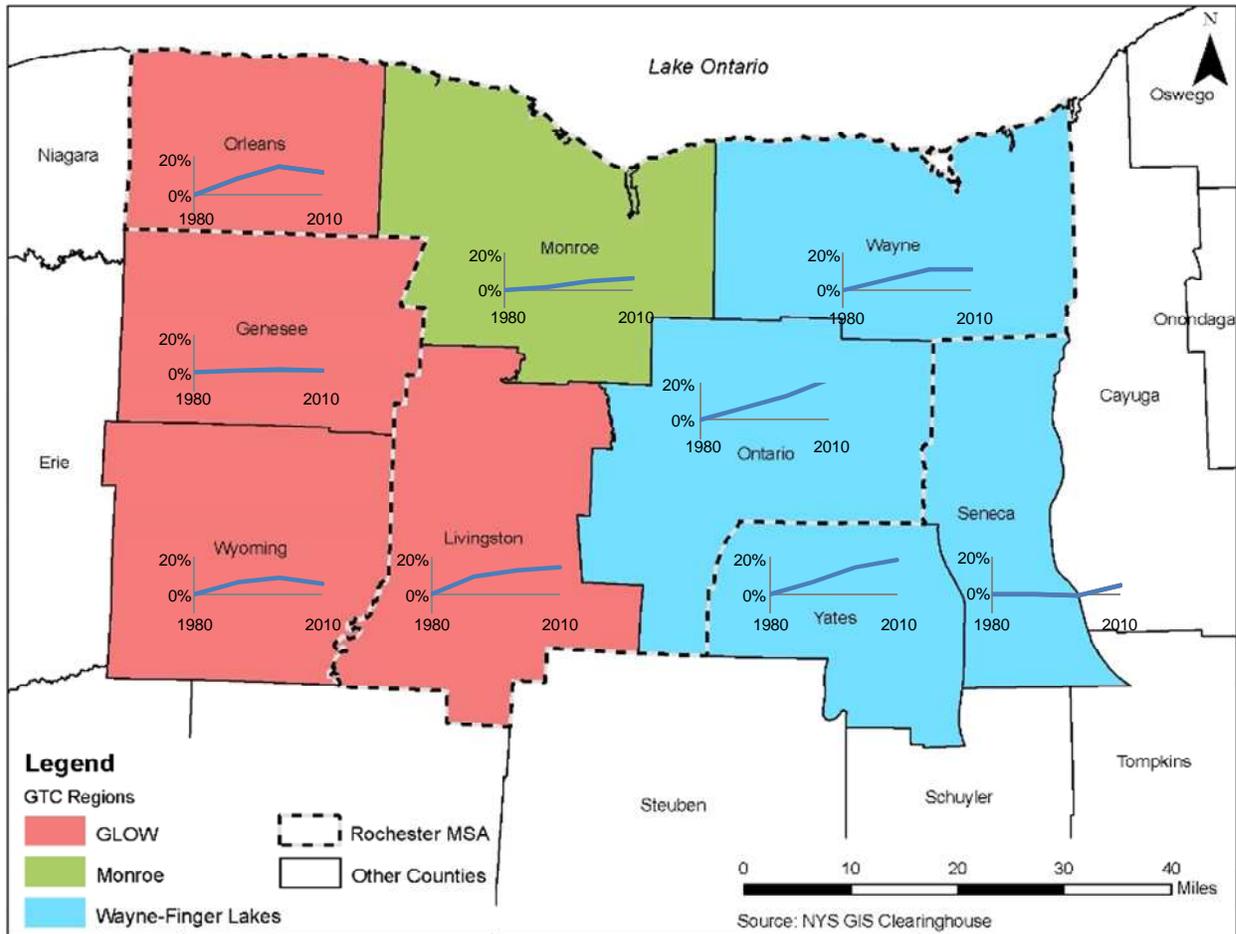


Figure 3.2 Population Growth 1980-2010, by County and Subregion (1980 = 0%)



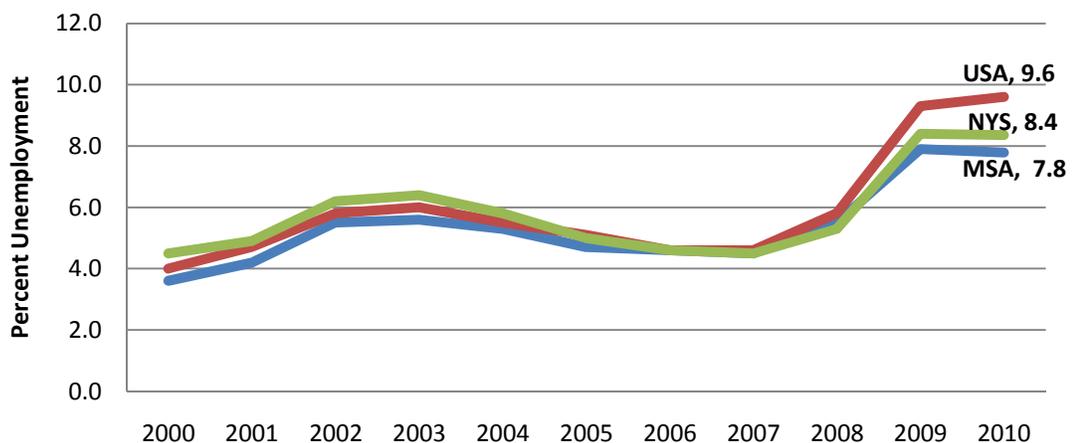
Source: US Census Bureau

3.1.2 Employment and Labor Force

Although unemployment in the Rochester MSA¹ has risen since 2007, corresponding with the global economic recession, the impacts have not been as drastic as those on the State and National levels. As shown in Figure 3.3, the MSA began the decade with a lower unemployment rate than New York State or the Nation. A convergence occurred in the relatively prosperous years between 2005 and 2007. Unemployment rates rose thereafter for all three entities, and the MSA finished 2010 with a notably lower estimated rate—7.8 percent, as opposed to 8.4 percent Statewide and 9.6 percent Nationwide.

The New York State Department of Labor (NYSDOL) projects that total employment in the Genesee-Finger Lakes Region will increase 3 percent from 2006 to 2016². The manufacturing supersector is projected to continue its decline (-22 percent), but industry clusters like construction (+13 percent), educational services (+7 percent) and healthcare (+13 percent) are expected to continue growing.

Figure 3.3 Unemployment Rate, Rochester MSA vs. NYS and USA (2000-2010)



Source: Bureau of Labor Statistics. Rochester MSA 2010 rate based on January- November (preliminary) figures, NYS December rate preliminary.

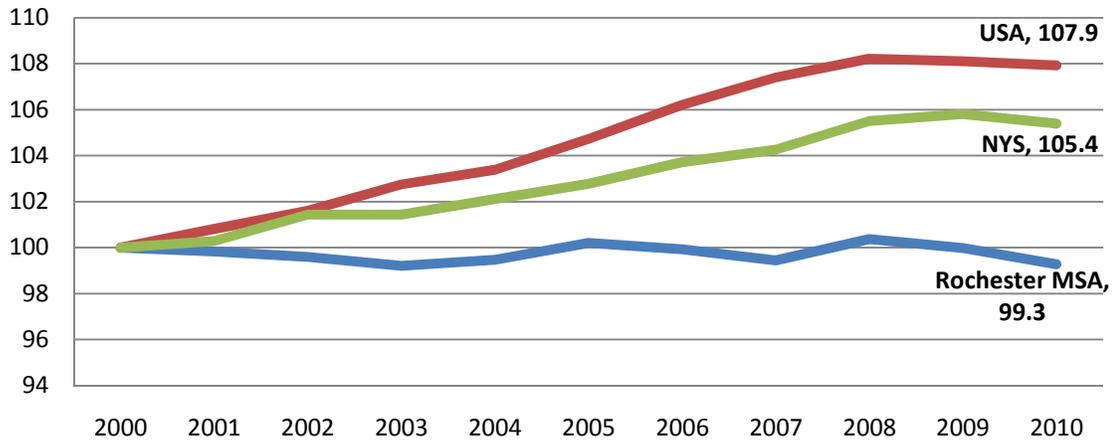
¹ Direct unemployment data are available at the MSA level only. No unemployment statistics are available for counties outside the Rochester MSA.

² This pre-recession jobs forecast will be updated in the near future. It is anticipated that the construction forecast will be lowered.

From 2000-2009, the labor force above 16 years of age for the Rochester MSA stayed steady, registering a negligible decline of 105 workers (or 0.02 percent), yielding a 2009 annual figure of 534,353. Although the Genesee-Finger Lake Region and Rochester MSA are not fully comparable areas (the MSA omits Genesee, Wyoming, Seneca, and Yates Counties), it appears as though the ratio of population in the labor force to total population may have risen slightly. However, while the MSA's labor force remained level, the labor forces of New York State and the Nation as a whole grew significantly—about 6 percent for the State and just over 8 percent nationwide between 2000 and 2009. Figure 3.4, below, indexes all three 2000 labor forces to 100, and then charts annual changes over the course of the decade; the Rochester MSA ended 2010 at 99.3 (equivalent to a loss of 3,848 workers from the year 2000).

Despite the lack of labor force growth, especially in relation to the State and Nation, the share of working age population in the Genesee-Finger Lakes Region (defined here as the population from 18-64 years of age) is 64.1 percent, exactly the same as New York State's and higher than that of the Nation's (just under 63 percent), as shown in Figure 3.5. Evidently, fewer members of this population group have chosen to join the labor force than at the State and National levels. The percentage of the Genesee-Finger Lakes Region's population under the age of 18 and over the age of 65 is comparable, within a half percentage point, to statewide percentages for those cohorts.

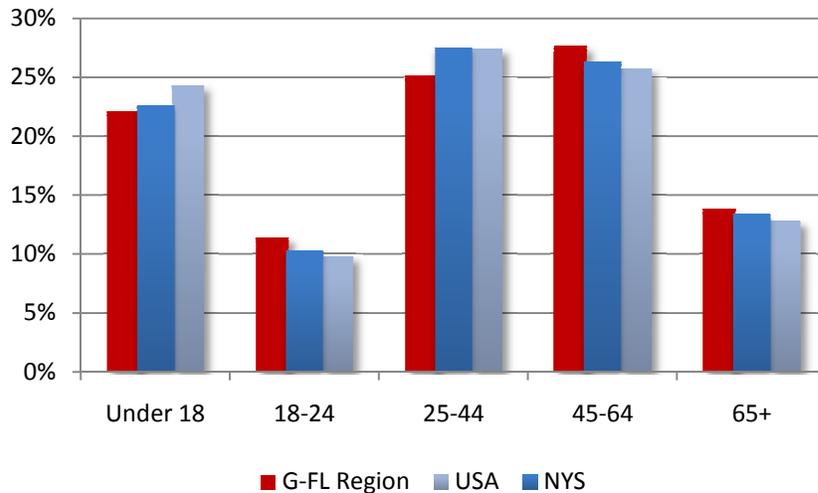
Figure 3.4 Labor Force Change Index, Rochester MSA, NYS and USA (2000-2010)



Source: Bureau of Labor Statistics Local Area Unemployment Statistics (LAUS). 2000=100. Rochester MSA 2010 figures based on January- November (preliminary), NYS December figures preliminary. Indexing by Cambridge Systematics.

Working age population can be broken into three primary age cohorts: 18-24, 25-44, and 45-64. The region's 18-24 year old population comprises 11.4 percent of the total, versus 10.3 percent for the State and 9.8 percent for the Nation—unsurprising given the prominence of the region's educational services industry³. However, the 25-44 population cohort accounts for only 25.1 percent of the total, as compared to 27.5 percent for the State and 27.4 percent for the Nation. Together, the relative differences between these cohorts may indicate that, while the Region attracts a strong share of students, it retains a disproportionately small share. In contrast, the mature workforce, made up of the population from 45-64 years of age, is relatively larger than the same cohort Statewide; 27.6 vs. 26.3. The Nation is even younger, with only 25.7 percent of people between 45-64 and fewer over 65.

Figure 3.5 Population Shares by Age Cohort Genesee-Finger Lakes Region vs. New York State and United States (2008)



Source: Genesee/Finger Lakes Regional Planning Council Comprehensive Economic Development Strategy, using 2008 US Census data.

The region's workforce is well-educated—with a higher proportion of high school graduates than either New York State or the Nation (almost 84 percent, compared to 79 and 80 percent, respectively, see Figure 3.6). Perhaps due in part to the abundance of community colleges in the region, the Genesee-Finger Lakes Region has a far larger share of adult population with associates degrees—10 percent—as opposed to just over 7 percent for New York State and 6.3 percent for the Nation. The region is virtually on par with the State and the Nation when it comes to residents with Bachelor's degrees, all of which have an approximately 15.5 percent share. In terms of the most educated residents, those with a Graduate degree, the region maintains a distinct advantage over the United States as a whole, with 10.5 percent of the region's population having obtained this level of education, as opposed to 8.9 percent nationwide (totaling 26.0 percent of residents with a Bachelor's degree and above vs. 24.4 percent for the entire United States, see Figure 3.7).

³ Comprised of public and private secondary schools, colleges, universities, and training centers.

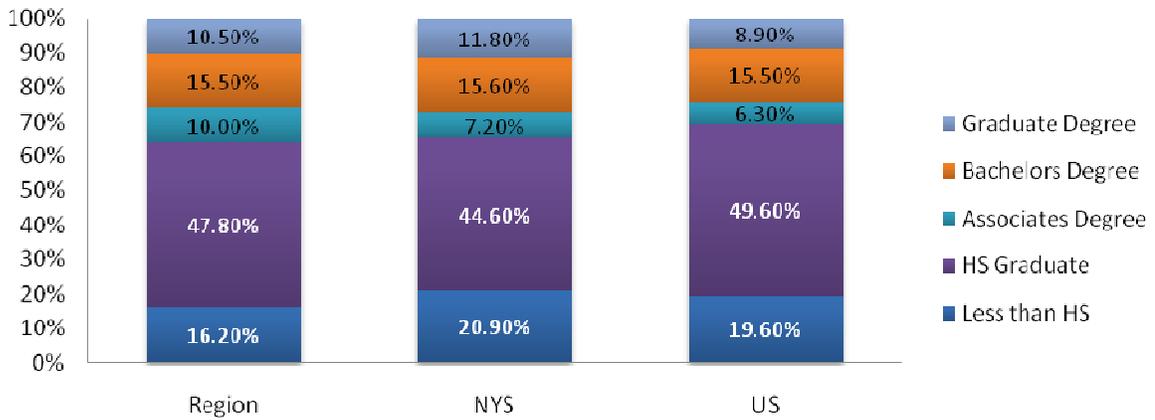
This is the only category of educational attainment where the Genesee-Finger Lakes Region concedes an advantage to New York State as a whole, with 11.8 percent of New Yorkers holding a Graduate degree (see Figure 3.6).

The Genesee-Finger Lakes Region's well-educated population serves as a valuable labor pool for the region's established and emerging high technology industries, providing a competitive advantage in higher wage fields like optics, biotechnology, alternative energy, healthcare, and education. The substantial population with high school diplomas or Associate's degrees also helps nourish core living wage industries in the region, such as manufacturing, and supplies key administrative and support labor for the region's emerging high value sectors. The impact of educational attainment on goods movement is ambiguous, although higher tiers of educational attainment are often associated with jobs and industries that are less freight intensive, such as finance, insurance, educational and professional services. The workforce of these industries represent a market that demands growing quantities of consumer goods and a thriving retail and service industry to support that demand. Advancement of the region's educational attainment can therefore indicate a shift in the composition of the regional economy and supply chains that implies less dependence upon the region's manufacturing economy, and growing demand for consumer goods imported from elsewhere.

Higher educational attainment also indicates the potential that the workforce will seek high-paying jobs in the less freight-intensive industries, exacerbating, for example, the developing over-the-road truck driver labor shortage problem. Factors contributing to the driver shortage issue include economic growth and resulting growth in freight demand combined with aspects of the truck driving profession that have negatively impacted the ability to recruit and retain drivers, including low wages, long periods of time away from home, and increasing safety regulations. Motor carrier fleet managers are developing innovative ways to operate with less reliance on over-the-road drivers. Partnering with freight railroads to deliver seamless intermodal service is one such solution, in which motor carriers provide first-mile and last-mile service and the freight railroad transports goods in-between, thus avoiding the need for long-haul truck trips. The shorter hauls guarantee the drivers that they will return to their homes every night, which helps motor carrier fleet managers attract and retain qualified drivers.

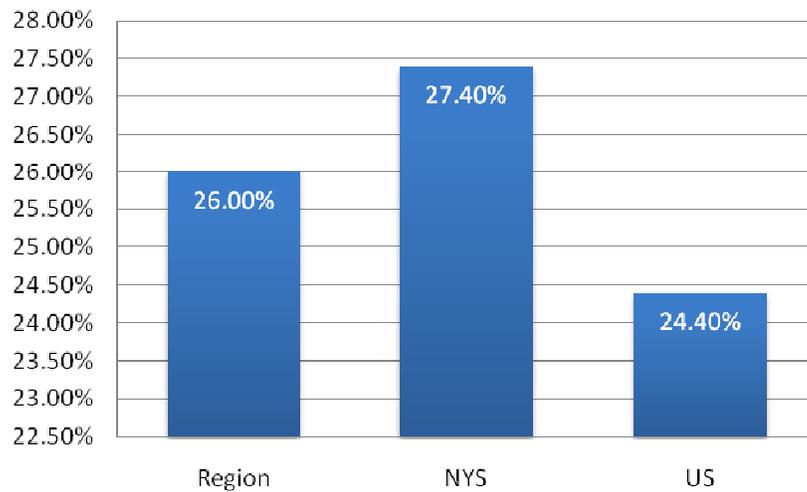
The Genesee-Finger Lakes Region's educated workforce may account for the region's higher mean annual wages for industry supersectors versus national averages, as will be discussed in the next section.

Figure 3.6 Comparative Educational Distribution (2008)



Source: Genesee/Finger Lakes Regional Planning Council Comprehensive Economic Development Strategy, using 2008 US Census data.

Figure 3.7 Percentage of Residents with BA or above (2008)



Source: Genesee/Finger Lakes Regional Planning Council Comprehensive Economic Development Strategy, using 2008 US Census data.

3.1.3 Jobs and GDP by Industry

In 2008, the Genesee-Finger Lakes Region was home to 548,000 jobs, of which 84 percent (458,000) were private sector. Government jobs (which include municipal and school system employees) made up the remaining portion. Reflecting employment reductions in key industries, the Bureau of Labor Statistics cited nearly 443,000 private sector (non-government) jobs in 2009, distributed across a broad swath of industries important to the region's economy. A location quotient analysis helps identify the region's base industries by comparing the regional share of employment in each industry with the corresponding national share; a result of one ("1") or greater indicates that an industry is "basic," signifying that the industry is relatively more concentrated in the Genesee-Finger Lakes Region than the Nation as a whole. A basic industry typically generates output beyond the needs of its host region, and is therefore likely a net exporter and a critical source of jobs and revenues. A similar analysis was conducted for the three subregions in the study area, again compared to national employment levels.

Table 3.1 shows the results of the location quotient analysis, conducted at the major sector level. An analysis at a more detailed industry-level could not be conducted because of data disclosure issues at the individual county level. Basic industries are highlighted in yellow, and freight generating and freight dependent industries are in red text. Manufacturing is prevalent in all parts of the region. Both the GLOW subregion and the Wayne-Finger Lakes subregion have a greater focus on retail trade and arts, entertainment, and recreation than does Monroe County. The GLOW subregion also emphasizes accommodation and food service, while the Wayne-Finger Lakes subregion adds an emphasis on agriculture, forestry, fishing, hunting, and construction. Monroe County's industry mix includes concentrations in health care and social assistance as well as management-related firms.

Among the basic industries (those with location quotients greater than 1.0), only manufacturing is a clear freight-intensive industry (receives inputs of raw materials and intermediate goods and ships further refined or finished products). Many firms engaging in retail trade are also freight-intensive, depending on frequent shipments of goods to keep their businesses operating.

Both manufacturing and retail trade firms tend to have long supply chains. Manufacturers in the region tend to source heavy, bulky raw materials locally and regionally to the greatest extent possible, but lighter-weight parts and supplies may come from around the country or around the world. Manufacturers may distribute their finished goods regionally, throughout North America, and globally, depending on the extent of their sales networks.

Retailers, on the other hand, tend to have goods shipped from manufacturers or wholesalers to large warehouses and distribution centers. Most of the distribution centers that supply the Genesee-Finger Lakes Region are located elsewhere. They tend to cluster in places like Syracuse where Interstate Highways intersect and provide multi-direction access and distribution opportunities, or in places like Buffalo that lie near the geographic centroid of a large consumer market (in this case, the Toronto-Buffalo-Rochester metropolitan area). Shipments to retail stores are almost all made by truck. Some retailers own their own truck fleets (e.g., Wegmans Food Markets, Inc.), but most rely on third-party delivery firms like FedEx, UPS, and locally-based truck fleet operators to make the "last-mile" delivery from a warehouse to a store.

Table 3.1 Location Quotients of Selected Industries, 2009

	Region	GLOW	Wayne-Finger Lakes	Monroe
Total employment, all private industries	442,891	48,113	74,451	320,327
Industries	Location Quotients			
Utilities	0.09	0.00	0.51	0.00
Transportation and warehousing	0.10	0.26	0.40	0.00
Mining, quarrying, etc.	0.10	0.37	0.13	0.06
Finance and insurance	0.63	0.74	0.43	0.66
Agriculture, forestry, fishing and hunting	0.65	3.42	1.04	0.14
Professional and technical services	0.73	0.42	0.42	0.85
Construction	0.75	0.89	1.05	0.66
Wholesale trade	0.76	0.61	0.65	0.81
Accommodation and food services	0.81	1.00	0.95	0.75
Administrative and waste services	0.84	0.60	0.47	0.97
Real estate and rental and leasing	0.86	0.49	0.54	0.99
Information	0.86	0.45	0.59	0.98
Arts, entertainment, and recreation	1.01	1.55	1.23	0.87
Retail trade	1.01	1.24	1.41	0.88
Health care and social assistance	1.11	0.63	0.85	1.24
Manufacturing	1.43	1.61	1.76	1.32
Management of companies and enterprises	1.57	0.50	0.22	2.05
Educational services	2.41	0.19	0.55	3.18

Source: US Bureau of Labor Statistics, 2009. Analysis by Cambridge Systematics. Omits unclassified industries except in totals. Yellow-highlighted cells represent basic industries (those with location quotients greater than 1.0). Rows with red text denote freight-intensive industries.

In addition to manufacturing and retail, several non-basic industries are highly reliant on the movement goods, either as an essential component of business operations (freight-intensive industries), or, in the instance of logistics and distribution industries, as the substance of business operations. These non-basic industries include the following:

- **Wholesale trade** spurs significant goods movement, frequently on behalf of partners in “retail trade” and manufacturing. Wholesale trade involves the import of manufactured goods, primarily from overseas, and the transport of those goods through American seaports, over land via truck or rail to regional warehouses and distribution centers, and thence via truck to wholesale customers or retail outlets for consumption.
- **Construction**, although not a basic industry at a regional level, is a basic industry in the Wayne-Finger Lakes subregion. There are nearly 2,900 Construction firms in the Genesee-Finger Lakes Region, with an average firm size of about seven people. Construction involves the import of both goods in bulk and bulky goods (such as steel beams). Small construction firms or independent contractors are likely to obtain construction materials from home supply stores captured by “Retail trade,” or perhaps “Wholesale trade.” Construction materials such as lumber, aggregate and stone are transported by rail, truck or barge, depending upon the size and weight of the materials, to production facilities, where finished construction materials are made. The finished products are then distributed to retailers or project sites,

usually by truck. Construction also requires movement of heavy equipment between project sites.

- The waste services firms aggregated into **administrative and waste services** could stimulate significant regional or interstate hauling of municipal solid waste (MSW) or recyclables—although total employment is not available at the subsector level even for the entire MSA (waste management and remediation services)⁴. MSW and recyclables are produced at households and businesses throughout the region and outside the region. They are picked up curbside and delivered to transfer stations. In rural areas, residents and businesses may deliver the products themselves or may have waste picked up for a fee. At the transfer stations, MSW and recyclables are separated for distribution to recycling facilities, resource recovery facilities, or landfills for disposal.
- Agriculture, forestry, fishing, and hunting⁵ encompasses **farming**, a traditional industry that both requires and exports potentially significant quantities of goods. Farming is a basic industry for the GLOW and Wayne-Finger Lakes subregions. Many of the agricultural products consumed in the region are produced elsewhere. Produce grown in California, for example, are harvested and transported across the country, usually by truck, to a regional distribution center for packaging and distribution to local retail outlets. Agricultural products grown or produced locally, like dairy products, wine and beer, apple products, maple syrup, and flowers, are transported to a production and/or distribution facility where production, packaging, and other activities are performed before being distributed, by truck, to retail outlets within and outside the region.
- **Mining, quarrying, oil and gas extraction**, while yielding a marginal number of jobs, requires rail and road networks for the export of heavy bulk products. Minerals and fuels extracted from the ground are transported by truck, rail, or pipeline to refining or other processing facilities. Refined or finished products and mine spoils are then transported by truck or by a combination of rail and truck in the case of trips more than 400-600 miles (and excepting hazardous materials or products), and distributed to wholesale customers or retail outlets. The potential impacts of Marcellus Shale natural gas drilling on the region's transportation network will be discussed in Section 4.
- Although the **transportation and warehousing** industry does not create goods movement, per se, it serves as an essential facilitator for all freight-intensive industries. Transportation and warehousing activities support the supply chains of other industries, and are indicators of the health of freight-generating economic activity.

Employment in the region's largest freight dependent industries has generally declined since 2000. Although manufacturing employment remains the largest among private sector industries, overall employment has declined by nearly 37 percent, or over 40,000 jobs, just since 2000 (see Figure 3.8), and is projected to shed an additional 3,000 jobs by 2016 (NYSDOL). In contrast, high growth industries in the region are generally not significant freight generators. The trend is exemplified by health care and social assistance, which, with almost 73,000 jobs, eclipsed

⁴ Municipal Solid Waste is discussed in detail in Section 3C of this report.

⁵ Although, due to data restrictions, it is not possible to distinguish the share of each sub-industry at the Regional level, agriculture presumably constitutes the dominant proportion of this supersector.

manufacturing as the region's largest private sector employer in 2009. Educational services grew by about 7,000 jobs from a much smaller employment base, to over 24,000. These sectors, as with other service-oriented sectors, are more likely to have modest freight needs accommodated by commercial package services (such as FedEx, UPS, and USPS), which generally offer timely, reliable transport of smaller, irregularly scheduled parcels.

Although manufacturing and retail trade employment have both declined in the last 10 years, freight volumes related to these industries are unlikely to have mirrored employment trends. Increases in production efficiency and changes in the types of inputs and outputs important to these industries have allowed firms to shed employees while maintaining or expanding production capacity. As an example of current productivity, Figure 3.9 overlays jobs with average annual wage by industry in the Genesee-Finger Lakes Region. Manufacturing, a freight generating industry, provides the 3rd highest average annual wage of the region's top 15 industries (based on total employment), likely reflecting the increasing trend toward higher-value, "advanced" manufacturing (the national mean annual wage for manufacturing is \$44,560 as compared to \$57,609 for the Region). With almost \$4.5 billion in total annual wages, manufacturing accounts for nearly 20 percent of total income and 24 percent of private sector income. Manufacturing wages are more than 15 percent greater than total wages from Government, the largest sector by employment (13,000 more jobs).

Wholesale trade, another freight-intensive industry, offers even better wages—almost \$59,000 annually (vs. \$49,920 nationally)—but employs far fewer people than manufacturing. Total wages for wholesale trade in the region were about \$1.1 billion in 2008. The location quotients of these industries, discussed subsequently, provides indications as to their relative importance to the Region as opposed to New York State and the Nation.

In terms of GDP, manufacturing still contributes most significantly to the region, with over \$10.5 billion in 2008, an increase of almost \$1.2 billion (unadjusted) since 2001, or 13 percent (see Table 3.2). Among other freight dependent industries, retail trade accounted for over \$2.9 billion, a 23 percent jump, and construction yielded \$1.6 billion, a 17 percent increase. GDP for non freight-dependent industries, while still only a fraction of that of manufacturing, grew much more substantially—real estate, rental, and leasing by 51 percent, government by 45 percent, accommodation and food services by 43 percent, and finance and insurance by 31 percent.

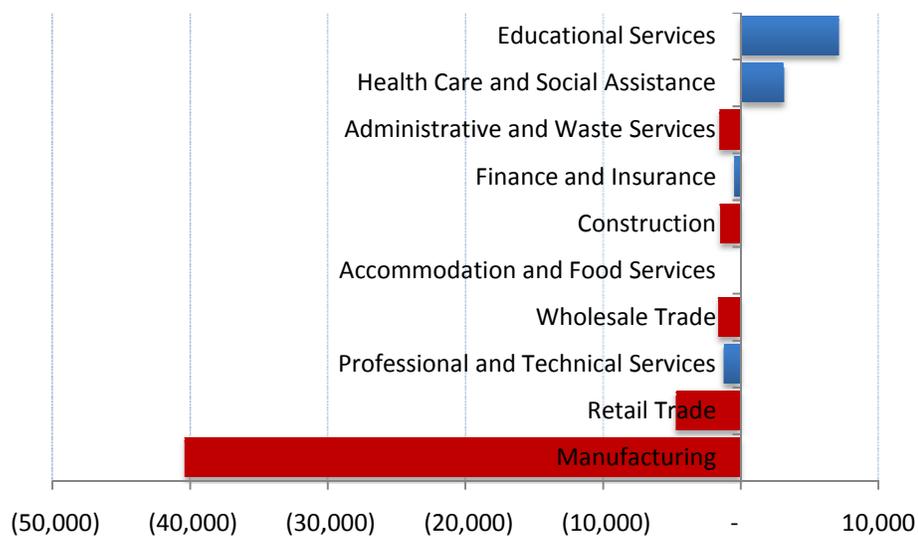
When adjusting for inflation, however, it becomes apparent that the decline of traditional, freight-intensive industries is not just relative; manufacturing GDP declines, as does construction. Only retail trade has added marginally to adjusted GDP from 2001 to 2008 (see Figure 3.10).

Although its share of the regional economy is declining, manufacturing, and particularly "advanced" manufacturing, continues to grow and will likely remain a key pillar of the regional economy for the foreseeable future. Among the region's top 50 firms by employment, 12 are classified as "manufacturing" firms. These firms together contribute over 29,800 jobs to the Region, an average of almost 2,500 each.

In addition to the dozen nationally- and internationally-recognized firms among the top 50, just over 1,600 firms, concentrated in Monroe, Ontario, and Wayne Counties, contribute to the region's manufacturing base, with an average of 48 employees each (second only to Educational Services, with 73 per firm; see Figure 3.11). Some smaller firms work in advanced industries such

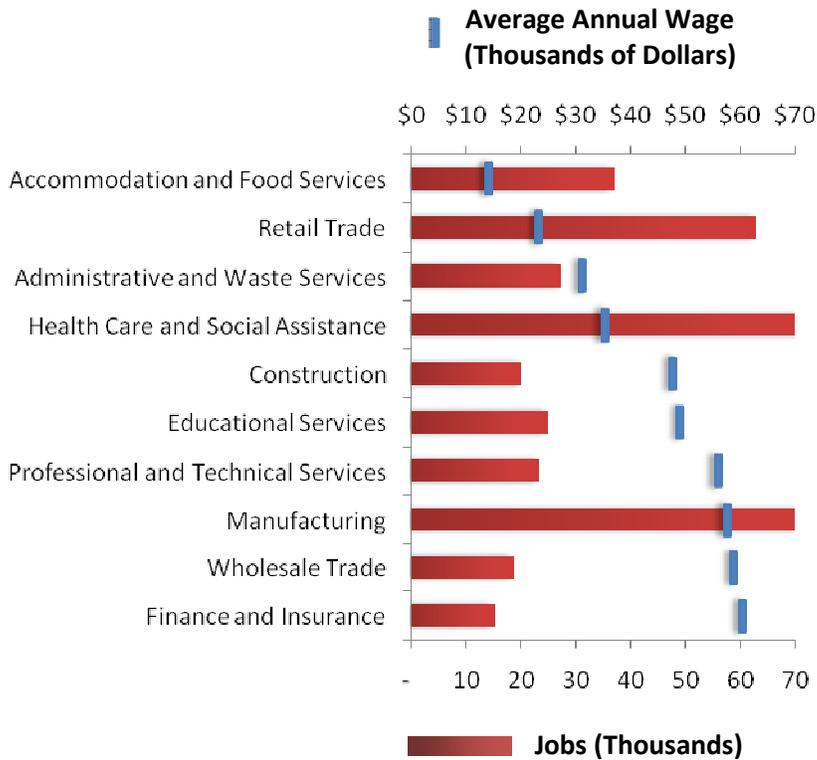
as computer and electronic product manufacturing, machinery manufacturing (a dominant subsector throughout the region), and fabricated metal product manufacturing (see Figure 3.12).

Figure 3.8 Employment Change (2000-2009)



Source: Bureau of Labor Statistics QCEW, 2010. Freight-generating industries are shown in red.

Figure 3.9 Average Annual Wage and Total Jobs by Industry (2008)



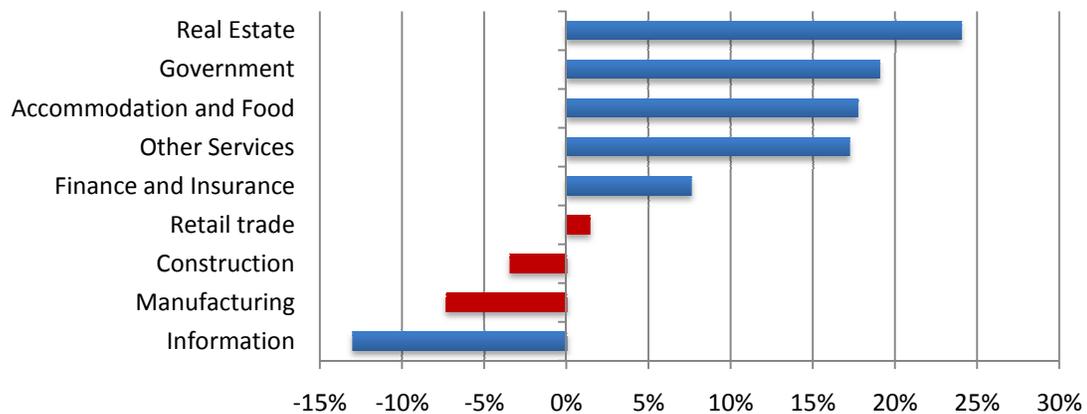
Source: Bureau of Labor Statistics. Red bars indicate total employment, blue dashes indicate wages.

Table 3.2 Top Industries in Rochester MSA by GDP (2008), in billions

Industry	GDP	Change since '01	% Change
Manufacturing	\$10,548	\$1,186	13%
Government	\$5,072	\$1,568	45%
Real Estate, Rental, and Leasing	\$3,459	\$1,165	51%
Retail trade	\$2,918	\$552	23%
Finance and Insurance	\$2,174	\$512	31%
Information	\$2,030	\$110	6%
Construction	\$1,607	\$238	17%
Accommodation and Food Services	\$995	\$300	43%
Other Services	\$895	\$267	43%

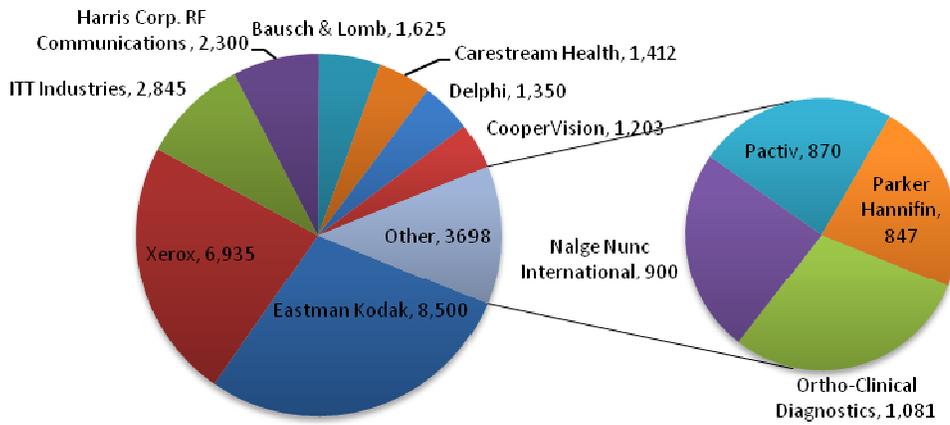
Source: Bureau of Economic Analysis; GDP in millions \$US. Major freight-generating industries are shown in red.

Figure 3.10 Change in CPI-adjusted GDP, 2001-2008.



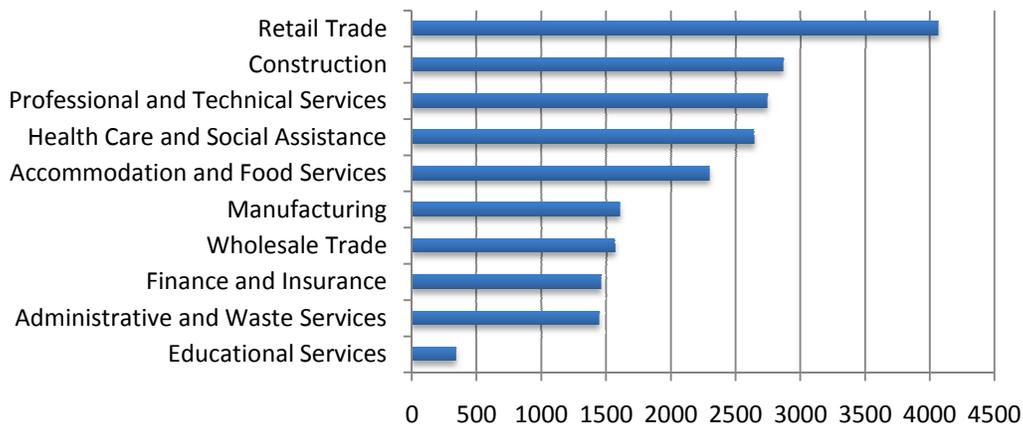
Source: Bureau of Economic Analysis. Freight-generating industries are shown in red.

Figure 3.11 Firms with Local Manufacturing Operations Among Top 50 Regional Employers (with Employees per Firm)



Source: Greater Rochester Enterprise, "Top 50 Employers" (2009).

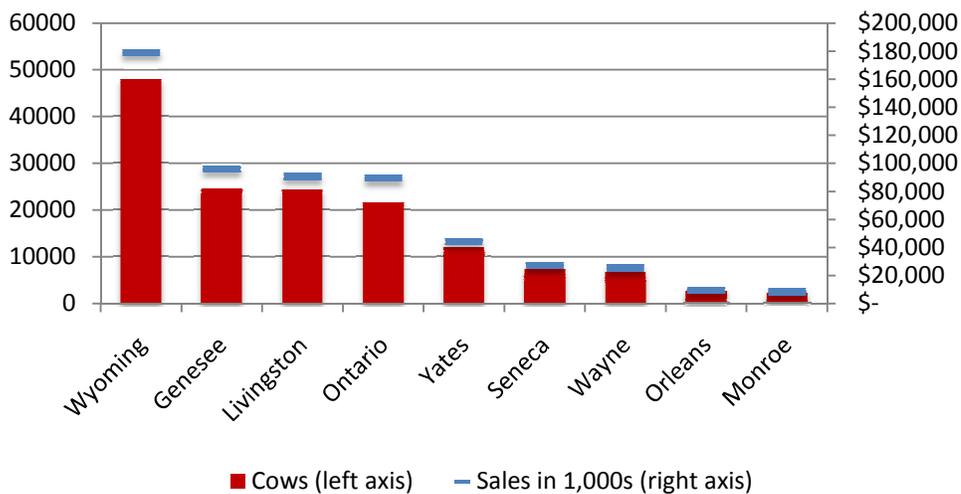
Figure 3.12 Number of Firms by Industry Sector in Genesee-Finger Lakes Region (2008)



Source: Bureau of Labor Statistics.

Agriculture and food production remain significant economic engines for the Genesee-Finger Lakes Region, especially for less urbanized counties. In 2007, the nine county Genesee-Finger Lakes Region contained a combined 1.5 million acres of farmland, comprised of 6,417 farms averaging 236 acres each (USDA). The total market value of agricultural products sold was over \$1.2 billion (up from \$796 million in 2002), and over \$52 million in gross income resulted. Although the range of agriculture and food products produced in the Genesee-Finger Lakes Region is diverse, dairy products is particularly concentrated in the region and also forms the largest agricultural subsector in New York State (Cornell University Program on Dairy Markets and Policy). The region’s 149,000 milk cows yielded products with combined sales of \$569 million in 2007, up from \$338 million in 2002. Wyoming County alone sold over \$150 million in dairy products, while Genesee, Livingston, and Ontario Counties all reported sales of over \$50 million (see Figure 3.13).

Figure 3.13 Milk Cows and Dairy Sales by County (2007)



Source: USDA.

Although farms are responsible for the key inputs used by the dairy product industry, milk and milk products typically pass through the processor and retailer before reaching consumers. The processor, under whose name and trademarks dairy products are sold, obtains raw milk from the farmer, most often via tank truck. Milk processors tend to be located near urban areas, within short trucking distances to large consumer markets, to minimize spoilage of milk and other highly perishable dairy products, like yogurt or sour cream. Hard cheeses, butter, and powdered products have longer shelf lives and are less dependent on maintaining close proximity to consumers—these products may be distributed regionally, nationally, or even internationally.

Major processors in the region include O-At-Ka Milk Products Co-Op (310 employees), Upstate Farms Cooperative (150 employees), Heluva Good (80 employees), and Yancey’s Fancy (60 employees). In recent years, with the advent of organic farming and agritourism, on-farm processing has risen (but still accounts for only a small share of industry production). These operations are more likely to ship products locally via box truck or sell to consumers directly.

Outside of the dairy industry, the Genesee-Finger Lakes Region produces several highly-regarded agricultural products, including wine and beer, apple products, maple syrup, and flowers. Genesee County is known for production of carrots and onions, while wine production is centered in Ontario and Seneca Counties. The region also hosts a number of nationally-known food and beverage importers and processors, include Constellation Foods, LiDestri Foods, Seneca Foods, High Falls/Genesee Brewing Company, Mott's, Kraft Foods North America, and Barilla America, among others.

3.1.4 Looking Ahead: Implications for Freight Movement

In the coming decades, a number of emerging industries will grow in importance to the region's economy. Like the already established manufacturing, agriculture, retail trade, and construction sectors, the emerging industries are also users of the region's freight transportation services and network. The effectiveness of this system will be a factor contributing to the emerging industries' ability to compete and prosper in the Genesee-Finger Lakes Region. In its Comprehensive Economic Development Strategy (CEDS), the G/FLRPC notes that the Region's "Innovation Index"⁶ score exceeds the national average, especially in terms of "Human Capital" and "Productivity and Employment," important foundations for fostering a knowledge economy. Similarly, the Greater Rochester Enterprise (GRE) reports that Region's Intellectual Density Quotient (IDQ), a measurement of recognized success factors on a scaled basis, is the highest in the Nation.⁷

There is clear evidence that the region's strengths in human and intellectual capital are already being leveraged to transform the economy. In 2008, a location quotient analysis performed by G/FLRPC using specialized industry clusters indicated that many high technology and knowledge economy industries already have a strong foothold (as indicated by location quotients above 1.0) in the Region, including the following:

- Biomedical and Biotechnical (Life Sciences) –1.31 Regionwide and 1.62 in Monroe;
- Computer and Electronic Product Manufacturing scores 1.75 Regionwide, 2.73 in Wayne, and 2.65 in Ontario; and
- Machinery Manufacturing scores 3.1, including 9.6 in Seneca, and 3.53 in Monroe.

Although prospects for the birth of new industries and the expansion of existing industries are uncertain, stakeholders have identified clusters of desirable, largely high technology, industries that offer potential for growth in the Genesee-Finger Lakes Region.

⁶ "The innovation index helps to analyze the strength of innovation within a specified geography. The Index measures inputs to innovation and outputs to innovation through a variety of data subsets to form an innovation index number that can be compared to the United States average of 100. A number greater than 100 indicates above average innovation performance, while a number below 100 indicates below average innovation performance. The Innovation Index is made up of four smaller indexes; the smaller indexes and their weighted impact in the innovation index are as follows: Human Capital (30%), Economic Dynamics (30%), Productivity and Employment (30%) and Economic Well-Being (10%)" (page 32).

⁷ The area's number one rating is based on the sum of the following factors:

- Patents issued per 1,000 residents (2.76)
- Percentage of population classified as knowledge workforce (25.3)
- Percentage of population currently enrolled in college (5.2)
- Number of #1 and Top 10 "Best Companies to Work For " (13.5)

G/FLRPC identifies “cluster and competency” industries for the Region in its 2009-2010 CEDS report, including:

- Information and Communication Technology;
- Optics and Imaging;
- Biotech and Life Sciences;
- Agribusiness and Food Processing;
- Advanced Manufacturing;
- Alternative Energy, and
- Printing and Publishing.

The region’s three Workforce Investment Boards (WIB) have also identified key, mostly complementary, emerging industries for the purposes of guiding workforce development efforts. The GLOW WIB cites: alternative energy, biotech and life science, technology, healthcare, and advanced manufacturing; the Finger Lakes (W-FL) WIB is focusing on advanced manufacturing, healthcare, retail/tourism, agriculture, alternative energy, information technology, and skilled trades; the Rochester/Monroe County WIB designates advanced manufacturing, optics/imaging, information technology, healthcare/human services, and food and agriculture as growth sectors (see Table 3.3).

Table 3.3 Growth Industries Identified by Subregional WIBs

Industry	GLOW	W-FL	Monroe
Alternative Energy	☑	☑	
Biotech/Life Science	☑		
Technology/IT	☑	☑	☑
Healthcare/Human Services	☑	☑	☑
Advanced Manufacturing	☑	☑	☑
Retail/Tourism		☑	
Optics/Imaging			☑
Skilled Trades		☑	
Food/Agriculture		☑	☑

Source: Genesee/Finger Lakes Regional Planning Council Comprehensive Economic Development Strategy.

The freight logistics structure of the Genesee-Finger Lakes Region (the types of commodities that are moved, the transportation network, and goods movement services) will inevitably change based on the needs of emerging industries, the evolving supply chain strategies of existing industries, and the spending power and preferences of the region's consumers. Many changes are already underway:

- Established manufacturers have steadily transformed their supply and distribution chains. These networks are now fully global, reaching beyond the regional and national borders that once bound them. Both inputs and outputs are more time sensitive. Rather than stockpiling production inputs and warehousing large inventories of finished goods, manufacturers (and in turn wholesalers and retailers) rely on just-in-time deliveries. Except for very heavy, mostly bulk, materials, modern supply chain strategies favor transport by truck or, for some high value commodities, air.
- Those industries that do still depend on bulk shipments of heavy materials still require access to the rail system, or have expressed interest in more access points. A relatively new bulk rail terminal in Batavia is already operating at or near capacity, pointing to demand by existing industries for rail service and rail access. Both existing industries and emerging industries are benefitting from the increase in transport of goods by intermodal shipping containers. Most of these containers currently enter the region by truck, but there has been discussion of creating a rail intermodal terminal in the Genesee-Finger Lakes Region to decrease shipping costs for goods entering the country at West Coast ports, and increasingly at Gulf Coast and East Coast ports, including the Ports of New York and New Jersey.
- Despite regional access to the St. Lawrence Seaway via ports at Ogdensburg, Oswego, and Buffalo, among others, and ample rail resources, contemporary manufacturers, distribution centers/logistics hubs, and other freight generators are more likely to be located near Interstates and regional highways (especially key interchanges and intersections), border crossings, and in goods movement zones adjacent to ports and airports, where truck access is superior. Lower value heavy industries like scrap metal, cement, and timber are more likely to maintain rail spurs or ship/receive via water.
- Emerging industries, particularly optics and advanced manufacturing, may rely on less-than-truckload (LTL) and small package services to deliver their products, and some higher-value components and finished products may ship by air. Especially for smaller firms, production inputs are less likely to be raw materials (ores or rare earth minerals), and more likely to be semi-finished products or components—often assembled overseas.
- Given these trends and the anticipated growth of high technology, high value industries in the Genesee-Finger Lakes Region, future freight transportation needs are most likely to focus on ensuring that roadway networks (particularly freeways and arterials) have adequate capacity—including lanes, geometry, pavement quality, height and weight restrictions, and bridge condition, among other factors—to rapidly transport goods to and from nationally-significant roadways, intermodal facilities (especially cargo airports), and regional distribution centers. While capacity enhancement and expansion is expected to focus on roadways and, to a lesser extent, airports, it will be important to preserve key rail and port assets, which serve existing core industries and provide inexpensive, environmentally-preferable modes for many regionally important products.

- One emerging industry with potentially large impacts on the transportation system is natural gas drilling. The construction of the Millennium Pipeline through the Southern Tier and proximity to major consumer markets along the East Coast has spurred intense interest in natural gas drilling on the southern fringe of the study area and in the counties immediately south of the study area. While most of the output from new natural gas wells will be transported by pipeline out of the region, the hydraulic fracturing techniques used to extract natural gas requires large volumes of water to be transported, mostly by truck, to each well and large volumes of waste water and spoil material to be transported, again mostly by truck, to water treatment plants, bulk rail terminals, and transfer stations. According to a recent report commissioned by the New York State Energy Research and Development Authority (NYSERDA), each well could generate hundreds of truck trips per day during a period beginning with construction and ending with a weeks-long shut-down process after the well is deactivated. Additional analysis of the transportation needs of natural gas drilling will be conducted as part of the Needs Analysis phase of this study.

3.2 Industry Logistics Profile

Section 3.1 described the established and emerging industries in the Genesee-Finger Lakes Region. This section discusses the supply chains and logistics patterns of each of these critical demand sectors: where freight is moving to and moving from, which modes of transportation businesses use to move freight into and out of the region, and the trade corridors that link the region to its trading partners in New York State and the rest of the world. In preparing this report, the consultant team conducted interviews of firms representing established and emerging industries throughout the region to gain a better understanding of the freight infrastructure and services that matter most to shippers, receivers, and transporters of freight today; and what freight transportation infrastructure and services will be required to meet the needs of emerging industry. Understanding freight logistics and supply chains will allow the Genesee-Finger Lakes Region to determine how to evaluate the significance of system bottlenecks and improvements from a freight mobility perspective.

3.2.1 Overview of Freight Movement in the Region

In 2010, an estimated 252 million tons of freight moved into, out of, within, or through the region by truck, rail, water, or air, according to a database of county-to-county freight flows (see Figure 3.14). Truck accounted for 80 percent of the tonnage, rail 13 percent, water 7 percent, and air less than one percent. About two-thirds of the freight movement is reported as “through” movements, with neither an origin nor a destination in the region. Inbound and outbound freight each account for about 15 percent of freight movement in the region.

Figure 3.14 Distribution of Total Annual Tonnage (in millions of tons) by Mode and by Direction, 2010



Total: 252 million tons in 2010

Source: IHS/Global Insight TRANSEARCH Database, via New York State Department of Transportation

Due to the nature of the data source, “internal” movements that have both an origin and a destination in the region are underreported, because here, “internal” is defined as freight that

moves from one county in the nine-county study area to another county in the study area. Movements within a county (e.g., local deliveries) are not reported in the data in this section, but the significance of local freight movements, including their contribution to locally-observed freight traffic and the need to accommodate future growth in demand for local freight movements, will be discussed in detail in Sections 3.3 and 3.4.

The relative proportions of freight moved by mode and by direction are similar for each subregion in the study area. The large share of freight moved by truck and the overwhelming proportion of total freight traffic consisting of through movements can be partially explained by the following:

- The New York State Thruway, a major interregional truck artery, bisects the region;
- Most trains moving on two freight rail lines of national significance pass through the region without stopping. The region has a relatively small number of rail access points and no intermodal truck-rail transfer facility; and
- There is no significant commercial seaport in the Genesee-Finger Lakes Region, meaning almost all overseas cargo must move to or from a port via truck.

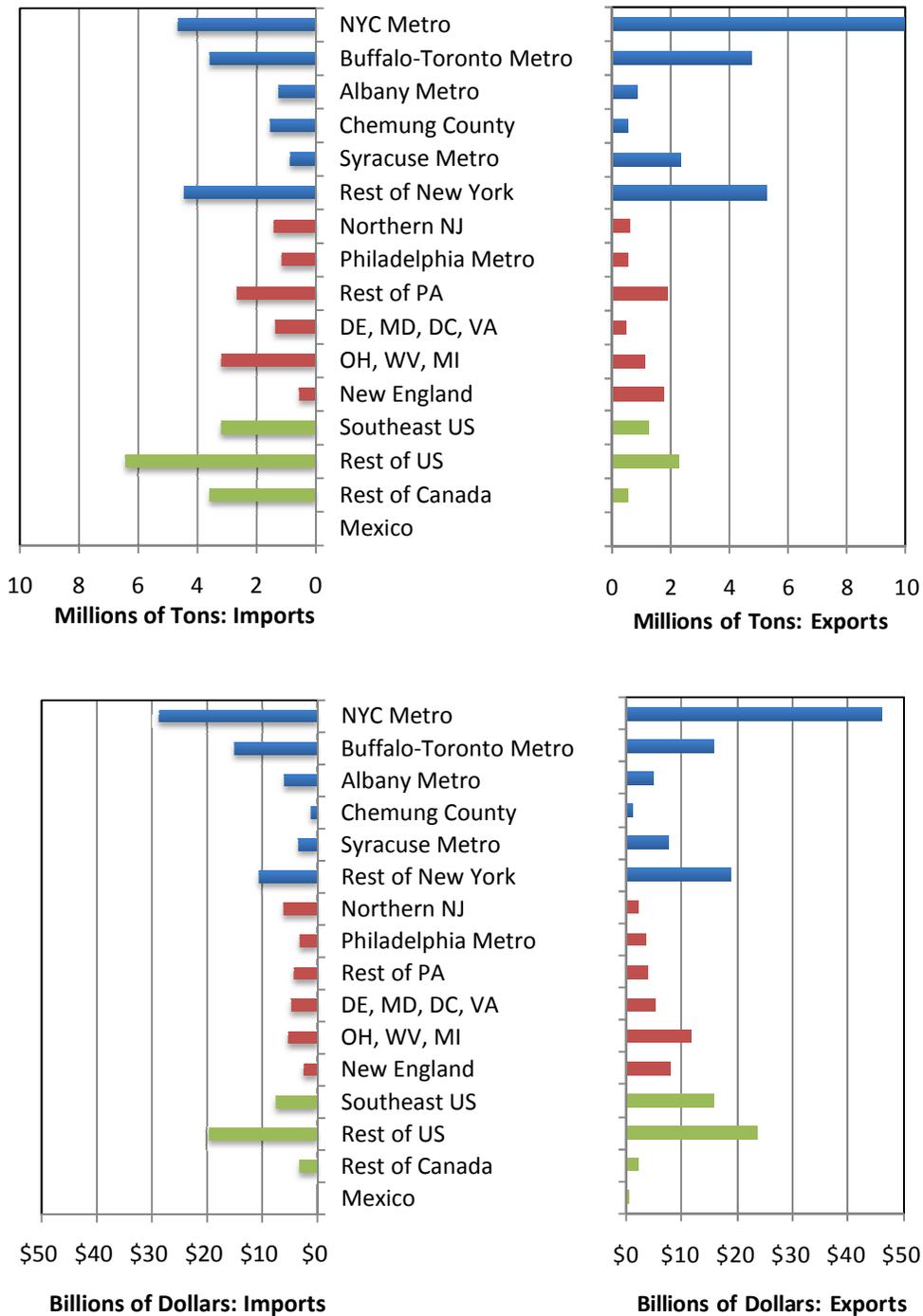
3.2.2 Trading Partners

Figure 3.15 shows the major trading partners for the Genesee-Finger Lakes Region, by weight and value. The region's trading partners can be divided broadly into three groups: those located within New York State (shown in blue), those located outside the state but within about a one-day drive (red), and the remainder located in the rest of the U.S., Canada, and Mexico (green). A "trading partner" is defined as the last location where freight is loaded onto an airplane, truck, or rail car before it travels into the region, or the point at which freight is unloaded from a truck, rail, or airplane trip that originates in the region. Trans-shipment points like seaports, border crossings, and major rail hubs appear as major trading partners even if the freight shipped through these locations originated across the globe.⁸

The New York City metropolitan area is the region's single-largest trading partner for both imports and exports, followed by the combined Buffalo-Toronto metropolitan area. By weight, places within a 1-day drive of the Genesee-Finger Lakes Region (including those in New York State) account for 74 percent of imports and 90 percent of exports, although they only house about 30 percent of the nation's population. Places within a one-day drive also account for more than three-quarters of imports and exports when measured by value. As will be discussed in more detail below, with the exception of very heavy commodities like ores and building materials, most freight originating in or destined for a place within 500 miles moves by truck.

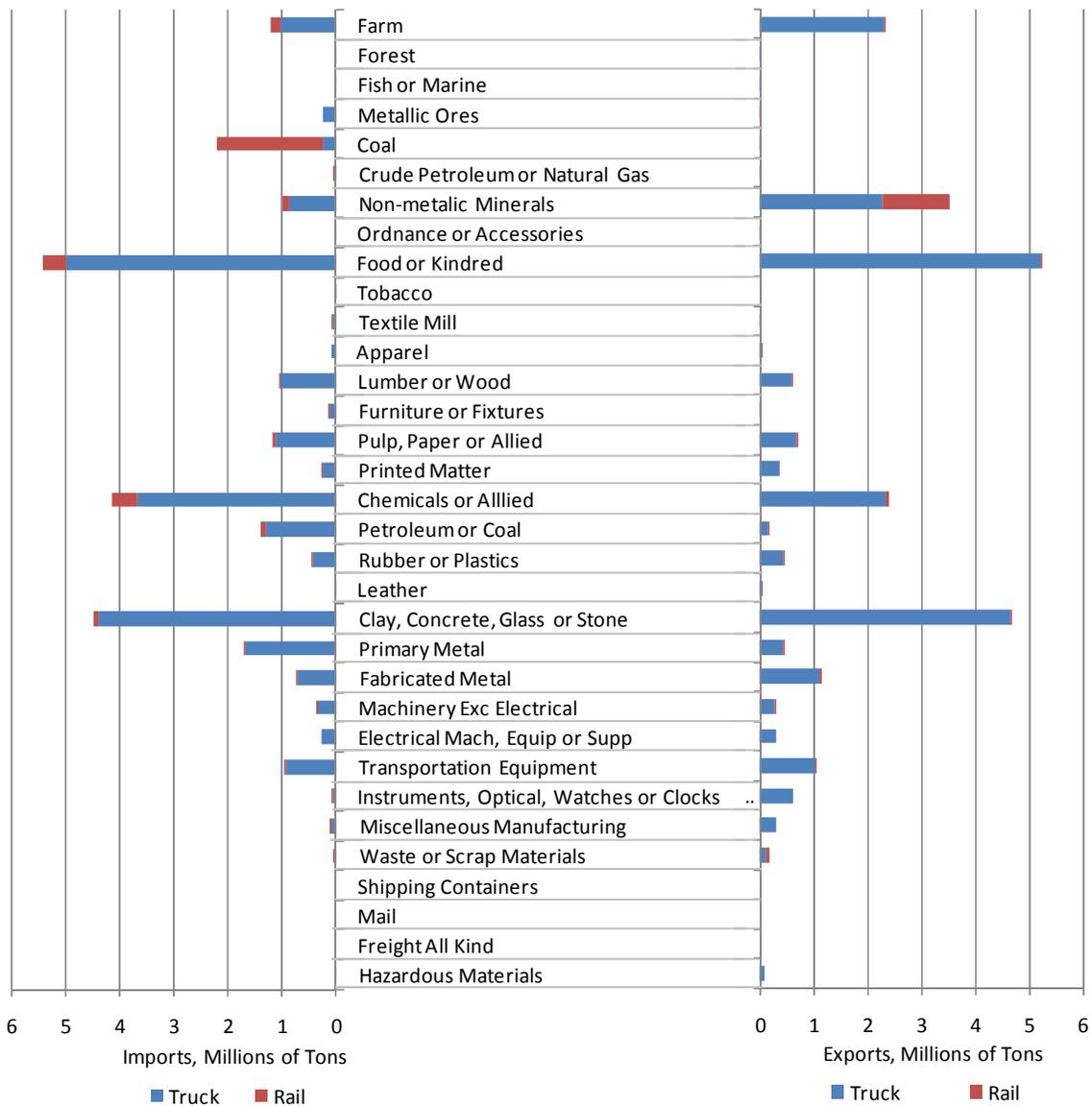
⁸ For example, the "Buffalo-Toronto Metro" data include some freight that may have been transported across the border from Canada and then transferred to a U.S.-based trucking company for the last leg of the trip into the Genesee-Finger Lakes Region. Likewise, places with major seaports (for example, Los Angeles County) appear as major freight generators in the source data even though much of the freight originally may have come from overseas (for example, via the Ports of Los Angeles and Long Beach).

Figure 3.15 Major Trading Partners, by Weight and Value, 2010



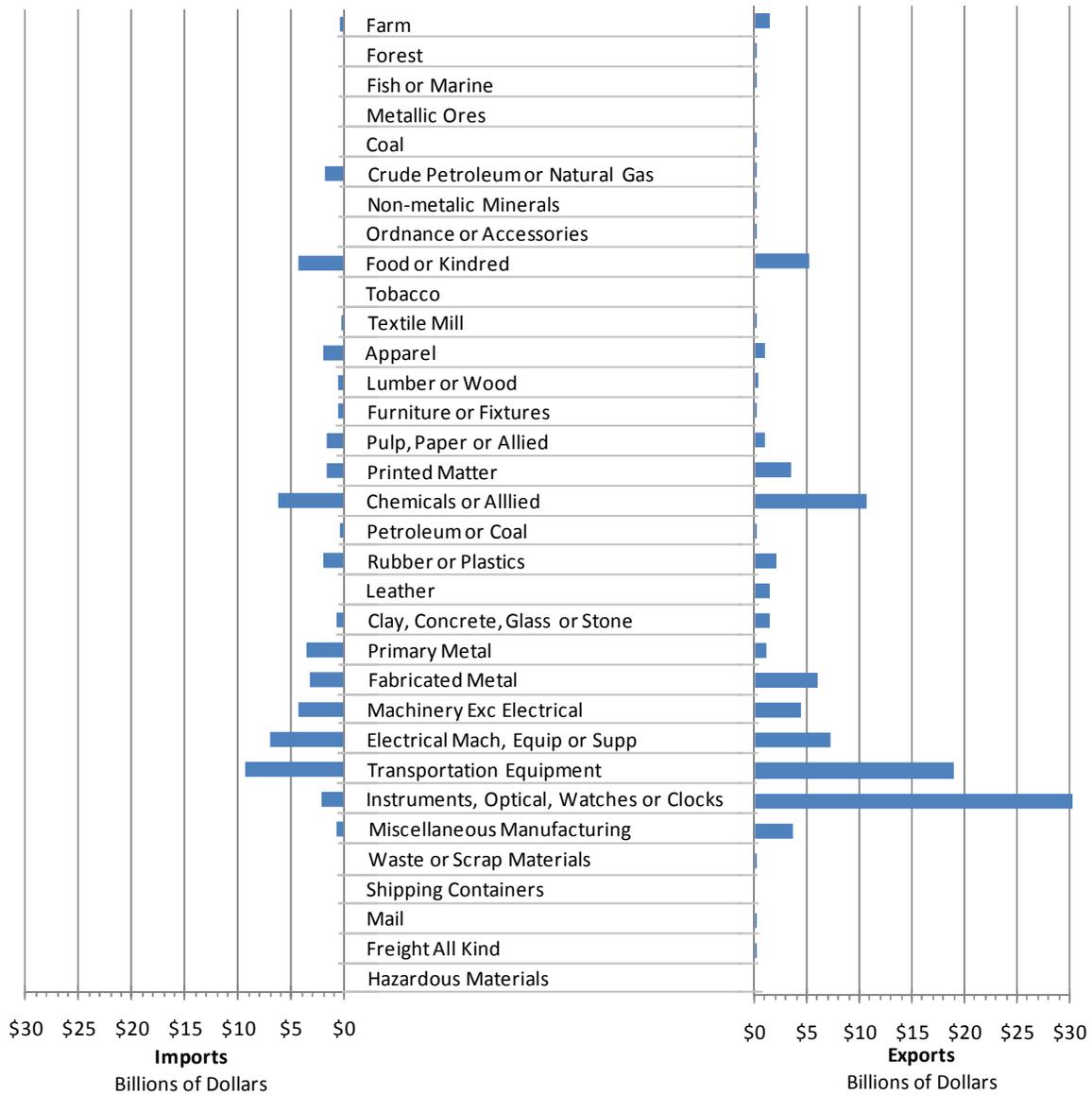
Source: IHS/Global Insight via New York State Department of Transportation.

Figure 3.16 Tons of Imports and Exports by Commodity and Mode, 2010



Source: IHS/Global Insight via New York State Department of Transportation. So-called “secondary moves,” which are goods shipped from a distribution center to a retail store, are not shown. They total 10 million tons of imports and 9.6 million tons of exports.

Figure 3.17 Value of Imports and Exports by Commodity, 2010



Source: IHS/Global Insight via New York State Department of Transportation

3.2.3 Imports and Exports by Commodity

Although Figures 3.16 and 3.17 show primary commodity flows, in fact the region's biggest imports and exports fall into a category called "Secondary Traffic," which represents freight flows through distribution centers—for example, retail goods bound for store shelves. Secondary traffic accounts for a little less than 30 percent of all the region's imports and exports when measured by weight, 55 percent of imports when measured by value, and 48 percent of exports when measured by value.

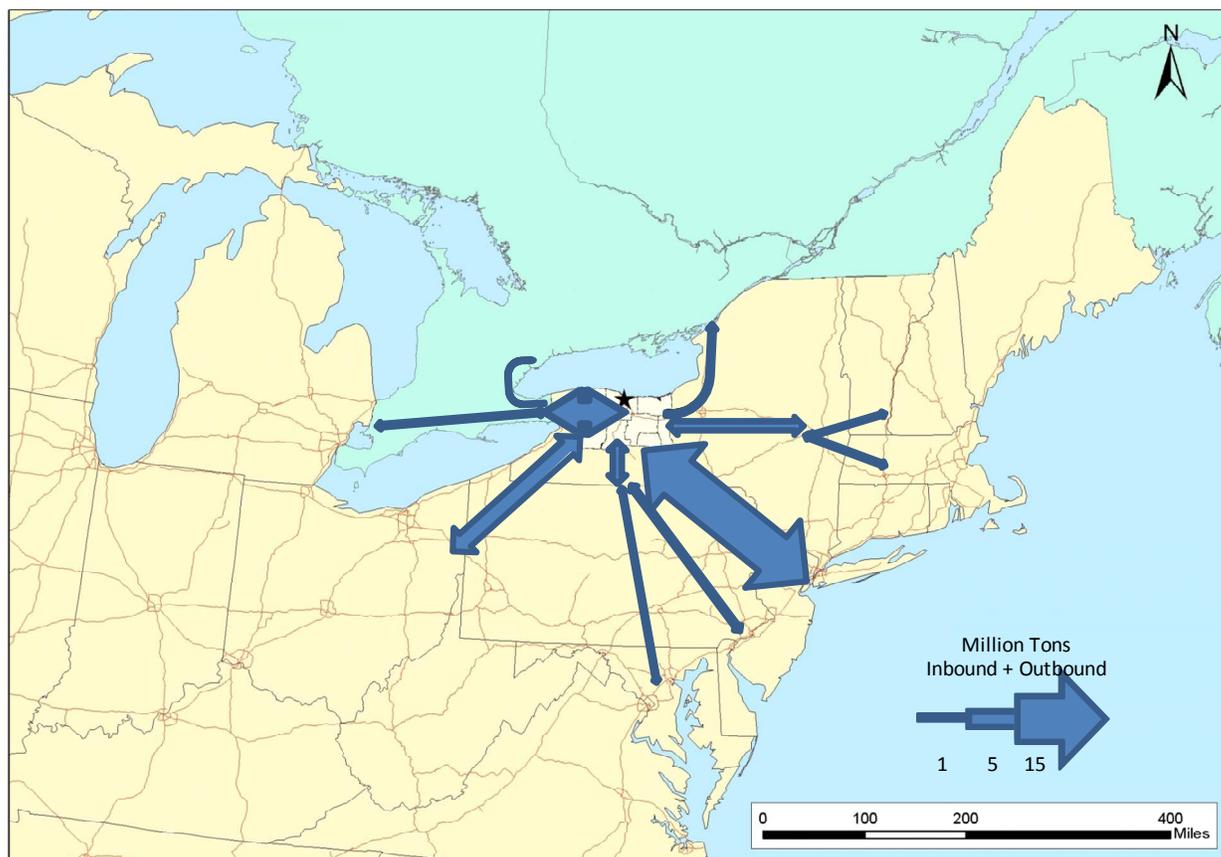
Other than Secondary Traffic, the region's largest imports by weight are food products; construction materials including clay, concrete, glass, and stone; chemicals; coal; and primary metal products. The largest exports by weight are food products; clay, concrete, glass, and stone; nonmetallic minerals (including salt); chemicals; and farm products.

The mode split by commodity reveals the importance of rail for the transport of bulky, lower-value commodities like coal (used in the region's power plants), nonmetallic minerals (such as salt exports), and some types of food products and chemicals. Most other commodities are moved by truck.

Changing perspectives, when value of commodities are taken into account, transportation equipment; electrical equipment; chemicals; machinery; and food products are the most valuable imports, while instruments, photo equipment, and optical equipment; transportation equipment; chemicals; electrical equipment; and fabricated metal products rise to the top of the exports chart. The category "instruments, photo equipment, and optical equipment" is an excellent example of the importance of certain low-weight, high-value freight to the regional economy.

Figure 3.18 shows a map of the relative importance of interregional goods movement corridors, based on flows of freight and goods into and out of the region. By weight and by value, New York City metropolitan area is the region's most important trading partner. The Southern Tier, including Chemung County, is a significant source of building materials for the Genesee-Finger Lakes Region. To the West, the industrial Midwest and the West Coast are key trading partners.

Figure 3.18 Interregional Goods Movement Corridors



3.2.4 Findings of Freight Industry Interviews and Surveys

The consultant team conducted a series of in-person interviews with key established and emerging industries throughout the study area. The purpose of the interviews was to uncover more detailed information about the characteristics of major shippers and receivers of freight, their perceptions of the region's freight transportation system, and their freight transportation needs.

Although all information collected during interviews must be treated as anecdotal, it is important to have some local knowledge to help supplement hard data. The following major observations were culled from the interviews:

- The road network and its condition are perceived as supportive of the regional economy. The Thruway was repeatedly cited as an outstanding asset to the region. It is considered a very well-maintained road (the interview team witnessed good road conditions and snow removal procedures when they visited). There is some evidence that trucks take alternate routes to avoid thruway tolls, but avoidance appears minor, because the Thruway is the main corridor and a good option for through trips.

- Other than the Thruway, some of the major routes cited by interviewees as being important to their operations included: New York State Route 5 and US-20, NY-104, NY-19, NY-96, and NY-63, plus the Interstate Highways such as I-590, I-490 and I-390.
- Bottlenecks and access limitations were not cited as a concern. Low bridges are hindrances in some places. There are a few grade crossing issues in the region (which will be explored in the needs assessment phase of this study), but generally grade crossings are not seen as a problem.
- One large bottleneck issue appears to be the border crossing. Trade with Canada is smaller than would be suggested by its proximity. The border seems to be a true obstacle, both in terms of delays and security/customs clearance, and for institutional (and maybe market) reasons. The first-hand stories about delays were actually related to truck supply (e.g., trucks trying to get across the border in time to pick up loads in the Genesee-Finger Lakes Region), rather than about the small bits of shipping into Canada. Respondents consistently said there is no effective free trade between the Rochester area and Canada.
- One safety spot mentioned was a sharp curve on 490 in both directions coming into downtown Rochester. The speed limits slow from 55 to 40, but unfamiliar truck drivers are at risk of tipping if they don't drive with caution. Although respondents acknowledged that this problem may be difficult to fix, it will be investigated in more detail in the needs assessment.
- The region is primarily dependent on the New York City metropolitan area's seaports and airports for exports and imports. Road connections to New York City are critical to the economy of the region. Firms that require shipments of goods via container had mixed reviews regarding the cost, efficiency and timeliness of rail intermodal services provided via Syracuse and Buffalo.
- For truck supply generally, the area today is an inbound market. One respondent mentioned the difficulty in getting drivers from elsewhere to accept loads to be delivered to the region because of difficulty getting a load to haul back out. One of the big shippers interviewed was explicit that their outbound truck supply depended on carriers delivering to Wegmans.
- "Turnpike doubles" (a single truck chassis with two trailers connected in-line) on the Thruway are a positive influence on the region's competitiveness due to the ability to ship more cargo with lower operating costs (driver wages). Shippers would prefer to be able to assemble doubles at shipping sites instead of at Thruway entrances. Greater ability to use doubles (or load to heavier weights) is desired by some large operations.
- Direct rail service from the short lines seems to satisfy shipper/receiver needs to a great extent, although through transit times (connecting from short lines to Class I long-haul railroads) are as weak in the Genesee-Finger Lakes Region as elsewhere in the country. One short line rail operator asserted that all of the major new plants locating on rail in recent years have been on lines like theirs and not on Class I lines, because of lower costs to construct connection and because the short-line operators in the region provide competitive access to multiple Class I lines.

- Marcellus Shale was cited as the “next big thing” in rail, with rail envisioned mainly for moving operational supplies (like sand and drill mud) rather than the product of the wells. Pennsylvania is exploiting rail as an alternative to trucks already, and recently was awarded funding to make rail improvements on lines extending into Northeast Pennsylvania and the Southern Tier of New York.
- The interview subjects cited no major changes in supply chain operations due to the recession. One large company is consolidating distribution to one of their facilities in the area, but had that project in the works prior to the downturn.

The findings of the interviews were used as anecdotal information to confirm which parts of the transportation system are important for freight and goods movement, and to corroborate the information on major trading partners and commodity flows extracted from the TRANSEARCH database. In addition to informing and localizing the data presented in this report, interview findings will be used in the Needs Assessment/SWOT Analysis phase of this study.

3.3 Freight Infrastructure

As described in the previous section, the Genesee-Finger Lakes Region generates products that are shipped throughout the world by land, air and sea. Similarly, the region is a consumer market, demanding goods that are produced across the globe and shipped primarily by sea to one of several of the nation's largest container seaports, and transported from the coasts to the Genesee-Finger Lakes Region. This global logistics scheme requires a multimodal freight transportation system in which all modes work in concert to deliver products to and from the region efficiently.

The Genesee-Finger Lakes Region's freight infrastructure network is composed of the region's highway network, freight rail network, air cargo airports in and around the region, and seaports on the Great Lakes, St. Lawrence Seaway and Atlantic and Pacific coasts. This section describes the components of each of these networks, including the locations of critical links and nodes, their relationships to one another and to freight generators in the region.

3.3.1 Highway Network

The Genesee-Finger Lakes Region is located on the eastern edge of the emerging Great Lakes mega-region which includes nearby cities such as Toronto and Buffalo, and stretches as far west as Chicago and Minneapolis.⁹ These urban areas represent some of the major sources of component inputs into the region's manufacturing industries. The Genesee-Finger Lakes Region is also located within a one-day truck drive of many of the urban areas in the Boston-Washington mega-region, which includes the metropolitan areas around Boston, New York City, Philadelphia, Baltimore, Washington, and intermediate cities. The region's position between major production, distribution, and consumption markets in these two mega-regions translates to a significant amount of through truck traffic, which make use of the Interstate Highway System, particularly Interstate 90, to traverse the region. In addition, Interstate 390 provides an important connection between the region and the Southern Tier and points Downstate. The Interstate Highway System provides the primary truck access routes into, out of, and through the region. The region's highway network is mapped in Figure 3.19. Two facilities in particular form the backbone of the highway network:

⁹ "America 2050: Megaregions," available from <http://www.america2050.org/megaregions.html>.

- The **Interstate 90 (New York State Thruway)** corridor traverses the region on its path between the Boston-Washington metropolitan and the Great Lakes region and Midwest. The Interstate 90 designation extends from Boston, Massachusetts to Seattle, Washington, and passes through a long list of major cities, including Springfield, Cleveland, Toledo, and Chicago. The New York State Thruway is the transportation spine across central and western portions of the state, connecting the Albany, Syracuse, Rochester, and Buffalo metropolitan areas, and serving as the region’s primary entry and exit and pass-through corridor.
- **Interstate 390**, the Genesee Expressway, passes north-south from Rochester to its junction with Interstate 86/New York State Route 17, the Southern Tier Expressway, outside the region. I-86/NY-17 is a developing east-west interstate highway corridor intended to serve some of the east-west travel demand that currently is routed on Interstates 90 and 80. The I-86/NY-17 corridor also provides the shortest-distance travel route to the New York City, New Jersey, and eastern Pennsylvania areas. At its northern end, Interstate 390 intersects with Interstate 490 near the Greater Rochester International Airport. New York State Route 390 continues north as a limited access highway, providing access to the Kodak Park campus.

Figure 3.19 Regional Highway Network



These major Interstate and limited access corridors link the Genesee-Finger Lakes Region to its major trading partners, but several state roads also are key components of the region's freight network, linking the core of the region to outlying areas, and linking freight-generating industrial sites in towns and villages throughout the region to the Interstate Highway System. This network of "Key Goods Movement Corridors" will be defined using three classes of criteria:

- Routes that provide truck **access** to clusters of freight-generating industries throughout the region and **connectivity** to the primary Interstate highway system and other freight transportation nodes ought be considered key goods movement corridors;
- Level of truck **activity**, including the volume of trucks (defined by Average Annual Daily Truck Traffic, or AADTT) and trucks as a percentage of total traffic volume as an existing condition and based upon trends toward an anticipated level of truck activity on the region's highway network in the future;
- **Appropriateness** of the facility for use by trucks. Appropriateness can be defined in terms of the roadway's functional classification, the number of lanes on the roadway, and the extent to which the roadway passes through or near residential areas and other land uses sensitive to truck traffic.

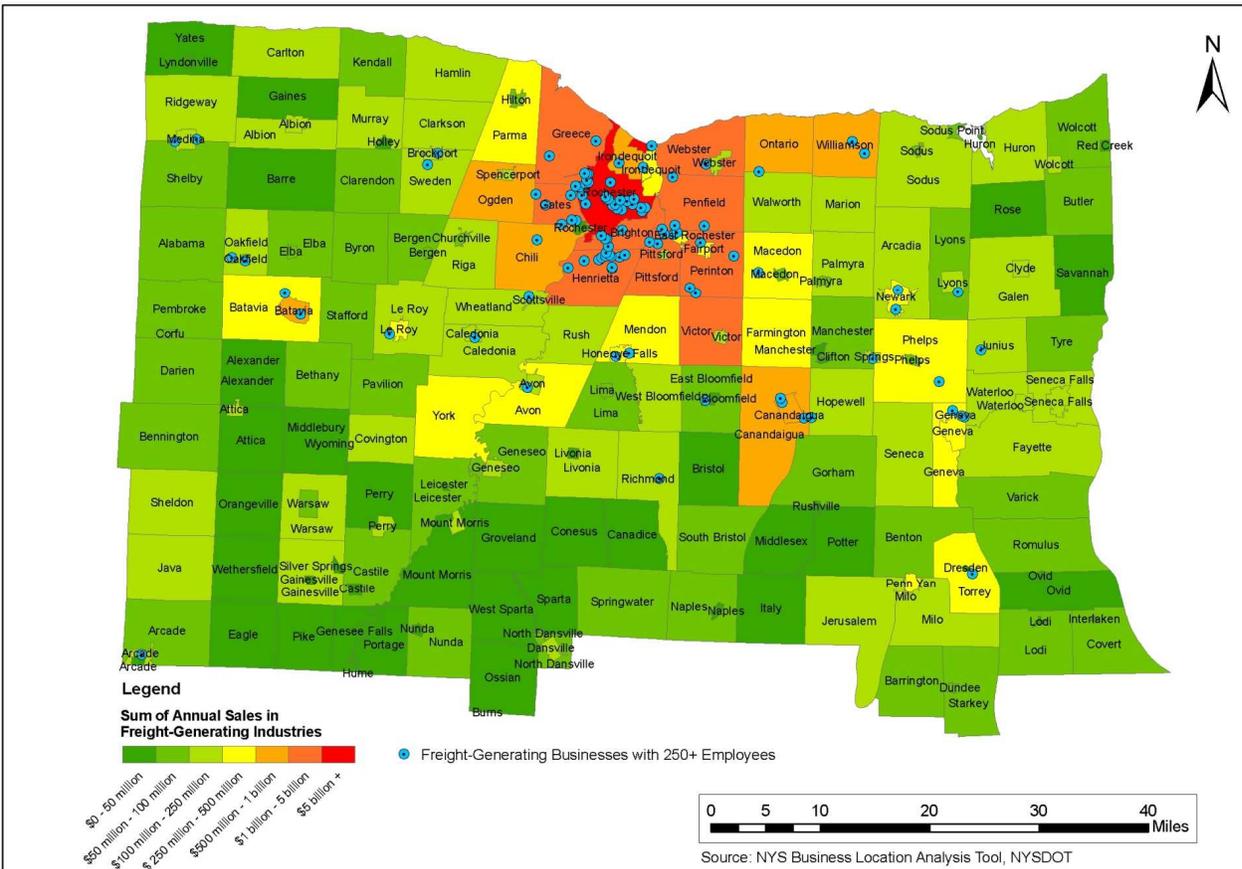
Access and Connectivity

According to data supplied in NYSDOT's Business Location Analysis Tool (BLAT), businesses that operate in freight-generating industries (including manufacturing, warehousing, agriculture, wholesale and retail trade, and waste services) are clustered in many of the region's more densely populated pockets, including the central Rochester area, cities such as Batavia, Canandaigua, and Geneva, and the villages of Avon and LeRoy. Figure 3.20 illustrates the distribution of major freight-generating businesses by town, based upon the sum of annual sales among businesses in these industries by municipality. Furthermore, individual businesses in freight-generating industries with 250 or more employees are indicated by blue dots on the map. Many of these activity clusters are served by State and county highway systems, which provide access to freight-generating facilities and connect the facilities to the Thruway and I-390, to the Greater Rochester International Airport, and to Intermodal rail facilities outside the region (identified later in this section).

The State and county highway systems also serve many of the landfills, construction and demolition debris disposal facilities, and transfer stations in the region, which are mapped in Figure 3.21. The transport of solid waste from the curb to transfer stations and on to disposal facilities such as landfills and resource recovery facilities relies almost entirely upon trucks and the region's highway network. Solid waste generated within the region and beyond are transported to these facilities and contribute to the total truck volumes on many of these highways.

Impediments to truck operations in the region include low-clearance bridges, weight-restricted bridges, intersections with inadequate turning radii, and restrictions placed by municipalities on local roads. The Lake Ontario State Parkway was not designed for trucks, and therefore trucks are banned from that roadway. Truck restrictions will be investigated in detail in the Needs Assessment phase of this study.

Figure 3.20 Freight-Generating Industries by Municipality



Source: New York State Department of Transportation, Business Location Analysis Tool

Figure 3.21 MSW Processing and Disposal Facilities

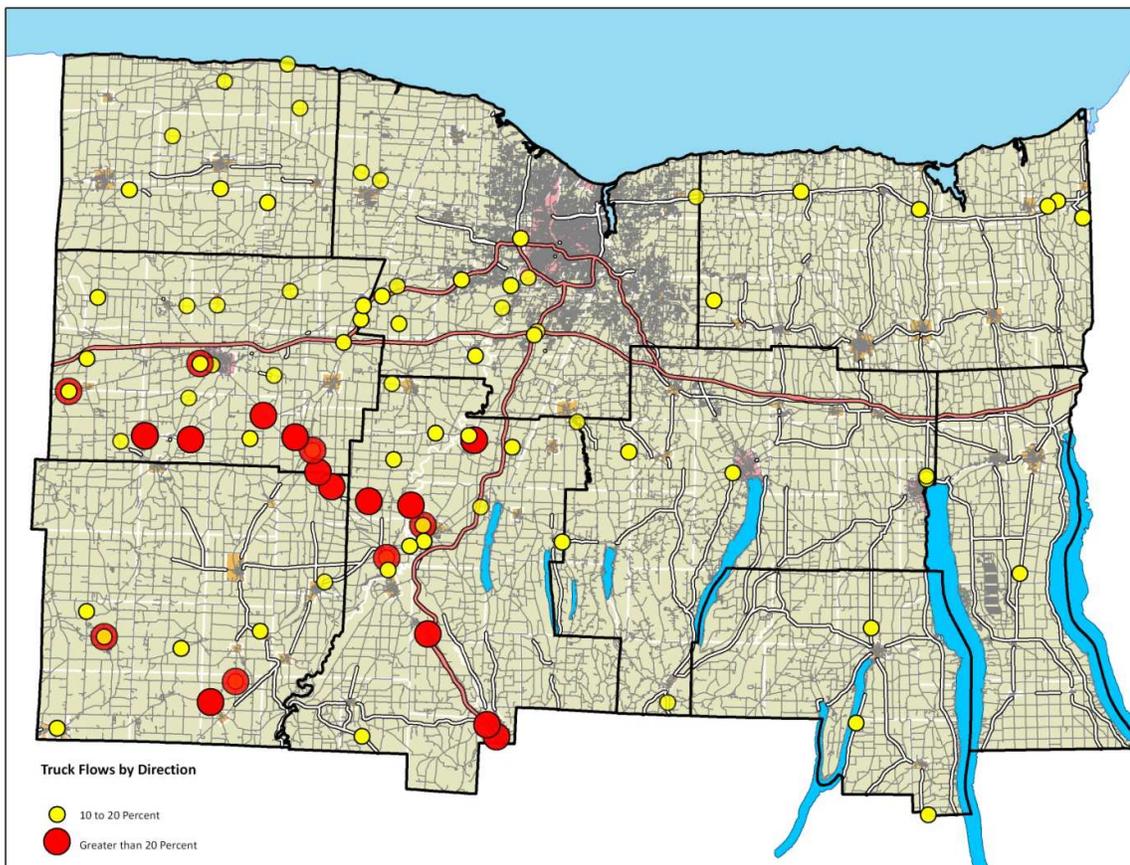


Source: New York State GIS Clearinghouse

Truck Activity

The level of truck activity occurring on the region's highway network is another indicator of Key Goods Movement Corridors. This activity, as measured by truck volume (AADTT), and the proportion of AADTT to the sum of all traffic, indicates through empirical evidence, which highway routes truck drivers use to complete trips that serve the region's industries, and to pass through the region. Figure 3.22 shows locations on the state highway system in the study area that have high percentages of trucks, an indicator that trucks prefer to use the route to access their destinations.

Figure 3.22 Truck Travel on NYSDOT-Maintained Roadways in Genesee-Finger Lakes Region



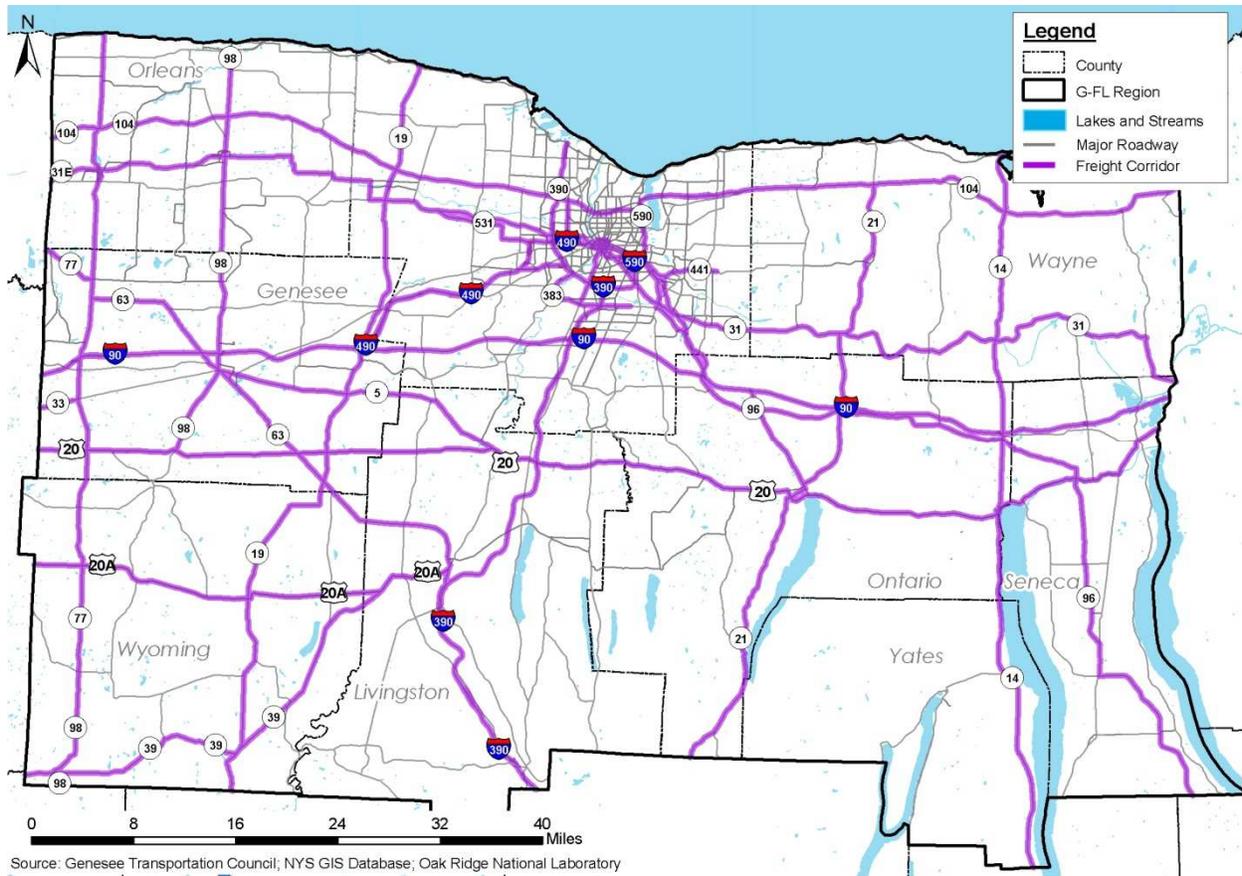
Source: 2005 NYSDOT Highway Sufficiency File. Excludes the NY State Thruway, a significant truck route.

Comparing the distribution of facilities in Figures 3.20 and 3.21 with the information on truck usage of the region’s highway network in Figure 3.22, several state highway corridors appear to be of critical goods movement importance. These corridors connect major freight-generating facilities to the previously-mentioned backbones of the network (I-90/NY State Thruway and I-390), and include:

- **Interstate 490**, which traverses Monroe County east-to-west, and connects with the Thruway on both ends—on the west at LeRoy in Genesee County (Thruway Exit 47), and on the east in Victor in Ontario County (Thruway Exit 45). This interstate provides a direct connection between the Thruway and the urban core of the region for traffic approaching from the east and west;
- **Interstate and State Route 590**, which connects with Interstate 390 in Brighton, south of Rochester, and with Interstate 490 in Brighton, to the east of Rochester. New York State Route 590 continues north as a limited access highway to its interchange with New York State Route 104, the Keeler Street Expressway. Together with I-390, 590 functions as part of a “beltway” route around Rochester;
- **US-20/NY-5 Corridor**, which connects activity nodes in Batavia (via State Routes 63 and 98), LeRoy, Avon, Bloomfield, Canandaigua, Geneva, and Seneca Falls to the Thruway in Batavia and I-390 in Avon;
- **US-20A Corridor**, which runs west to Buffalo and connects Wyoming County to I-390;
- **NY-14 Corridor**, which connects Dresden, Geneva, and Phelps to the Thruway;
- **NY-19 Corridor**, which links Warsaw, Silver Springs, and LeRoy to the Thruway and I-490’s western end;
- **NY-31 Corridor**, which spans the region east-west, connecting Newark, Macedon, Fairport, East Rochester, Rochester, and Gates to Interstate 490 in central Rochester and to major towns outside the region such as Lockport;
- **NY-39 Corridor**, which links Silver Springs, Perry, and Geneseo to I-390;
- **NY-63 Corridor**, which provides a link between the NY State Thruway and I-390 via Batavia and Genesee County;
- **NY-77 Corridor**, which connects the Thruway to western Wyoming County;
- **NY-96 Corridor**, which passes through Seneca County on its path between Ithaca and Rochester, and connects Seneca and Ontario County towns to the Thruway;
- **NY-104 Corridor**, which traverses the region east-to-west near the Lake Ontario shore, and passes near major freight generators in Williamson, Ontario, Webster, Irondequoit, Rochester, Greece, Brockport, and Medina; portions of Route 104 are limited-access, including the Irondequoit-Wayne County Expressway between Webster and NY-590, and the Keeler Street Expressway between NY-590 and the Genesee River;
- **NY-332 Corridor**, which connects Canandaigua and manufacturing facilities along the US-20/NY-5 corridor to the Thruway and Monroe County.

Figure 3.23 shows the highway component of the regional freight network.

Figure 3.23 Highway Component of Regional Freight Network



Source: Genesee Transportation Council; NYS GIS Database; Oak Ridge National Laboratory

Certain critical freight corridors are also shared with pedestrians (sidewalks and crosswalks) and bicycles. NYSDOT has designated three highway corridors in the Genesee-Finger Lakes Region among the network of New York State Bicycle Routes: NY-14, portions of NY-19 and NY-19A, and NY-31. While it is preferable to avoid having heavy freight traffic share a right-of-way with bicycles and pedestrians, where such situations are unavoidable, safety considerations, such as possibly physically separating bicycle and pedestrian traffic from the roadway, ensuring adequate sight lines, and using clear pavement markings to denote crossings and bike lanes, will warrant consideration. A map of the three New York State Bicycle Route corridors in the Genesee-Finger Lakes Region is provided as Figure 3.24.

Figure 3.24 New York State Bicycle Routes in the Genesee-Finger Lakes Region



3.3.2 Rail Network

The Genesee-Finger Lakes Region’s rail network can be described in terms of the ownership of the infrastructure and the services that are operated. Two of the seven Class-I railroads that operate in the United States, CSX Transportation (CSX) and Norfolk Southern (NS), have an established presence in the study area through track ownership. A third Class-I railroad, Canadian Pacific (CP), maintains trackage rights on a portion of the NS network, and therefore may provide service to customers in the region. The Class-I railroads connect rail customers in the Genesee-Finger Lakes Region with customers and suppliers in other parts of the nation and the world via seaports. In addition, the region is served by six short line (Class III) freight railroad companies that together operate 12 lines. These lines offer customers connections to the national Class-I network, and/or provide specialty or niche rail services.

Figure 3.25 shows the regional freight rail network. The following paragraphs describe the rail network ownership.

Figure 3.25 Regional Freight Rail Network



Class I Railroads

CSX. CSX owns most of what was once the New York Central Railroad's "Water Level Route" between the New York City area and Chicago via Albany, Syracuse, Rochester, and Buffalo. The segment of this route which passes through the study area is known as the Rochester Subdivision, which passes from DeWitt Yard in Syracuse to Depew, outside Buffalo. East of Syracuse, the line's name is the Mohawk Subdivision, while west of Depew, the Buffalo Terminal Subdivision proceeds to CSX's Buffalo Intermodal Container Terminal Facility. Within the nine-county study area, CSX serves rail customers from Rochester Yard (formerly Conrail's Goodman Street Yard).

Some through traffic is diverted away from the center of Rochester via the West Shore Subdivision, which passes to the south of Rochester, joining with the Rochester Subdivision in Fairport at its eastern end and North Chili at its western end. Genesee Junction, located along the West Shore Subdivision immediately south of the Greater Rochester International Airport, is where CSX interchanges with two short line railroads—the Livonia, Avon and Lakeville Railroad (LAL) and the Rochester and Southern Railroad (RSR).

Norfolk Southern. The NS Southern Tier Line passes through Livingston, Wyoming, and Genesee Counties en route from Binghamton to Bison Yard, its primary upstate intermodal yard in Buffalo. From Buffalo, freight may continue via NS to Chicago, and from Binghamton, freight may continue east toward the Capital District and Massachusetts via Canadian Pacific and the Pan Am Southern route, or south over Canadian Pacific trackage toward Harrisburg, Pennsylvania and points farther south on the NS network. In the Finger Lakes region, NS owns the Corning Secondary, a single-track line running between the Southern Tier Line in Corning to the CSX Rochester Subdivision in Lyons, although the line is currently out of service north of Geneva.

Canadian Pacific. While CP does not own any trackage in the nine-county study area, the railroad has a trackage rights agreement in place with NS that allows them access to the Southern Tier Line. From the Southern Tier Line, CP may proceed to Binghamton and make use of its own trackage to reach Harrisburg, PA or points north such as the Capital District and Montreal.

The Region's Current Role for Rail: Hauling Bulk Commodities

Although intermodal containers (containers designed to be transported by truck and rail) pass through the region on the Class-I railroad network, freight transported into and out of the region by rail are handled in traditional railcar types, including boxcars, hoppers, and tanker cars.

Commodities that are transported into and out of the region include bulk shipments of agricultural products, paper and lumber products, metals and minerals, bulk liquids, and construction materials. Railroad profiles provided by the Railroads of New York indicate some of the specific commodities carried by short line railroads, including shipments of millions of tons of:

- Fertilizers and pesticides;
- Chemicals;
- Plastic pellets;
- Metal products and scraps;
- Pulpboard, linerboard, lumber and paper products;
- Frozen and canned foods,
- Liquid consumables including oils, corn syrup and soda;
- Grains;
- Salt;
- Aggregates; and
- Building materials.

Source: Railroads of New York (RONY) Member Profiles, available from <http://railroadsofny.com/members.htm>.

Class III Railroads (Short Lines)

Depew, Lancaster and Western Railroad (DLWR). The DLWR operates 14 miles of its own track in Erie, Genesee and Niagara Counties, and has trackage rights with NS for access to Bison Yard in Buffalo. The railroad interchanges with CSX at Batavia and with NS and CP at Cheektowaga. DLWR supports a 22,000 square-foot transloading warehouse in Batavia. According to RONY, the DLWR handles 1,100 carloads and 94,600 tons of freight annually. Commodities handled by the DLWR include cotton seeds, linerboard, fertilizer, plastic pellets and lumber products.¹⁰

Falls Road Railroad (FRR). FRR operates 45 miles of track in Niagara, Orleans and Monroe Counties, between Brockport and its interchange with CSX at Lockport. Commodities handled include frozen vegetables, pesticides, fertilizer, pulpboard, and linerboard. The FRR hauls 72,000 tons of freight in 800 carloads annually.¹¹

Finger Lakes Railway (FGLK). The FGLK operates 154 miles of track in six counties, including the study area counties of Seneca, Ontario, and Yates. FGLK interchanges with CSX at Solvay, near Syracuse; with NS at Watkins Glen, Himrod Junction, and Geneva. The FGLK has trackage rights on the NS Corning Secondary between Watkins Glen and Geneva. FGLK acquired the Ontario Central Railroad (ONCT) in 2007. The railroad operates switching yards at Geneva, Auburn, and Solvay. Commodities hauled include steel, scrap metals, pulpboard, scrap paper, canned goods, sand, chemicals, salt, aggregates, grain, fertilizers, plastic, corn syrup, clay, soda ash, lumber, and building materials. These shippers moved over 18,000 carloads in 2008.¹²

Livonia, Avon and Lakeville Railroad (LAL). The LAL operates 29 miles of track in Monroe and Livingston Counties. This short line interchanges with CSX at Genesee Junction, with the Rochester and Southern Railroad (RSR) at Brooks Avenue Yard in Rochester, and with NS and CP along the Southern Tier Line at Silver Springs via trackage rights over RSR. LAL operates the Lakeville Yard bulk transfer facility. Commodities handled by the LAL include dry bulk fertilizer, sweeteners, grain, and lumber. The LAL handles 440,000 tons of freight in 2,744 carloads annually.¹³

Ontario Midland Railroad (OMID). OMID operates 47 route miles in Wayne and Monroe Counties, and has transloading capabilities at Newark and Sodus. The railroad interchanges with CSX at Newark. Commodities accommodated on OMID include soybean oil, chemicals, cheese, frozen fruit and vegetables, and tomato paste. These commodities represent 47,250 tons of freight carried in approximately 450 carloads annually.¹⁴

Rochester and Southern Railroad (RSR). The RSR is a short line freight railroad operating on 58 route miles in Monroe, Genesee, Wyoming and Livingston Counties. The RSR was acquired by

¹⁰ "Depew, Lancaster and Western," available from <http://www.gvtrail.com/dlwr.php> ; "Member Profiles," Railroads of New York (RONY), available from <http://railroadsofny.com/members.htm>.

¹¹ "Falls Road Railroad," available from <http://www.gvtrail.com/frr.php> ; RONY.

¹² "Finger Lakes Railway," available from: <http://fglkrail.com/> ; RONY.

¹³ RONY

¹⁴ Ontario Midland Railroad Corp., available from <http://www.ontariomidland.com/> ; RONY.

Genesee and Wyoming, Inc. in 1986. The railroad interchanges with CSX at West Avenue Yard, and Charlotte Yard; with CSX and LAL at Genesee Junction; and with NS and CP at Silver Springs. Commodities transported on RSR include aggregates, brick and cement, chemicals, coal, food and feed products, forest products, and steel and scrap metals. RSR carries 2.8 million tons of freight in more than 18,700 carloads annually.

Interchanges between Class I and Class III Rail Lines

A complete understanding of the region's rail system requires an understanding of how the Class I and Class III rail lines interface with one another. Class I rail lines like CSX and NS primarily carry long-haul traffic. The most efficient use of a locomotive or set of locomotives is to haul a set of rail cars together over as long a distance as possible. Each time a train has to stop, manually uncouple rail cars to be interchanged with a Class III (short line) operator or dropped off at a rail siding, and manually recouple the remaining cars, the Class I rail line suffers inefficiencies. The challenge for rail operators is to find a balance between stopping frequently enough to pick up relatively high-value rail cars while keeping locomotives (and their crews) moving as much as possible.

Inefficiencies and constraints can be introduced at interchange points in a variety of ways:

- Interchange points must have enough capacity to store rail cars being dropped off and/or picked up by the Class I and Class III (short line) operators. When rail storage capacity is inadequate, one of the rail operators must spend valuable time moving cars off a siding or yard track to another storage location upstream or downstream.
- Short line railroads may have non-union crews, while Class I railroads have union crews. Labor rules and differing working hours at the two railroads can sometimes prevent a quick exchange of rail cars between operators.
- Different rail operators may use different means of communication, leading to delays as paperwork is exchanged and train equipment is safely moved in and around an interchange point.

All of these issues will be explored in more detail in the Needs Assessment phase of this study.

Railcar Weight and Clearance Capacity

The national standard maximum loaded weight of a single railcar is 286,000 pounds (286,000 pound railcars are often referred to as "286K" cars). While most of the Class-I railroads have acquired or upgraded their tracks, structures and railbeds to accommodate 286K cars, many short lines have not the resources or customer demand to do so themselves. Within the Genesee-Finger Lakes Region, the CSX trackage (including the Rochester and West Shore subdivisions) are capable of handling 315,000 pound railcars (see Figure 3.26). The NS Southern Tier Line can accommodate 286K between Buffalo and Silver Springs, but between Silver Springs and the Livingston County-Allegany County line, 273K is the maximum allowable railcar weight, due to restrictions on the Portage Bridge. The bridge represents a major constraint on NS movements in the region, and impacts routing for freight traveling between many origins and destinations in the Midwest and the Northeast. Between Allegany County and Binghamton, the Southern Tier Line is 286K-capable. LAL and portions of the OMID south of Wallington Junction can accommodate 286K

railcars. Short line railroads capable of handling 273K railcars include FRR, OMID branches to Wolcott and Webster, and the FGLK network with the exception of the segment between Canandaigua and Geneva, which can accommodate less than 263K railcars. No data are available from RSR or DLWR.¹⁵

Figure 3.26 Maximum Allowable Railcar Weights



The current national standard for rail clearances is 22 feet from the top of the rail, which allows for double-stacked high cube containers (9-foot 6-inch each) to pass at full speed. If a line is electrified, an additional foot is needed to accommodate overhead catenary wire. Double-stacked high cube containers can pass under 20-foot, 9-inch bridges at low speeds.

Container stack railcars loaded with double-stacked intermodal containers stand 20 feet, 3 inches tall. In railroad parlance, the clearance required to accommodate these cars is referred to as “Plate H” clearance. The CSX Rochester and West Shore subdivisions, and the NS Southern Tier Line have Plate H loaded double-stack clearance (see Figure 3.27). The FRR, LAL, RSR, and OMID have trailer on flat car (TOFC) clearance, which means a single intermodal container may be loaded upon a flat railcar. Between Geneva and Solvay, FGLK has Plate C clearance and can

¹⁵ New York State Rail Plan, NYSDOT, 2009.

accommodate standard railcars, boxcars, tankers, and hoppers. No data were available on other sections of the FGLK system or for the DLWR.¹⁶

Figure 3.27 Maximum Allowable Railcar Clearances



Intermodal Container Transfer Facilities

Intermodal Container Transfer Facilities (ICTF) are locations where truck-rail intermodal containers are exchanged between modes. Intermodal freight transport continues to be a growing market for railroads and motor carrier fleets, and has established cooperative relationships among operators of both modes. A typical Intermodal operating scenario consists of three moves. Part one requires the transport of a container from a warehouse, distribution center, port, or production facility by truck to an ICTF. This move is typically short, relatively speaking, and is referred to as a “dry.” Once at the ICTF, the container is loaded onto a flat railcar and transported a relatively long distance by rail. The rail trip ends at another ICTF, where a truck picks up the container for a “last mile” dry to its receiver. Although costs are incurred with each “lift” of a container, the per-mile cost savings of rail transport can make the trip worthwhile for long trips, such as across the country.

¹⁶ New York State Rail Plan.

While there are no ICTFs located within the nine-county study region, NS and CSX maintain ICTFs nearby in Cheektowaga and Blasdell near Buffalo, respectively, and CSX also operates intermodal operations out of DeWitt Yard in Syracuse. All three of these facilities are within reasonable drayage distance to shippers and receivers in the Genesee-Finger Lakes Region. The Rochester Genesee Regional Transportation Authority (RGRTA) conducted a study to determine the feasibility of developing an intermodal freight facility in the Rochester area. The study recommended developing an intermodal terminal combining rail and truck service to serve as an inland distribution facility for the Port of New York/New Jersey. The study was completed in October 2001.

Currently, no traditional intermodal freight facility with the ability to handle significant volumes of freight from various modes at a single location exists in the region. The development of a tri-modal freight facility in the vicinity of GRIA near now-vacant Rochester and Southern Railroad yards in the Town of Chili has been and continues to be discussed.

Rail Classification and Storage Yards

Classification yards are locations where railcars are linked together to form trains or separated into “blocks” of cars destined for specific shippers or destination points. Storage yards are locations where railcars or blocks of railcars await positioning or pickup. These yards represent nodes in the rail network where processing activities happen, and where bottlenecks in rail operations often occur. There are four notable rail yards in the region.

Rochester Yard. The Rochester Yard (also known as the Goodman Street Yard) is on CSX’s Chicago Line. It features 11 classification tracks, 6 receiving tracks, 3 engine tracks, 2 RoadRailer tracks, 2 team tracks, a single chute track, as well as a number of spur tracks, a diesel shop, crew room, and yard office. The yard extends approximately from East Main Street to Culver Road, a distance of about one mile, although the yard maintains four tracks until Blossom Road, where it drops to two. Interchanging railroads include Rochester & Southern, and Amtrak also passes through the facility.

Brooks Avenue Yard. The Brooks Avenue Yard is owned by the Rochester & Southern Railroad (RSR). The yard lies on the former B&O line, between the CSX Chicago Line and West Shore Branch. The yard’s primary function is switching. This yard is organized in two primary segments, one which stretches 4,000 feet between the Erie Canal and Brooks Avenue and fans out to as many as 12 tracks, the other, which begins at Brooks Avenue as two tracks, fans out to as many of seven tracks before reverting to a single track after 4,500 feet. The RSR interchanges with the Livonia Avon and Lakeville short line at Brooks Avenue. An interchange with CSX lies a few miles to the south at Genesee Junction on the West Shore Branch.

Charlotte Yard. The Charlotte Yard is the terminus of the CSX Buffalo Division, which extends north from the Chicago Line at the eastern end of the West End Yard. Trackage extending westward from the yard has been abandoned. Although old Conrail maps show four tracks, current aerials show three tracks extending from Lake Avenue and Greenleaf Road, almost 3,000 feet. As of 2009, it was reported that CSX uses the yard to store surplus freight cars.

West Avenue Yard. The West Avenue Yard is only a few miles north of the Brooks Avenue Yard and west of the Goodman Street Yard, at the junction of the CSX Chicago Line and the RSR former B&O line. The Yard is difficult to define, as the Chicago line runs three tracks from Weckesser

Brick off of Trabold Road all the way to the Goodman Street Yard—picking up and dropping an additional track at several points. Adjacent to West Avenue are two tracks (team tracks) running 700-800 feet each.

Shared Passenger and Freight Rail Operations

Various proposals to upgrade passenger rail service from New York City to Buffalo via Rochester have assumed that a portion or all of the service would operate on tracks currently used for freight rail operations. Currently, Amtrak’s Empire Service and various long-distance trains to Toronto and Chicago use the CSX main line through central Rochester, stopping at the Rochester Amtrak Station on Central Avenue downtown. Presently approximately 8-10 passenger trains per day use the tracks, compared to 50-55 freight trains per day.

Proposals to use tracks for “high speed” or “higher-speed” passenger rail service have met with resistance from freight rail operators in New York State. Freight rail operators argue that the existing tracks currently are being put to their highest and best use with a mix of passenger and freight trains sharing the tracks. Higher speed trains would require longer spacing (headways) between freight and passenger trains sharing the same tracks. On top of the additional track capacity per-train needed for higher speed passenger service, more frequent service would use up even more rail capacity. Although additional passenger trains could be introduced given the “excess” capacity available on the CSX tracks today, there will need to be a tradeoff between additional passenger service and additional freight service in the future. If future demand for freight and passenger service cannot be accommodated on the existing tracks, a third and/or fourth track may be required.

Freight rail operators also have raised safety concerns. Freight rail operators regularly have maintenance workers on the tracks, and at some interchange points and rail yards, through trains may pass close to operations staff on the tracks. High speed trains could pose a threat to these employees of freight rail operators. Up to 90 miles per hour (MPH), no additional safety-related separation is needed between freight and passenger tracks. However, over 90 MPH (as called for in the most recent passenger service proposals), at least 25 feet of separation is required between tracks to meet Federal Railroad Administration safety requirements.

Proposals for higher-speed train service have taken these concerns into account, but cost estimates for new tracks have escalated as it has become clear that an expansion of the existing CSX-owned right-of-way may be required to allow for adequate spacing between existing freight tracks and new higher-speed, dedicated passenger tracks. Freight rail operators are committed to working with the Federal Railroad Administration (FRA), NYSDOT and their local partners to implement improvements to passenger rail service upstate while protecting existing freight rail capacity and allowing for freight rail capacity expansions in the future.

3.3.3 Air Cargo Facilities and Access

The Greater Rochester International Airport (ROC) is the region's cargo-handling airport. ROC has U.S. Customs services available. Cargo shippers operating through ROC include ABX Air (formerly Airborne Express), Bax Global, DHL Worldwide, Emery Worldwide, and Federal Express (FedEx), and FedEx feeder services provided by Wiggins Airways. Air cargo is handled in two on-airport terminals. In the northwest corner of the airfield, the air cargo terminal operated by USAirports consists of three cargo buildings and two hangars, and handles all non-FedEx cargo. FedEx maintains its own air cargo terminal at the south end of the airport. ROC has direct access to Interstate 390, and is in close proximity (approximately two miles via NY-204) to Interstate 490.

In addition to ROC, many area businesses receive freight that is shipped by air to a cargo airport outside the region, and then enters the region by truck. Air cargo may land at an airport 250-500 miles away from Rochester depending upon the cost/transport time/frequency of service to other airports relative to ROC, and upon the destinations of other parcel components of an air shipment. Major cargo airports outside the Genesee-Finger Lakes Region that likely handle cargo bound for or originating in the area include Buffalo (BUF), Syracuse Hancock (SYR), New York (JFK), Newark (EWR), Toronto Pearson (YYZ), Pittsburgh (PIT), Detroit (DET), and Chicago O'Hare (ORD). These airports and their proximity to the Genesee-Finger Lakes Region are illustrated in Figure 3.28.

3.3.4 Marine Cargo Facilities and Access

The Port of Rochester was once a busy cargo port at the mouth of the Genesee River. In recent years, however, the Port has been reconceptualized as a dining, entertainment, and tourism center, featuring a marina. Farther up the river, near Turning Point Park, Essroc Cement Corp. ships cement by sea to Toronto and Picton, Ontario. The Stephen B. Roman, a 488-foot long, 35-foot draft vessel, calls upon the ESSROC plant in Rochester. Like many of the Great Lakes and St. Lawrence Seaway ports, Rochester's marine terminals serve niche bulk cargo markets. Outside the study area, the Port of Oswego consists of two terminals, with about 3,000 feet of berthing space, 100,000 square feet of dry storage, 50,000 square feet of covered bulk storage, and 400,000 square feet of open storage dockside. The Port handles bulk cargoes, including aluminum, steel rebar and billets, corn, soybeans, potash, salt, project and heavy lift cargo, cement and petroleum products.¹⁷ Other Lake Ontario Canadian ports include Oshawa, and Hamilton, in addition to Toronto and Picton.

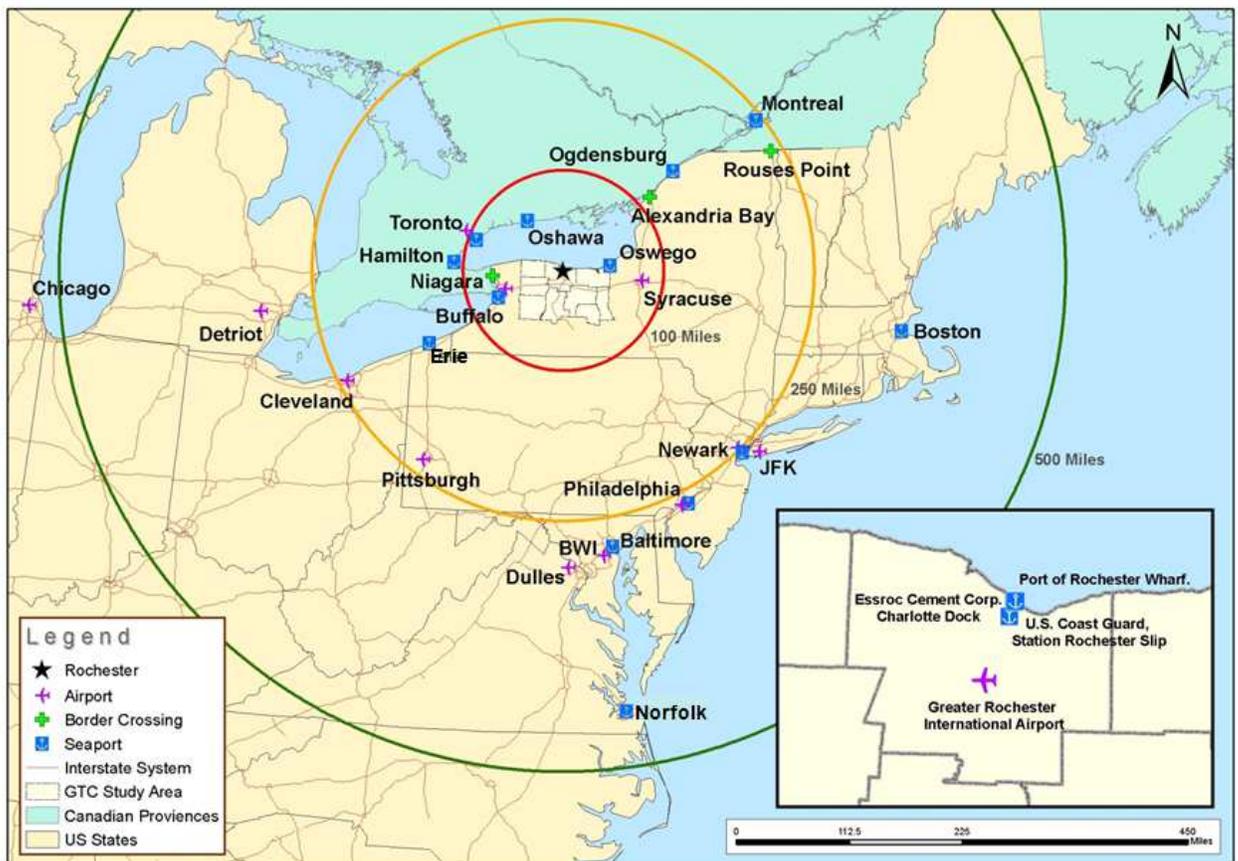
Containerized international cargoes destined for the Genesee-Finger Lakes Region's consumer market arrive in the region via the large container terminals on the west and east coasts of the U.S.—especially Los Angeles, Long Beach, New York/New Jersey—and Montreal. Upon arrival in those coastal ports, containers are transported to upland warehousing and distribution centers near the ports and then sent by truck to their customers in the region, or the containers may be placed on rail and distributed from an inland port or intermodal terminal. Asian cargo arriving through Los Angeles/Long Beach may be transported to the region by a cross-country truck trip, or by rail to Chicago or Buffalo, where it is transloaded to truck for the “last mile” haul to customers in the region. From New York/New Jersey, cargo may be transported by truck from the near-port

¹⁷ “Port of Oswego,” available from <http://www.portoswego.com/>.

warehouse to regional customers, or taken by rail shuttle to Buffalo or Syracuse, where the cargo would be transloaded to truck.

Rapidly-growing container ports in the South Atlantic and Gulf Coast states—such as Savannah, Miami, Tampa, and Mobile—could increase their share of cargoes destined for the Genesee-Finger Lakes Region and other inland consumer markets in the future, as the Panama Canal expansion project will give those ports a slightly greater competitive advantage than they have today. A geographic shift in port landings for Genesee-Finger Lakes-bound freight would impact the truck and rail mode split, direction of approach, and intermediate transloading terminals and distribution centers that would be used to process Genesee-Finger Lakes-bound freight. The region’s geographic position relative to seaports in the Great Lakes/St. Lawrence and Atlantic regions is shown in Figure 3.28.

Figure 3.28 Seaports and Airports Within 1-Day Truck Drayage of the Region



3.3.5 Freight Infrastructure Summary

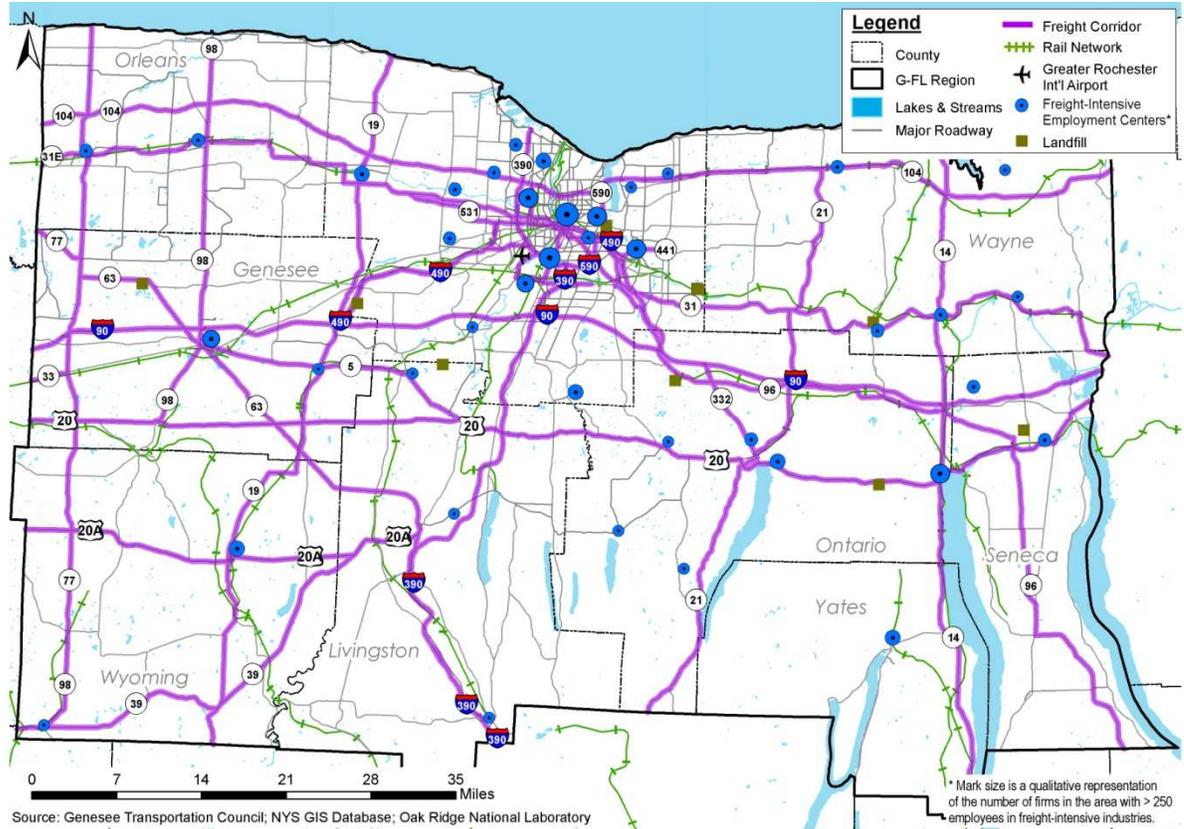
The region's freight infrastructure consists of:

- The Interstate Highway System and several key New York State highways that connect major freight-generating and receiving facilities to customers within and outside the region;
- A rail network composed of Class-I railroad lines connecting the region to other parts of the continent and a short line railroad network providing many rail customers with access to the Class-I networks;
- Truck-rail transloading and intermodal terminals within and just beyond the limits of the region, which provide the Genesee-Finger Lakes Region's shippers and receivers with multi-modal surface transportation options;
- An international airport offering cargo services, and larger airports within a one-day drive which offer more service options;
- Lakeside seaports serving niche markets, and larger seaports beyond the region that serve as gateways for international containerized cargo.

Figure 3.29 shows the core of the Genesee-Finger Lakes Regional Freight Network. It is important to note that this map shows the facilities that are most important for interregional movements of freight and goods. Local roadways also play a crucial role in the "last mile" of freight transportation, and will be discussed in more detail in the Regional Freight Needs Assessment.

With this regional freight network defined, the following section quantifies the freight flows to, from, within and through the region by commodity and by mode. This freight flow information will help the project team to determine the utilization of the freight infrastructure networks, and to identify, in Task 4, how effectively the network meets shipper, receiver and carrier demands.

Figure 3.29 Genesee-Finger Lakes Regional Freight Network

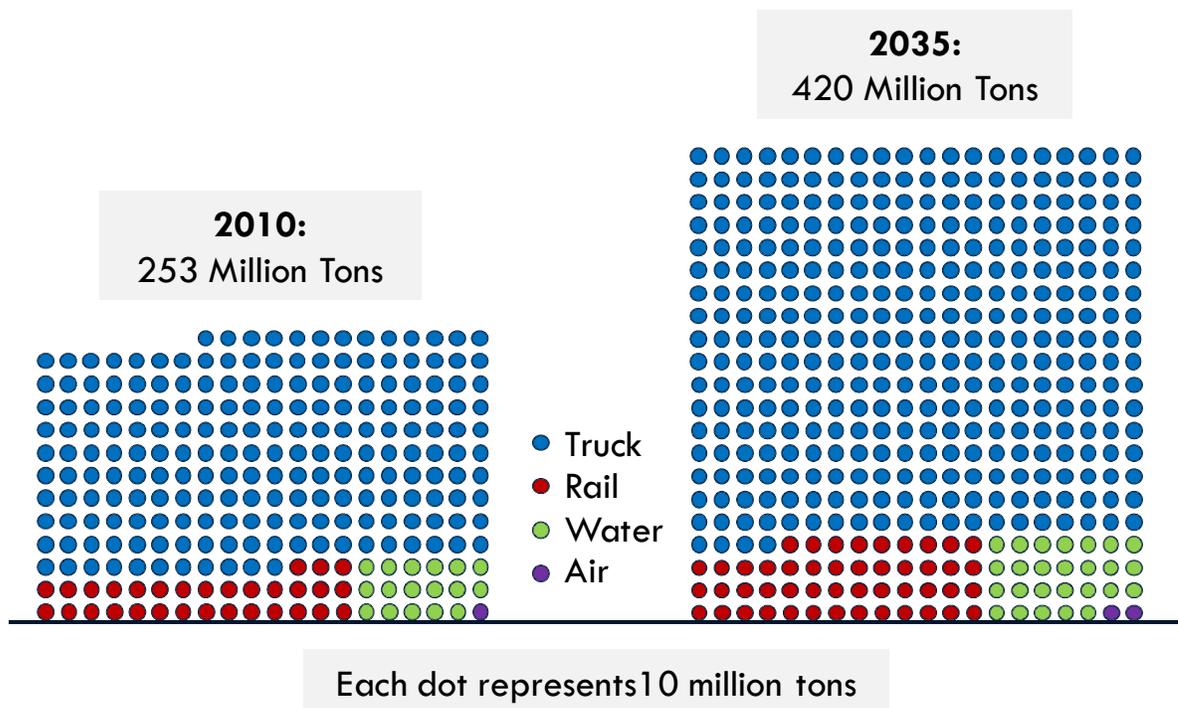


3.4 Commodity/Vehicle Traffic Flows

Information about current and future flows of commodities into, out of, through, and within the region is critical to the understanding of how well the freight transportation system supports businesses in the region today and what their needs may be in the future. The industry logistics profile laid the groundwork for this section. Figure 3.30 and Table 3.4 summarize the total tonnage of freight moving through the region, by mode and by direction, in five-year increments from 2010 through 2035. Figure 3.31 and Table 3.5 summarize the same information, but using value instead of tonnage.

Freight tonnage moving into, out of, within, and through the region is expected to grow from 252 million tons today to 420 million tons by 2035, a growth of 66 percent. About two-thirds of the freight movement is reported as “through” movements, with neither an origin nor a destination in the Genesee-Finger Lakes Region. This share is expected to remain relatively constant between now and 2035. Inbound and outbound freight each account for about 15 percent of freight movement in the region. The vast majority of all commodity freight moves by truck today, and in the “business as usual” scenario assumed in these figures, the share of commodity freight moved by truck in the future is expected to increase slightly, from 80 percent to 82 percent. The share of freight moving by truck, rail, air, and sea could change significantly as a result of economic shifts (e.g., the cost of fuel) or policy changes.

Figure 3.30 Distribution of Total Annual Tonnage by Mode (top), All Commodities, 2010 and 2035



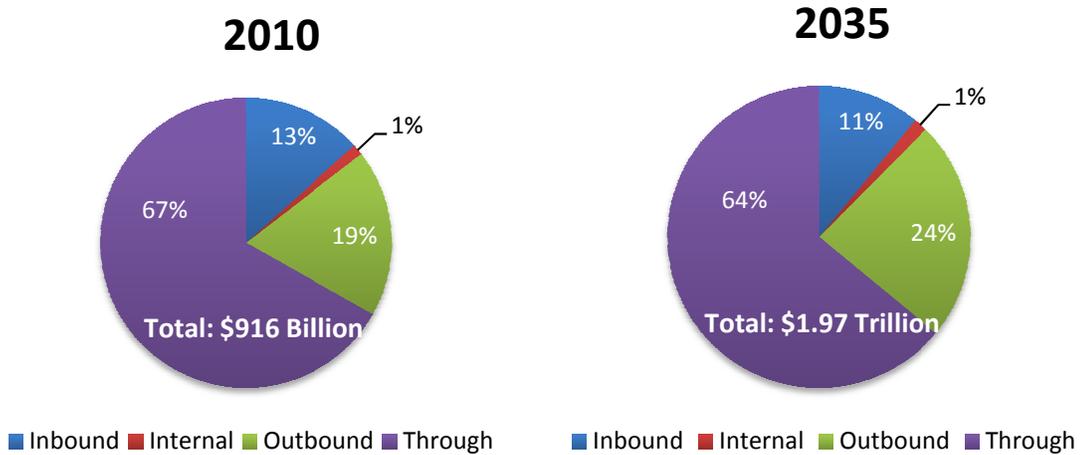
Source: IHS/Global Insight TRANSEARCH Database, via New York State Department of Transportation

Table 3.4 Tons by Mode and Direction, All Commodities, 2010-2035

2010 Tons	Truck	Rail	Air	Water	Total
Inbound	33,883,000	3,490,000	41,000	14,000	37,428,000
Internal	14,047,000	0	0	0	14,047,000
Outbound	32,891,000	1,434,000	51,000	16,000	34,392,000
Through	122,231,000	26,370,000	849,000	17,370,000	166,820,000
Total	203,052,000	31,294,000	941,000	17,400,000	252,687,000
2015 Tons	Truck	Rail	Air	Water	Total
Inbound	37,232,000	3,459,000	51,000	17,000	40,758,000
Internal	15,549,000	0	0	0	15,549,000
Outbound	36,381,000	1,486,000	59,000	19,000	37,945,000
Through	142,115,000	29,623,000	1,025,000	19,181,000	191,944,000
Total	231,277,000	34,568,000	1,135,000	19,217,000	286,197,000
2020 Tons	Truck	Rail	Air	Water	Total
Inbound	40,581,000	3,428,000	61,000	19,000	44,089,000
Internal	17,051,000	0	0	0	17,051,000
Outbound	39,871,000	1,539,000	67,000	21,000	41,498,000
Through	161,999,000	32,876,000	1,201,000	20,993,000	217,069,000
Total	259,503,000	37,842,000	1,328,000	21,033,000	319,706,000
2025 Tons	Truck	Rail	Air	Water	Total
Inbound	43,930,000	3,397,000	70,000	22,000	47,419,000
Internal	18,553,000	0	0	0	18,553,000
Outbound	43,361,000	1,591,000	74,000	24,000	45,051,000
Through	181,883,000	36,129,000	1,377,000	22,804,000	242,193,000
Total	287,728,000	41,116,000	1,522,000	22,850,000	353,216,000
2030 Tons	Truck	Rail	Air	Water	Total
Inbound	47,280,000	3,366,000	80,000	24,000	50,750,000
Internal	20,055,000	0	0	0	20,055,000
Outbound	46,852,000	1,644,000	82,000	26,000	48,603,000
Through	201,767,000	39,381,000	1,554,000	24,616,000	267,318,000
Total	315,953,000	44,391,000	1,716,000	24,666,000	386,726,000
2035 Tons	Truck	Rail	Air	Water	Total
Inbound	50,629,000	3,335,000	90,000	27,000	54,080,000
Internal	21,557,000	0	0	0	21,557,000
Outbound	50,342,000	1,696,000	90,000	29,000	52,156,000
Through	221,651,000	42,634,000	1,730,000	26,427,000	292,442,000
Total	344,179,000	47,665,000	1,909,000	26,483,000	420,236,000

Source: IHS/Global Insight TRANSEARCH Database, via New York State Department of Transportation

Figure 3.31 Total Value by Direction, 2010 and 2035, in Billions of Dollars



Source: IHS/Global Insight TRANSEARCH Database, via New York State Department of Transportation

Table 3.5 Total Value by Direction, 2010 through 2035, in Billions of Dollars

Direction	2010	2015	2020	2025	2030	2035
Inbound	\$122.0	\$140.7	\$159.4	\$178.1	\$196.9	\$215.6
Internal	\$11.0	\$14.6	\$18.2	\$21.8	\$25.5	\$29.1
Outbound	\$171.0	\$230.0	\$289.0	\$348.0	\$406.9	\$465.9
Through	\$611.8	\$742.0	\$872.3	\$1,002.5	\$1,132.7	\$1,262.9
TOTAL	\$915.8	\$1,127.4	\$1,338.9	\$1,550.4	\$1,762.0	\$1,973.5

Source: IHS/Global Insight TRANSEARCH Database, via New York State Department of Transportation

Appendix G contains detailed tables with inbound, outbound, and total commodity flows by weight, mode, and value.

The maps that follow are drawn from information in IHS/Global Insight's TRANSEARCH database, made available by NYSDOT for this study.

It is important to understand the following caveats about the information shown on the maps:

- The maps only show trucks and trains carrying commodities. Trucks that are not carrying commodities (e.g., municipal waste trucks), and empty trucks are not represented on the maps.
- The maps only show trucks and trains that cross county boundaries. Truck trips that do not cross county boundaries (e.g., local delivery trucks) also are not represented on the map.

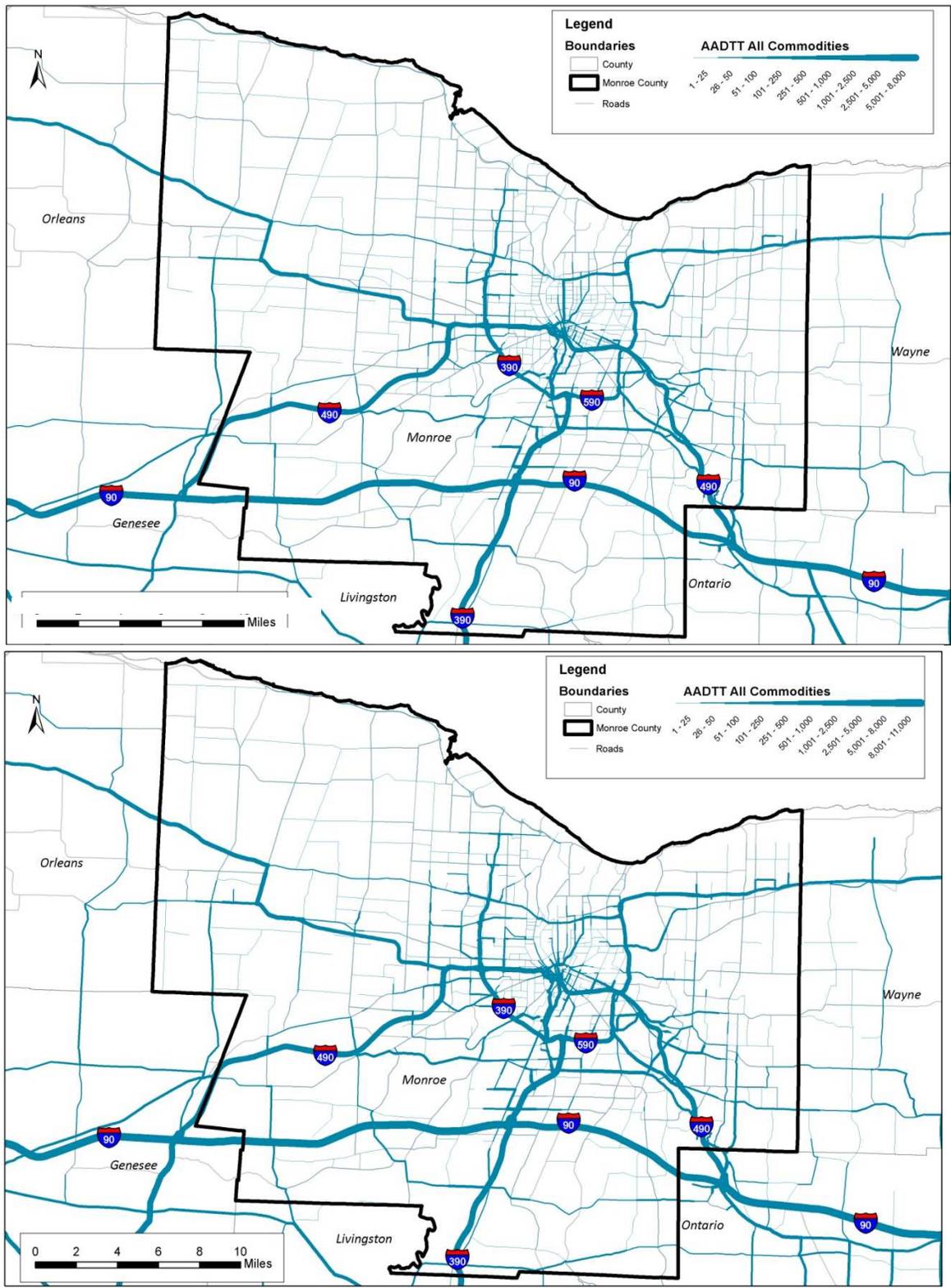
That said, this study will take into account actual traffic counts when performing the freight system needs assessment, including counts of trucks and percent trucks, where available at count locations in the region. The maps below are intended to provide a planning-level overview of truck flows to inform the discussion of current and future freight system needs, to be performed in the next phase of this study.

3.4.1 Total Commodity Truck Flows, 2010-2035

As depicted in Figures 3.32 and 3.33, the current (2010) total commodity truck flow activities on the regional highway system are greatest along on the region's Interstate Highways. I-90 and I-390, the region's major east-west and north-south highways, carry the bulk of the region's trucks. Additionally, I-490, the main connection between central Rochester and the Thruway, also serves significant long-haul trucks flows. Relatively high volumes of truck flows also can be observed along a corridor formed by NY-77 between I-90 and US-20, US-20 between NY-77 and NY-63, and NY-63 between US-20 and I-390. These roadways are used as a means to "cut the corner" between Interstates 90 and 390, and they also serve clusters of freight-generating businesses in the City of Batavia and Genesee and Wyoming Counties.

Most other US highways and state routes in the region carry fewer than 100 long-haul commodity trucks per day. Additional truck traffic in the form of delivery vehicles and non-commodity trucks (e.g., empty trucks and trucks carrying municipal solid waste) may use local roadways throughout the region. Where observed counts of total trucks (commodity, delivery, non-commodity, and empty) are available, these counts will be used to help determine freight-related investment needs in the Genesee-Finger Lakes Region in the next phase of this study.

**Figure 3.33 Total Commodity Truck Flows in Monroe County
 2010 (top) and 2035 (bottom)**



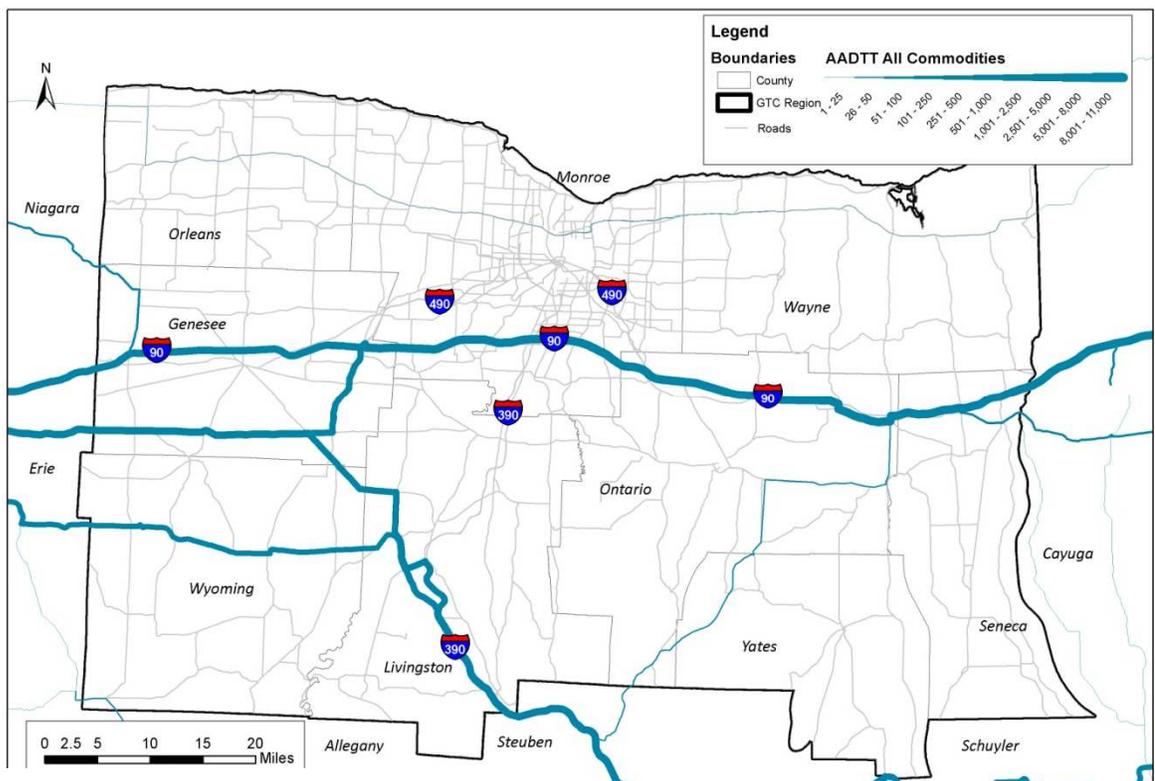
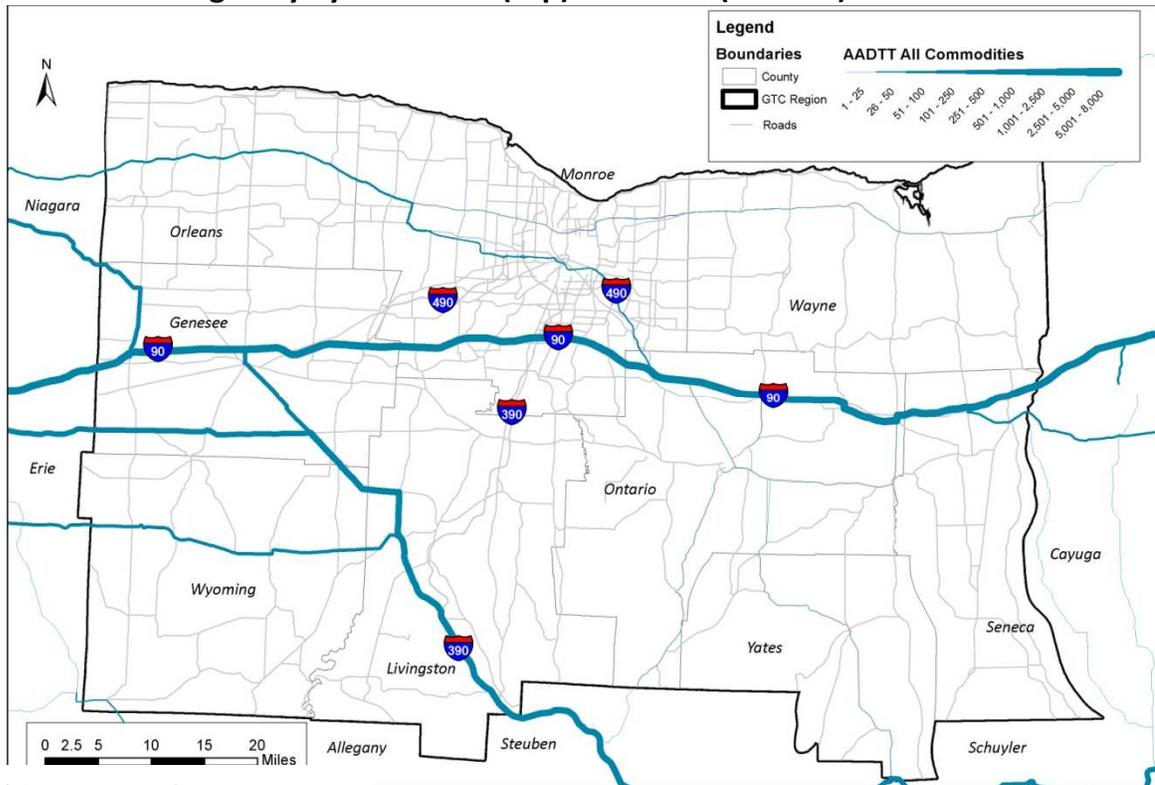
Projections for 2035 truck flows show increased AADTT along I-90, I-390, I-490, US-20, NY-77, and NY-63, with the largest growth in truck flows occurring in the south-western portion of the Genesee-Finger Lakes Region along SR-77, US-20, and NY-63. Various other corridors are expected to experience moderate increases in truck flows, which can be attributed to higher population growth and to growth in through traffic. These include NY-104 east of Rochester, NY-531 between I-490 and NY-31, NY-31 between CR-212 and NY-19, NY-19 around the Village of Brockport, and NY-104 west of its intersection of NY-19.

3.4.2 Through Commodity Truck Flows, 2010-2035

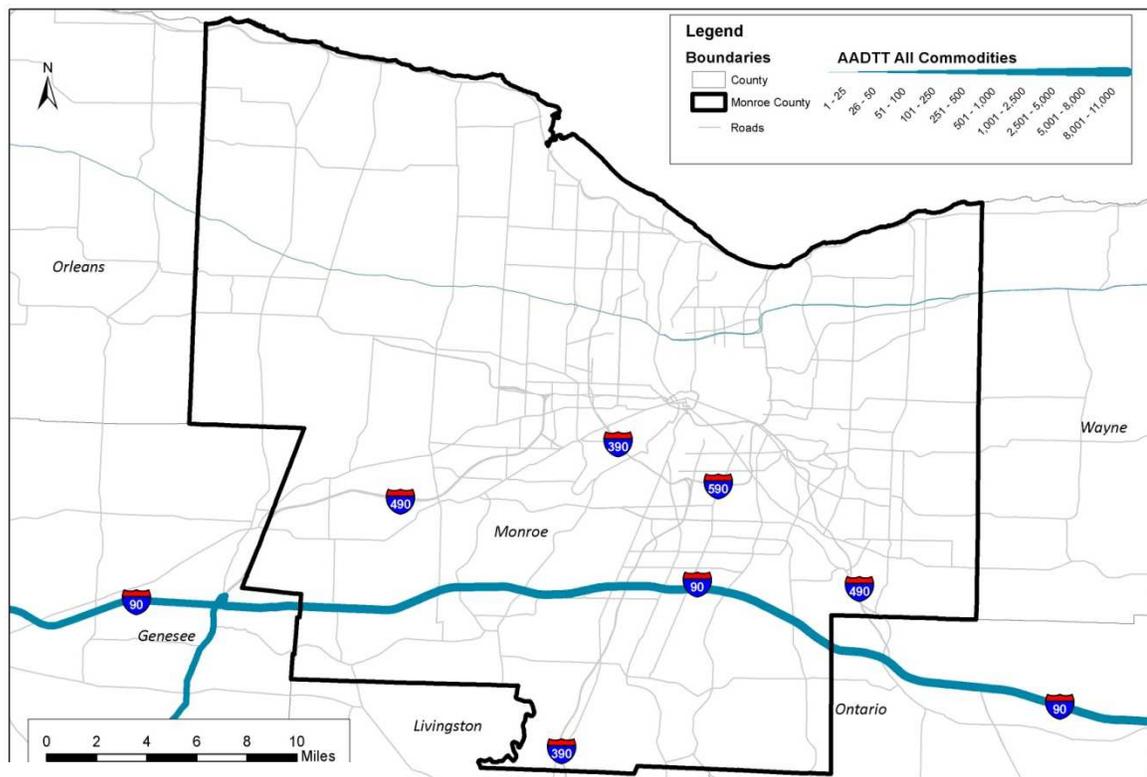
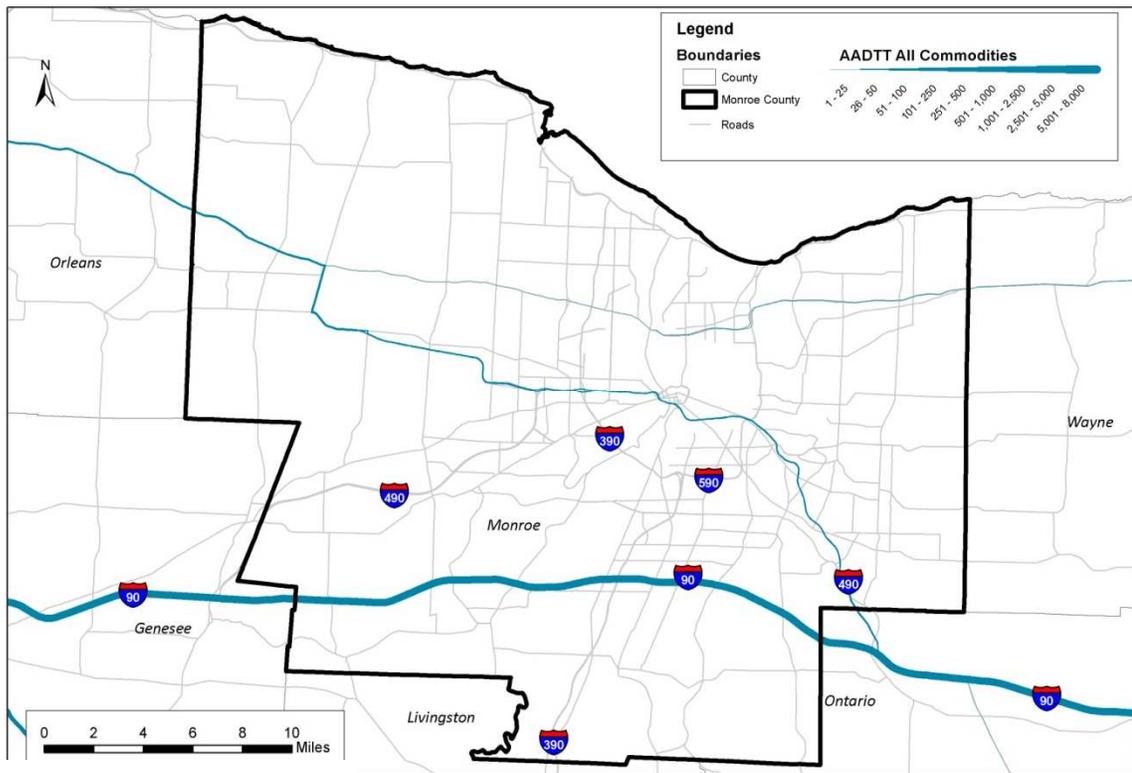
Examining through traffic as a subset of the total commodity truck flows, it is apparent that through movements are almost exclusively occurring, and projected to occur, along I-90, I-390, and the north-west/south-east corridor of NY-77, US-20, and NY-63 that connects I-90 in the western portion of the Genesee-Finger Lakes Region to I-390 in the south. This observation supports the hypothesis that trucks traveling through the region on their way between origin and destination points outside the region tend to use the Interstate highway system, and are unlikely to use most of the state and local highways, with a few exceptions. The non-Interstate highways accommodating noteworthy volumes of through truck traffic are routes that “cut corners” between the Interstate highways, or which provide more direct access to and from industrial areas on the east and south sides of the Buffalo metropolitan region.

Projections for 2035 show overall increases in through truck flows within the region, with a majority of the increases occurring along I-90, I-390 and the north-west/south-east corridor of NY-77, US-20, and NY-63. Notable increases are projected to occur along the NY-19 corridor between US-20 and I-90. This increase in through truck flow can be attributed to projected economic growth in metropolitan areas outside the Genesee-Finger Lakes Region, and the likelihood that through trucks most often take the “path of least resistance,” such as limited-access highways such as Interstates, and “shortest path” routes which may offer a significant time savings compared to a longer route via the Interstate Highway System. Current and future traffic flows for commodity trucks traveling through the region are illustrated in Figures 3.34 (regional scale) and Figure 3.35 (Monroe County detail).

Figure 3.34 Through Commodity Truck Flows on Genesee-Finger Lakes Regional Highway System 2010 (top) and 2035 (bottom)



**Figure 3.35 Through Commodity Truck Flows in Monroe County
2010 (top) and 2035 (bottom)**



3.4.3 Inbound and Outbound Commodity Truck Flows, 2010-2035

Inbound and outbound commodity trucks defined as having an origin or destination point within the Genesee-Finger Lakes Region, with the opposite end of the trip being located beyond the boundaries of the region. As illustrated in Figure 3.36, these trucks originate or end their trips at facilities located in all corners of the region. For outbound trips, they utilize the state and county highway systems to access the Interstate Highway System, which they typically will remain on until they reach the region where their destination point is located. The state and county highways are therefore the routes used for the “first mile” of a freight haul, between the facility where the shipment originates and the Interstate Highway System. For inbound trips, the same activity happens in reverse, and the state and county highways serve as the “last mile,” where trucks travel between the Interstate Highway System and the destination of their load.

Not surprisingly, many of the state and county highways that accommodate relatively high volumes of inbound and outbound trucks, such as NY-19, US 20, NY-21, NY-63, and NY-104, are those that connect Interstates 90 and 390 with clusters of freight-generating industries in the central Monroe County area and many of the cities and villages with significant industrial facilities, such as Batavia, Canandaigua, and Webster. Figure 3.37 shows the movement of inbound and outbound commodity trucks in Monroe County in greater detail.

**Figure 3.36 Inbound + Outbound Commodity Truck Flows
2010 (top) and 2035 (bottom)**

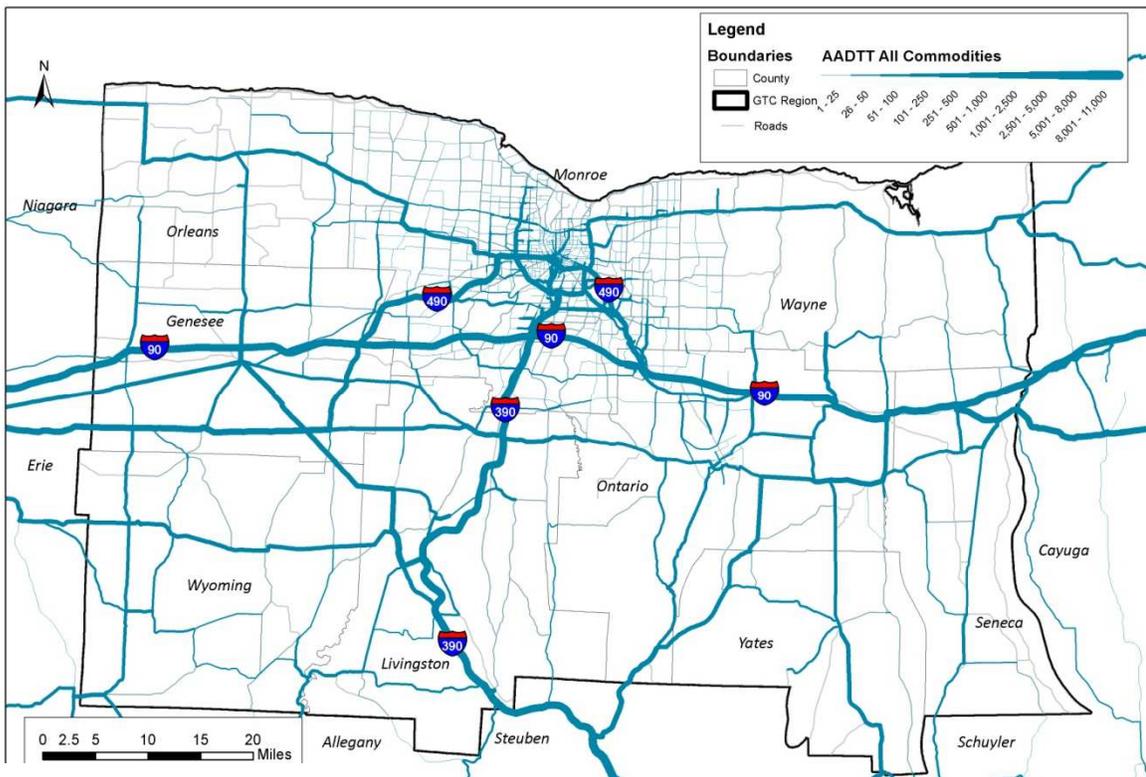
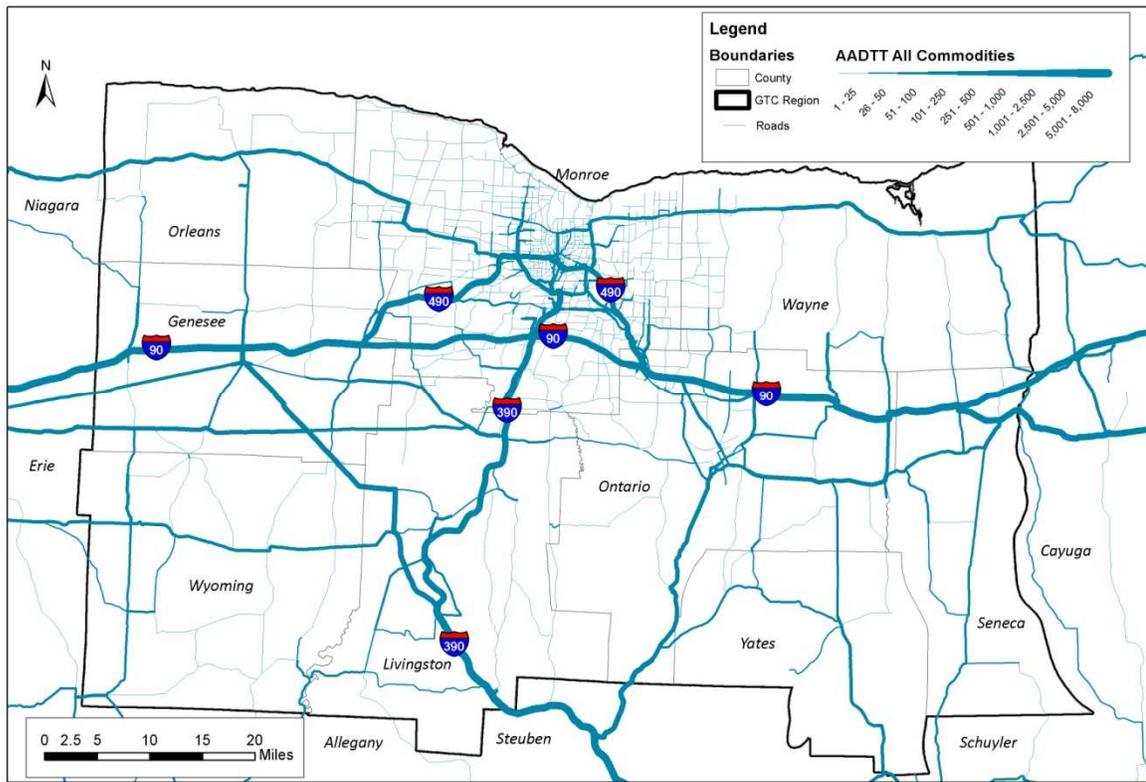
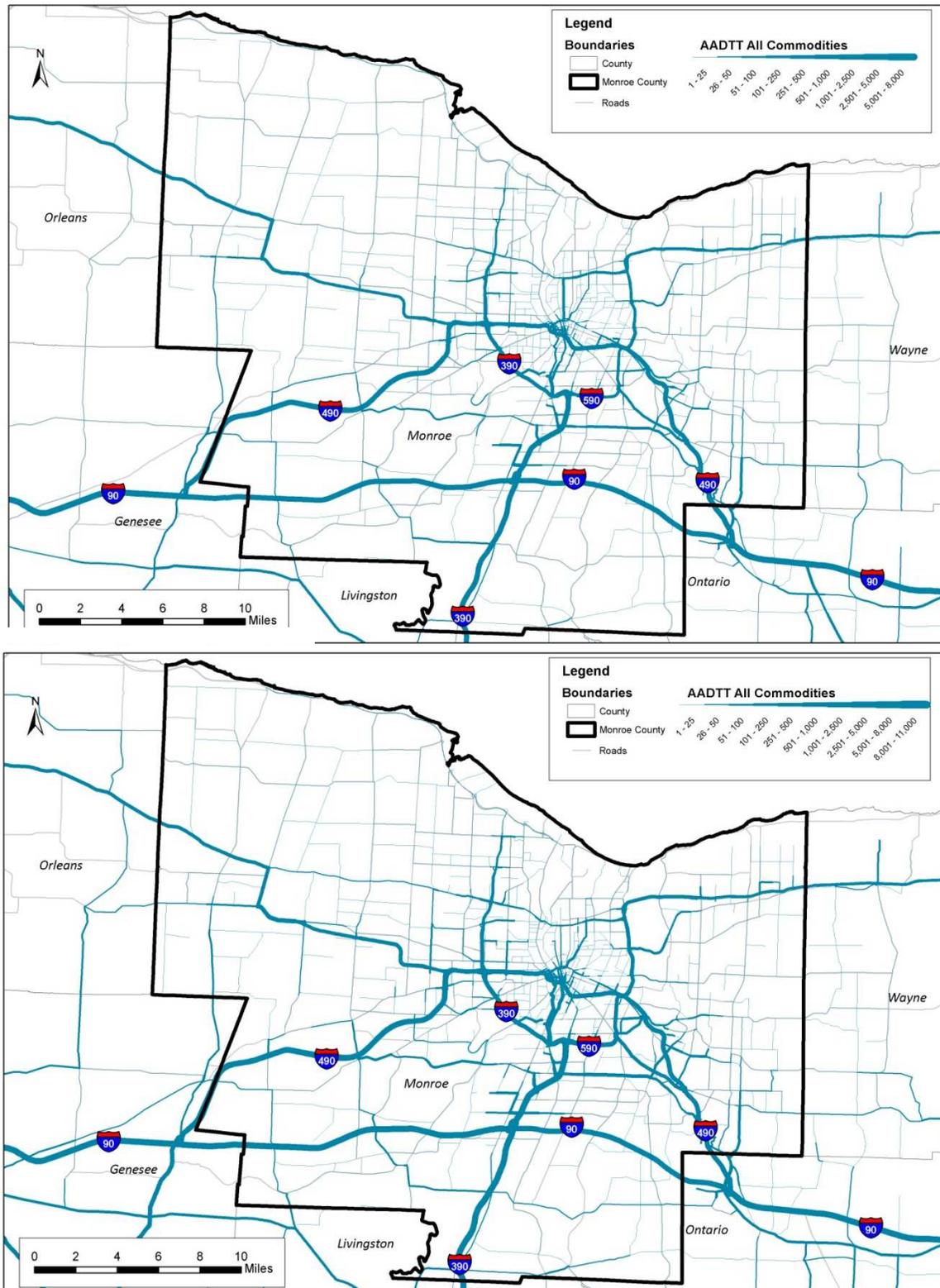


Figure 3.37 Inbound + Outbound Commodity Truck Flows in Monroe County 2010 (top) and 2035 (bottom)



3.4.4 Rail Freight Flows, 2010-2035

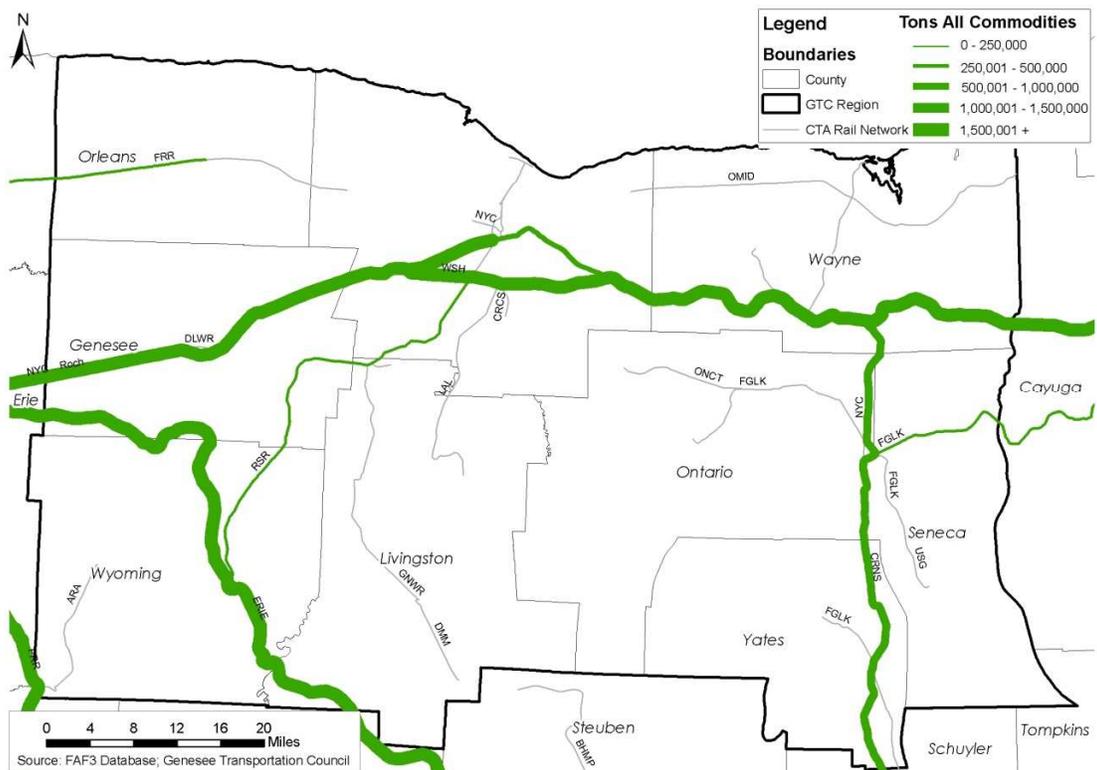
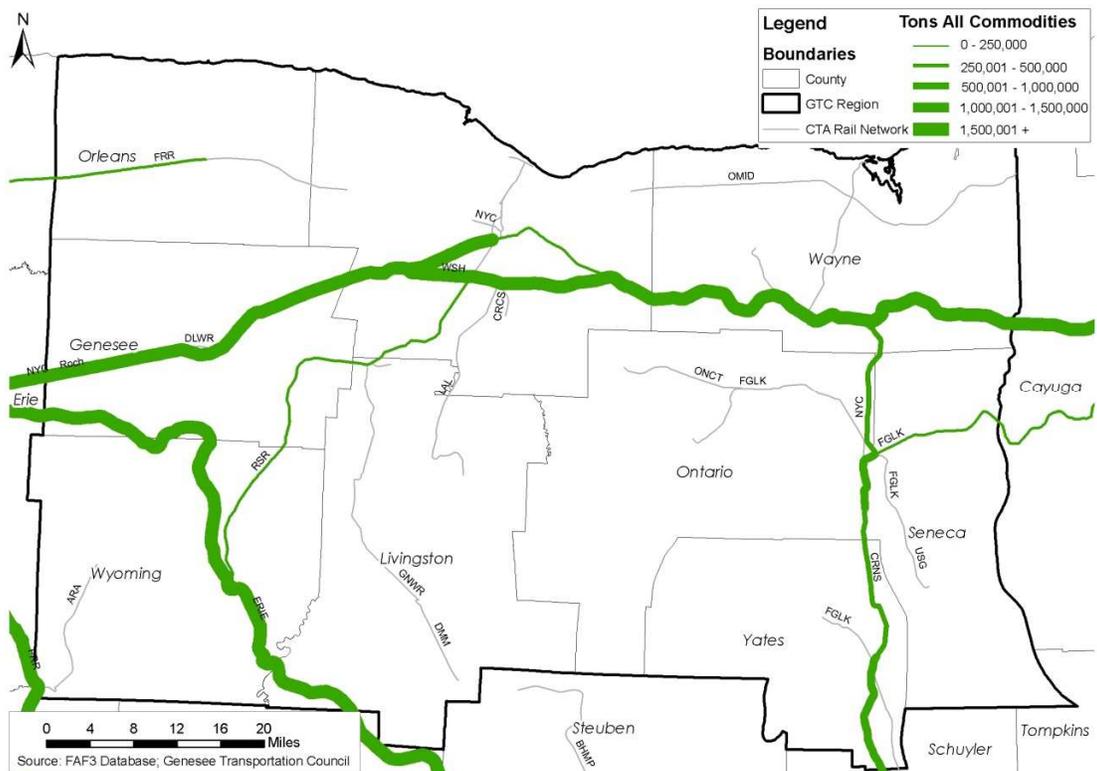
There are fewer routes available for rail traffic than for trucks, and route choice decisions are determined by infrastructure ownership and “blocking” decisions made by the owning railroad. Blocking refers to the practice of grouping railcars together and moving them through the system based upon common ultimate or intermediate destinations.

In the Genesee-Finger Lakes Region there are two Class-I railroads: CSX and Norfolk Southern. Each has one main line that traverses the region. CSX traffic is routed along the Water Level Route between the Buffalo and Albany areas. Near the metropolitan area core, most of the CSX traffic, which is traveling through the region, passes to the south of Rochester along the West Shore Subdivision. Most of the traffic routed into Rochester along the Rochester Subdivision is destined for classification or receiving at the CSX Rochester Yard.

Norfolk Southern’s Southern Tier Line passes through parts of Genesee, Wyoming, and Livingston Counties. Like the CSX Water Level Route, most of the traffic on the Southern Tier Line is traveling through the region between Buffalo and points west and Binghamton and points south and east. In addition, the NS Corning Secondary serves as a connection between many of the short line railroads operating in the Finger Lakes region, especially the Finger Lakes Railroad, with the NS Southern Tier Line. Shipments of coal travel up the Corning Secondary to the generation plant in Dresden.

The CSX and Norfolk Southern main lines are accessed by several of the region’s short line railroads through interchange at several points along the main lines. The highest-volume short line railroads are the Finger Lakes Railway service between their interchange with NS in Geneva and their interchange with CSX in Solvay, the Rochester and Southern Railroad (which has customers in Rochester, LeRoy, and Caledonia) between New York Central Railway between their interchange with NS in Silver Springs and with CSX in Rochester, and the Falls Road Railroad in Orleans County, which serves the Western New York Energy, LLC ethanol plant in Medina. Between 2010 and 2035, growth in rail traffic is anticipated, however, there is almost no change in the proportion of rail traffic on each line relative to the others. Freight rail traffic in 2010 and 2035 are mapped in Figure 3.38.

**Figure 3.38 Total Rail Tonnage on Genesee-Finger Lakes Regional Rail Network
 2010 (top) and 2035 (bottom)**



3.5 Organization and Public Policy

The goods movement system in the Genesee-Finger Lakes Region operates within a matrix of institutional and commercial relationships, regulations, and public policies that govern the activities and decisions of all the players. From federal agencies to local municipalities, it is a challenging task to meet the increasing demand for freight movement along the nation's surface, air, and marine transportation systems while limiting the impact on and preserving the quality of life and safety of local communities. This section describes the commercial relationships, regulatory framework, and public policies that govern freight movement in the Genesee-Finger Lakes Region.

3.5.1 Commercial Relationships

As a major manufacturer of precision instruments, fabricated metals, and transportation equipment, as well as a large producer and processor of agricultural goods, the region sees its fair share of freight movements, especially by truck along its highway system. For the most part, firms located within the region (with the notable exception of Wegmans Food Markets, Inc.) hire third-party logistics providers, including Rochester-based Mohawk Global Logistics, and less-than-truckload (LTL) carriers like UPS, FedEx, and Emerson Express to manage part of all of their supply chain management functions. Outsourcing to third-party logistics providers enables firms to reduce assets and costs, focus on core business processes, and improve the efficiency and speed in which goods are managed and transported.

Commercial relationships not only influence how freight moves throughout the region, but also where goods come from and are shipped to. Manufacturers and retailers located in the region are part of a complex supply chain that extends around the globe. Whereas many manufactures formerly imported all the raw materials they would need and exported finished products from one facility, now raw materials go to component manufacturers, who then ship parts down the supply chain until various components reach the point of final assembly into a finished product. The commercial relationships at each link in the supply chain govern how goods move, and the consumers of transportation services determine how quickly freight needs to move, at what cost, and so on. Manufacturers, in turn, have relationships with retailers that govern how much their products cost on retail shelves, how much needs to be produced, the timing of production and shipment, use of warehousing vs. just-in-time manufacturing and delivery, and who absorbs risks.

Often, commercial relationships between a supplier and manufacturer or between a manufacturer and a logistics provider, built on trust and past experience, inject inertia into a supply chain such that a customer may continue to use a supplier even when transportation costs or the cost of labor or raw materials exceeds a higher quality and/or cheaper alternative. Thus the importance of interviewing and surveying businesses in the Genesee-Finger Lakes Region to make adjustments to data and analyses that assume all actors in the global market act rationally and in their best interests at all times.

3.5.2 Laws and Regulations

Companies with limited or no connection to the local or regional community may not be concerned with the impacts of freight transportation. Current NYSDOT truck routing policies are designed to maximize the use of the Interstate highways as the highways of choice for large,

through-truck traffic, and limit truck movements on state facilities to serving the needs of local residents and businesses. State law allows truckers to use county and local roads only if they are making local deliveries, when there is no other route available or if they have a special hardship waiver.

Yet truck operators and shippers will for the most part utilize routes that reduce time and costs, with environmental, noise, and safety impacts being secondary concerns. Transport carriers that have connections to the region may be more knowledgeable and/or understanding of community needs; and possibly more willing to follow regulations and participate in programs intended to reduce vehicle emissions, noise, and improve local safety. Additionally, local business should work with transport companies that understand both state and local regulations, and recognize how they impact the communities through which they pass. For example, NYSDOT is currently working with regional landfill owners, in particular Seneca Meadows, to add a provision to trucker contracts that would require haulers to use appropriate roadways for the transport of municipal solid waste.

Within the Genesee-Finger Lakes Region, freight movement is governed by a host of federal, state, regional, and local regulations and agencies. At the federal level, program divisions within the U.S. Department of Transportation (USDOT), such as the Federal Highway Administration (FHWA), the Federal Aviation Administration (FAA), the US Maritime Administration (MARAD), the Federal Railroad Administration (FRA), and the Federal Motor Carrier Safety Administration (FMCSA), are responsible for developing and enacting freight transportation policies that ensure the nation's ability to provide the safe, fast, reliable, and cost-effective movement of freight. Other government agencies such as the Department of Homeland Security and umbrella groups such as the American Association of Railroads, American Trucking Association, and American Association of State Highway and Transportation Officials (AASHTO) play large roles in shaping federal freight transportation policy. Even though federal regulations are broad and targeted at improving the overall performance of the nation's freight transportation system, federal policies can create significant local impacts.

For example, in 2005 the FMCSA introduced new Hours-of-Service regulations (49 CFR Part 395), which put limits in place for when and how long commercial motor vehicle (CMV) drivers may drive. In 2011, a revised, more stringent rule was proposed by FMCSA, and as of this writing the rule had not been adopted. The policy current as of this writing is summarized in Table 3.6.

**Table 3.6 Current Hours of Service Rules for
Property-Carrying Commercial Motor Vehicles (adopted in 2005)**

11-Hour Driving Limit

May drive a maximum of 11 hours after 10 consecutive hours off duty.

14-Hour Limit

May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period.

60/70-Hour On-Duty Limit

May not drive after 60/70 hours on duty in 7/8 consecutive days. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty.

Sleeper Berth Provision

Drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus a separate 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.

The regulations, designed to ensure truck drivers get the necessary rest to perform safe operations and continue the downward trend in truck fatalities, have also created subsequent concerns regarding capacity constraints at public and private rest areas. These constraints have forced some truck drivers to stop on highway shoulders, creating formidable hazards to other drivers and leaving truck drivers exposed and without amenities. Roadside parking also impacts nearby neighborhoods, where idling engines can create nuisances for local residents. As the volume of traffic in the Genesee-Finger Lakes Region increases, GTC, NYSDOT, the NYS Thruway Authority, and their partners may need to examine and address the needs for expanding or developing new public and private rest facilities to meet growing demand.

Other federal policies, such as environmental and emissions regulations may also play a role in shaping freight transportation, sources of energy generation, and economic growth opportunities within the Genesee-Finger Lakes Region. Currently coal is a cheap and readily available energy source within the region. However, sustainable energy sources, such as wind farms (for example, those in operation at the Fenner Renewable Energy Center), and the use of crops from local farms and waste from local businesses to produce ethanol-based biodiesel, would require additional freight transportation and infrastructure investments. Another example can be observed Lockport, NY where Delphi Automotive working with Clarkson University (Potsdam, NY) in the development of alternative propulsion currently mechanisms for small and large trucks. Not only is this New York State Energy Research and Development Authority (NYSERDA) sponsored project creating economic development opportunities in New York State, it has the potential to improve fuel efficiency and reduce the environmental impacts associated with freight transport.

The FRA and the Surface Transportation Board are responsible for regulating freight rail operators. Rail operators must seek approval from the Surface Transportation Board, for example, when they want approval to abandon a section of rail track or when they want to merge or coordinate their operations. The FRA, previously concerned primarily with safety of rail operations, recently has been charged with developing and implementing a plan for High Speed Passenger Rail. The CSX Rochester Division and the remainder of the “water level route” between Buffalo and Albany is one of New York State’s priorities for improved passenger rail service. NYSDOT and CSX are working closely with the FRA to determine how to improve passenger rail operations and reliability while ensuring freight rail operations can meet existing and projected needs.

Municipalities in some cases exert control over truck idling and truck movements on local roadways. However, routing conflicts can arise if municipalities institute truck restrictions that are not NYSDOT-sanctioned or coordinated with neighboring municipal policies or plans. To ensure the safe, efficient, and effective movement of freight, state, county, and local officials need to coordinate with one another and work with trade associations, such as the New York State Motor Truck Association (NYSMTA), when developing truck routing policies and plans.

Currently, NYSDOT is working with the Upstate Safety Task Force and local officials and enforcement agencies on revising upstate truck routing policies aimed at reducing large through-truck traffic on local roads in the Finger Lakes. Presently, NYSDOT uses the following principles to guide the development of new large truck policies:

- Large trucks should utilize the National Network (primarily the Interstate highway system) for all travel except to access terminals or to reach food, fuel, rest or repair locations;
- When traveling off the National Network, large trucks should utilize the most direct route when accessing terminals and services.

New policies specific to the Genesee-Finger Lakes Region may include route restrictions, increased enforcement and, a possible inspection program around the region for tractor trailers traveling along rural routes. However a number of issues, including who would be responsible for management and upkeep of additional inspection facilities and the impact stricter enforcement and tighter rules would have on local economies, still require resolution.

Truck Length

The Federal Surface Transportation Assistance Act (STAA) of 1982 (P.L. 97-424) and subsequent detailed regulations approved in the U.S. Code of Federal Regulations (23 CFR 658) required states and the U.S. Department of Transportation to designate a National Network of Qualifying Highways, on which they must allow the free movement of truck tractors with 48-foot trailers, tractor-trailer combinations of up to 65-feet and 102-inches wide, tractor with 28.5-foot tandem trailers, maxi-cubes, triple saddle mounts, stinger-steered auto carriers, and stinger-steered boat transporters. These various types are collectively known as “conventional truck combinations” or “STAA Vehicles.”

When the STAA became law, the trucking industry standard for trailer length was a maximum of 48-feet. In the past 30 years, 53-foot trailers have become the industry standard and are in common, daily use nationally. The STAA does not reference or acknowledge 53-foot trailers. However, 25 states allow the operation of truck tractors with single 53-foot trailers without special permits, while 3 additional states (including New York) allow 53-foot trailer operation subject to limits on distance of the king pin to rearmost trailer axle.

The National Network of Qualifying Highways has not changed significantly in a quarter century since its creation. It is modified only if segments are added to the Interstate highway system or if states petition to have a segment beyond the Interstate highway system added or deleted. Petitions for modifications have not been received by the FHWA in years, even though the geography of interstate commerce has changed significantly with the growth of smaller communities into principal cities and the emergence of new, densely developed areas.

Consistency between the National Network and freight-related portions of the more recent National Highway System is not required.

As a companion to the federal STAA of 1982, the New York State Access Highway network was created by amendments to state Vehicle & Traffic Law in 1982. Since that time, STAA conventional truck combinations have been authorized to travel along any Access Highway to reach their intended destination / origin, but may not travel off that highway for any distance.

New York State's 1990 Omnibus Truck Safety Bill expanded the types of truck combinations allowed on the state's Access Highway network and National Network of Qualifying Highways within the state [§ 385(3)(e) of the NYS Vehicle & Traffic Law]:

- Truck tractors with a single 53-foot trailer (having a maximum of 43-feet between the king pin and the rear most trailer axle) may operate along any Access Highway, but may not travel off that highway for any distance (see Figure 3.39).
- Additionally, tractors with a single 53-trailer may operate along any designated Qualifying Highway of the National Network and along any other highway within one linear road mile of the Qualifying Highway using the most reasonable and practical route that has adequate geometrics to support safe operations (see Figure 3.39).

Figure 3.39 NYSDOT Qualifying and Access Highways in the Genesee-Finger Lakes Region



Long combination vehicles (two or more trailers in series behind one tractor) also are regulated as follows:

48-foot Tandem Trailers: Operation of truck tractors with 48-foot tandem trailers is allowed in New York State, but restricted to the New York State Thruway System and some immediately adjacent highways as specifically listed in § 385(16) of the NYS Vehicle & Traffic Law. These tandem trailers are commonly, but unofficially, referred to as “Thruway Tandems”.

53-foot Tandem Trailers: Truck tractors with 53-foot trailers are limited to single unit operation. Tandem trailer operation involving 53-foot trailers is prohibited throughout New York State.

Triple Trailers: Operation of truck tractors with three or more trailers (regardless of trailer length) is prohibited throughout New York State.

Truck Weight

Truck weights in New York State are regulated both by the U.S. and New York State Departments of Transportation. NYSDOT allows semi-trailers with a gross vehicle weight of 80,000 pounds or less to travel on state highways without a permit, provided they meet axle loading limits specified in the U.S. DOT’s Federal Bridge Formula. NYSDOT and U.S. DOT use the formula to determine the maximum allowable weight that any set of axles on a motor vehicle may carry. The formula limits the weight-to-length ratio of a vehicle crossing a bridge by spreading weight over additional axles or by increasing the distance between axles.

NYSDOT issues special vehicle combination permits for two or three vehicle combinations, (Steel Haulers), consisting of a tractor semi trailer or tractor semi trailer and trailer for specifically transporting steel, not to exceed length, height, and width as prescribed by the Vehicle and Traffic Law and up to 140,000 pounds maximum gross vehicle weight. These permit limit eligible trucks to approved routes listed on the permit in Erie County, City of Niagara Falls.

3.5.3 Public Policy Regarding the Future of Freight Transportation

Freight is increasing in importance on the national transportation agenda. The U.S. Department of Transportation and national transportation advocacy groups, like the American Association of State Highway and Transportation Officials (AASHTO), the American Trucking Association (ATA), and the American Association of Railroads (AAR), have been working to raise the profile of freight transportation needs leading up to the next Federal Surface Transportation legislation and funding package. Two issues in particular have gained traction:

- **Funding and financing freight transportation improvements.** First, the need for the public sector and private sector to work together to fund and finance transportation investments has never been clearer. Various proposals to facilitate more effective public-private partnerships (PPPs) have been circulated at the Federal level. The Obama Administration's TIGER (Transportation Investment Generating Economic Recovery) Discretionary Grant Program and the subsequent TIGER2 initiative encouraged the State and private rail operators to work together to develop and submit competitive applications for Federal discretionary funding. More merit-based, competitive grant programs can be expected in the future. In terms of finance, Build America Bonds enabled states and municipalities to borrow at reduced interest rates to finance freight transportation improvements. The idea of creating state-level Infrastructure Banks, with seed capital from the state and Federal governments, would expand the pool of capital available to finance large freight transportation projects that are not viable on a pay-as-you-go basis. Regardless of the availability of funding for infrastructure, operations, and maintenance of the transportation system, Federal agencies have signaled their intent to continue to strive for improved safety, energy efficiency, and operational efficiency of freight transportation through a variety of regulations, incentives, and initiatives.
- **Measuring the performance of freight transportation.** As Americans demand more and more transparency and accountability in government spending and operations, there is an increasing need to measure transportation system performance and evaluate transportation investments on a level playing field. The National Cooperative Freight Research Program, AASHTO, AAR, and the Association of Metropolitan Planning Organizations, among others, have been working together to develop transportation performance measures and freight-specific measures that would allow for performance-based planning of freight system investments and performance-based programming of freight revenues. The next phase of this study will include development of a framework for evaluating freight transportation needs in the Genesee-Finger Lakes Region and assessing to what extent various improvements and strategies would address these needs.

The public sector at the state and Federal levels has taken a renewed interest in freight transportation. Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region: 2035 (LRTP 2035)*, sets the direction for transportation infrastructure and services over the next nearly 25 years and provides a framework for future federally-funded planning and investments including freight and goods movement needs. The *LRTP 2035* addresses changing global economic conditions, increasing energy costs and projected regional demographic trends. Ensuring that the transportation system is a distinguishing factor in retaining and attracting businesses in the Genesee-Finger Lakes Region is the plan's primary consideration. The *LRTP 2035* includes recommendations, strategies and actions for existing and future needs with in the financial resources reasonably expected through 2035.

The 2009 New York State Rail Plan lays out the state's goals and objectives for both freight and passenger rail over a 20-year horizon. The plan, which calls for a 25 percent increase in rail market share statewide, assesses needs for improvement in the entire rail system and lays out an investment strategy to reverse past disinvestment in rail infrastructure and position rail as a preferred choice for travelers and shippers. NYSDOT and the NY State Thruway Authority have jointly undertaken the Mohawk Erie Multimodal Corridor Study, which includes the northern part of the Genesee-Finger Lakes Region, in an effort to improve multimodal transportation of goods and people in the vital tourism and trade corridor between Buffalo and Albany. NYSDOT has long taken an active role in supporting Class III rail services, ensuring continued service to small communities throughout the region.

Each of these initiatives will be considered as this study progresses into the Needs Assessment/SWOT analysis phase.

4

Needs Assessment/SWOT Analysis

Building on the information collected as part of the Regional Freight and Economic Profile, this analysis of regional Strengths, Weaknesses, Opportunities and Threats (SWOT) and accompanying assessment of needed freight transportation investments, strategies, and policy changes is part of a process to develop a package of recommended improvements to the freight transportation system in the Genesee-Finger Lakes Region.

The SWOT analysis and needs assessment were performed with substantial input from the project Steering Committee consisting of planners, economic development officials, and freight stakeholders from around the region, plus representatives of statewide organizations. A list of Steering Committee members can be found in the Acknowledgements. To supplement the guidance received from Steering Committee members, input also was gathered through the following methods:

- A series of face-to-face interviews with a representative cross section of industries throughout the region;
- Three focus groups held in various parts of the region to gather local input on freight transportation needs;
- A fourth focus group consisting of freight rail industry representatives; and
- An online survey directed to major shippers and receivers of freight, truck fleet operators, and others involved in freight transportation logistics and operations.

This Needs Assessment/SWOT Analysis document is organized into three main subsections:

- First, the region's Strengths, Weaknesses, Opportunities, and Threats are presented for the region as a whole;
- Then, building on the SWOT analysis, the associated freight transportation needs of the entire region are discussed;
- Finally, the section concludes with a discussion of how the region can incorporate freight considerations into the overall transportation planning process, and lays out the criteria and performance measures that will be used to evaluate alternatives and prioritize freight projects and strategies for funding in future sections of this report.

4.1 Assessment of Regional Strengths, Weaknesses, Opportunities, and Threats

The first step in the process of evaluating the region's existing freight transportation system is to conduct an assessment of regional Strengths, Weaknesses, Opportunities, and Threats. The results of stakeholder interviews and other outreach efforts are summarized in each of the following four subsections.

4.1.1 Regional Strengths

As noted in Section 3, the Regional Freight and Economic Profile, the region's economy benefits from its proximity to major consumer and supplier markets. A well-educated, highly-skilled labor pool provides a competitive advantage to major employers in the region. The region has excellent access to global markets via a well-integrated, largely uncongested transportation network, although this strength is becoming compromised as fuel prices and other transportation costs increase and as congestion increases in the areas surrounding points of import and export outside of the region. The following comments reflect additional input on regional strengths received from stakeholders as part of the SWOT analysis process:

Institutional and Regulatory Strengths:

- In general, the regional transportation planning process is regarded as open, and a diverse range of stakeholders is involved in decision-making. Stakeholders cited a high degree of interagency cooperation in developing and implementing transportation and economic development policies and strategies. For example, Industrial Development Agencies (IDAs) coordinate closely with freight rail operators when talking to new employers (existing and potential) about site options and development costs.
- Local governments such as Genesee County and the Village of Lyons are developing or have adopted plans to direct the location and scale of future growth of freight generators. Municipalities that have incorporated industrial access and freight considerations into their plans are in a better position to take advantage of new development opportunities when they arise.
- The region has several well-established clusters of freight-generating land uses available for redevelopment. Because they have been used by industry in the past, these sites often are well-separated from conflicting land uses such as residential areas. A series of Transportation and Industrial Access-Site Reports completed by GTC in 2007 documents opportunities and constraints at representative sites in each county in the nine-county study area as well as the City of Rochester. The reports recommend infrastructure improvements that can be used to encourage future development at each site.

Infrastructure Strengths:

- The quality and extent of existing transportation infrastructure as well as water, sewer, and electrical infrastructure reduces pressure for investments in new transportation capacity around the region. Trucks are already aware of congestion that occurs during the peak periods in the morning and evening. Currently, truck drivers are able to build flexibility into

their schedules to avoid these peak periods and schedule deliveries and other trips during off-peak periods. As will be discussed in more detail in the compilation of improvement projects and strategies, there are pockets of congestion in the region that affect freight traffic and need to be addressed. Overall the largely uncongested transportation system is the region's largest strength and best asset.

Operational Strengths:

- Transportation system operators and emergency responders are well-coordinated, particularly in the Rochester area. This coordination allows incidents to be cleared rapidly, reducing the delays associated with lane closures and total road closures. GTC updated its Intelligent Transportation System (ITS) Strategic Plan in February 2011. One regional ITS objective listed in the plan mentions freight specifically ("Provide for phased deployment of ITS technology to collect more real-time travel time data, particularly along major commuting and freight corridors"). The plan calls on the region to "Identify key freight and commuter mobility corridors" (which was done in the Regional Freight and Economic Profile for this study) and "Maintain the efficiency of the region's freight corridors to promote economic competitiveness."
- There is a strong statewide and regional commitment to reducing freight energy use and mitigating freight's impacts on communities and the environment. The New York State Energy Research and Development Authority (NYSERDA) is a national leader in advancing research and practical applications of technologies to improve truck and locomotive fuel efficiency and reduce the freight transportation sector's contributions to greenhouse gas emissions. NYSERDA works with the private sector to retrofit existing trucks with fuel-saving devices, such as auxiliary power units to reduce the need for overnight truck engine idling. Private sector owners and operators of truck fleets have been purchasing new, more fuel-efficient and less-polluting vehicles to offset rising diesel fuel costs. For example, in the Genesee-Finger Lakes Region, Wegmans has renewed their fleet of trucks with vehicles that reduce emissions by 90 percent compared to the older models in their previous fleet.

4.1.2 Regional Weaknesses

Institutional and Regulatory Weaknesses:

- Although cooperation and collaboration within the public sector was cited as a strength, coordination among public and private stakeholders regarding planning, investment, and operations of the freight transportation system could be improved.
- Communities sometimes compete with one another for new development, offering subsidies and tax abatements to secure a new employer. A “jobs at any cost” approach to economic development can work against regional objectives as businesses are induced to locate in sub-optimal locations, from a freight transportation perspective, to take advantage of local tax incentives.
- Local municipal zoning/land use policies and actions sometimes are inconsistent with regional freight transportation goals. For example, when a local municipality approves a series of building permits that result in encroachment on a freight rail right-of-way, that right-of way may no longer be available for future freight rail service. Similarly, when signed truck restrictions are imposed unilaterally by a community, trucks may be diverted onto long detour routes that increase the cost of doing business and may shift the impacts from one community to several others.
- Both the state and Federal governments have signaled that future transportation investments may have to be financed via public-private partnerships. However, the Genesee-Finger Lakes Region, like every other region of the country, has struggled with how to allocate “public” resources to what are largely regarded as “private sector” projects (many of which are freight rail projects). It is difficult to accurately forecast how a project's benefits (and, therefore, its costs) will be allocated to the public and private sectors. Likewise, it is challenging to isolate the freight-specific benefits of traditional investments in highway infrastructure; such as improving a roadway that carries cars, local delivery vehicles, and long-haul trucks.
- The New York State Office of Real Property Tax Services (ORPTS) encourages rail operators to take advantage of available tax incentives, but these incentives do not always achieve their goals. As an example, in 2005, New York passed a railroad real property tax abatement program. Each railroad has to apply for an abatement of taxes if they advance an improvement project that is considered above and beyond regular maintenance, such as signal improvements. In practice, railroads have found it very difficult to qualify for the tax abatement, and therefore have not been able to make improvements that could have been cost-feasible with the tax abatement.
- There is a constant tension between the investment priorities of private freight transportation operators and the public sector’s mandate to promote the general welfare. One example is the requirement, passed into law by Congress following a collision between a freight and passenger train in 2008, that all rail operators implement “Positive Train Control” (PTC) systems to ensure that trains adhere to speed restrictions and maintain a safe distance apart to avoid collisions. Private rail operators argue that other investments, such as investments in state-of-good-repair and additional rail capacity, would have a greater return on investment than implementation of PTC technologies on tracks and in locomotives.

However, each instance of a rail collision, particularly those between passenger and freight trains, puts pressure on politicians and regulators to take action to improve public safety.

- The lack of an officially-designated and signed truck route network increases the risk that truck drivers (particularly those using non-commercial GPS devices) will find themselves directed through residential areas, over weight-restricted bridges, or under low-clearance bridges. Trucks are officially permitted on most state highways in New York State, but there are few examples of wayfinding signage to help trucks navigate around sensitive areas (such as village downtowns, residential areas, and other areas with high levels of pedestrian activity) and around infrastructure that is not suitable for truck traffic (weight- and clearance-restricted bridges). The City of Rochester does post weight restrictions on local streets, but there is no officially-designated and signed truck route network in much of the region.

Infrastructure Weaknesses

- The region lacks sufficient rail access points such as bulk transfer facilities and intermodal rail transfer facilities. Firms in the region currently must dray shipping containers to an intermodal terminal in Buffalo or Syracuse. Unlike air cargo and marine cargo, the costs of draying cargo to or from a nearby transfer point are already being felt by area shippers and receivers. Those firms that were interviewed as part of an outreach effort for this study cited the lack of an intermodal rail terminal in the region as among the top transportation-related impediments to the region increasing its competitiveness. The lack of a sufficient quantity of bi-directional rail traffic to/from any one region of the country limits the viability of intermodal rail service.
- Class I rail lines prefer not to develop adjacent to main line tracks because it means they could be required to add a switch and implement PTC technology. It also could require alterations to through service on the main tracks if the track is operating near capacity, diminishing overall through train capacity on the mainline tracks. The additional operational expense is not worth the revenue generated by the new traffic in most cases. Therefore, it is unlikely that most properties along the Class I rail lines will be able to realize the full advantages of rail access.
- The region has a relatively far-reaching rail network today, but key components of the even larger historical regional rail network have been compromised. Some lines have fallen into disrepair or have had key pieces of infrastructure such as bridges removed. Others have been converted into recreational trails. Still others have had rights-of-way encroached upon by buildings and other hard infrastructure, or sections of the right of way have been sold outright.
- Most shortline rail lines in the region are single track, and there are not enough sidings in rural areas to temporarily store empty rail cars that are sitting idle between shipments. Some of the sidings that are available for rail car storage are in urbanized areas adjacent to residential areas, schools, and other sensitive land uses. Aside from residents' complaints that the rail cars are unsightly, empty rail boxcars are perceived as magnets for the homeless and for criminal activity, and empty tankers are perceived as threats to the environment and public health. When rail cars are moved onto and off of sidings, the locomotive noise and the noise associated with coupling, uncoupling, and moving rail cars also draws complaints.

- On major regional freight corridors such as interstate highways, main rail lines, and access routes to major freight generators, all types of freight activity draw complaints, mainly about noise, vibration, emissions, and safety. In some areas, trucks making local deliveries have no alternative but to pass through busy downtown business districts and the residential areas on the outskirts of major cities and villages throughout the region. Trucks are perceived as noisy, polluting, and unsafe to mix with much smaller, slow-moving automobiles, not to mention bicycles and pedestrian traffic. Many complaints come from people who do not realize that the trucks often are serving businesses in their immediate vicinity, including retail stores, job-sustaining factories, and tax-revenue-producing landfills. Because of the perception that “freight doesn’t vote,” sometimes the complaints of local residents prevail over the needs of local and regional businesses.
- Particularly in rural areas where there are few alternate routes, bridge weight and clearance restrictions can force trucks to make long detours. Many bridges spanning the Erie Canal, for example, are weight-restricted, making the canal a barrier to economic development in the northern parts of Orleans and (to a lesser extent) Wayne Counties. Bridge clearance restrictions on the NY State Thruway and other primary highways force oversize loads (e.g., wind turbine parts traveling to an installation site in or near the region) onto county and local roads.
- There is limited air cargo service at airports within the study area boundaries, although major air cargo hubs are less than a day’s drive away. Several integrated express carriers serve Greater Rochester International Airport (GRIA), and passenger airlines that fly jets to GRIA can carry belly cargo. Nonstop charter cargo flights connecting GRIA to international destinations occur on an as-needed basis. The lack of bi-directional air cargo shipments to any single air cargo market prevents any new scheduled, dedicated air cargo service from taking hold at GRIA. Instead, almost all cargo passing through GRIA must connect through a passenger or air cargo hub airport in order to aggregate enough shipments to justify flights to destinations around the globe. Particularly in the eastern part of the study area, shipping air cargo via truck to or from JFK International Airport in New York City can be time- and cost-competitive with shipping to or from world markets via GRIA plus a connection.
- Mixed-use residential/retail/commercial redevelopment at and around the Port of Rochester coupled with a lack of adequate highway facilities for freight precludes future use for industrial development or as a major freight hub. The combination of land use changes and poor freight access means it is not likely that the Port of Rochester will redevelop into a deepwater seaport. This means shippers needing access to global suppliers and customers must haul their goods via truck or rail to or from a deepwater seaport outside the region. At the moment, the drayage costs to deepwater seaports such as the Port of New York and New Jersey and the Port of Montreal are not an issue, but should fuel costs rise precipitously, the region’s lack of a deepwater seaport could put it at a competitive disadvantage.
- There is a lack of access to comprehensive information on non-transportation infrastructure capacity that is necessary to complement transportation investments. In addition to transportation, businesses look at the cost and availability of energy, telecommunications, water, and sewer, among other infrastructure, when making location decisions.

Operational Weaknesses

- A rail trip typically requires one rail operator to pick up rail cars at a point of origin, haul those cars to an interchange point where either another rail operator picks them up or they are assembled into a train, and so on until the cars reach their final destinations. Interchanges between short lines and Class I rail operators are difficult for three reasons, as detailed in the Regional Freight and Economic Profile document. First, interchange points may not have enough capacity to store rail cars being dropped off and/or picked up by each respective operators. When rail storage capacity is inadequate, one of the rail operators must spend valuable time moving cars off a siding or yard track to another storage location upstream or downstream. Second, labor rules and differing working hours at the two railroads can sometimes prevent a quick exchange of rail cars between operators. Last, different rail operators may use different means of communication, leading to delays as paperwork is exchanged and train equipment is safely moved in and around an interchange point. Interchange agreements between the railroads are rarely enforced, and operational difficulties that lead to delays on the Class I system also affect the short line operators.
- The trend in the Class I rail industry has been to operate fewer miles of track, but operate each mile more efficiently. Unlike the past, when Class I rail services operated more like “hub and spoke” carriers and accommodated frequent interchanges with short lines along their main lines, today Class I rail operators prefer to haul unit trains over long distances with as few stops as possible. Short line rail operators are having a more difficult time reaching financially feasible agreements with Class I rail lines to haul small numbers of rail cars that are generated by short line customers.
- Although at-grade crossings in the region have been improved with a combination of crossing signals, crossing gates, and audible bells, as appropriate for each location, at-grade crossings on rail lines still pose potential risks for crashes between trains and motor vehicles. At-grade crossings are a particular concern where they exist on high-volume roadways (in all areas), where a road closure at the rail crossing may lead to operational issues downstream (e.g., queues that block downstream intersections), or where the grade crossing itself could potentially allow trucks and other vehicles with long wheelbases to get stuck.
- Rail yards, freight storage areas, and truck rest areas that are located far from population centers present security challenges. Often these facilities are secluded and far from the watchful eyes of police or regular passers-by. Therefore, they have the potential to attract illicit activity.
- U.S.-Canada border crossing times for inbound freight traffic can be high, preventing trade with Canada from reaching its full potential. As an example of the impact of border crossing delays, anecdotally, drivers used to cut across Canada to get to Detroit and Southeast Michigan. Today, trucks go via Ohio to remain in the U.S., even though it's a longer trip. Similarly, deliveries from suppliers in Canada to manufacturing facilities in the Genesee-Finger Lakes Region (and vice versa) incur high costs because it is difficult to make the round trip in one day, despite the short distance.

4.1.3 Opportunities for the Region

Institutional and Regulatory Opportunities:

- Proposed expansion of Federal funding and financing programs for freight transportation may incentivize public/private partnerships for planning, design, funding, operations, and maintenance of freight infrastructure. For example, the Federal Transportation Infrastructure Generating Economic Recovery (TIGER) grant programs of the past few years were structured to encourage public and private-sector owners and operators of the freight system to work together to develop grant applications, including development of project justifications and aggregation of matching funding to constitute the local shares of project costs.
- Increasing cooperation and coordination between public sector regulators and private sector freight operators could lead to safer design and improved operating practices and standards. The Federal Motor Carrier Safety Administration has conducted extensive outreach to the private trucking industry to gather input on proposed revisions to Hours of Service regulations governing how long truck drivers can work between breaks. New York State Department of Transportation has worked to improve the process for obtaining a special operating permit, and in the process has begun to use information from the permits to identify roadways that are commonly used by oversize/overweight vehicles and thus may need to be improved.
- Shovel-ready/pre-permitted sites (both brownfield and greenfield) are opportunities for economic development. In the Genesee-Finger Lakes Region, many of these development sites lie on or near existing major freight transportation facilities, but as indicated above, some have minor or major obstacles, such as low-clearance bridges, that would require a significant investment to provide easy access by modern trucks.
- Where rail rights of way have been retained, they should be maintained so that they can be considered for freight transportation use in the future. In some cases short-line rail rights of way are owned by industrial development agencies. Although the purchases protect the public interest (allowing for future reinstatement of rail service), the purchases also take the property off the local tax rolls.
- The region's industry mix has changed, but locations where the region's employers once had large facilities are being redeveloped. These sites often have access to multiple modes. For example, LiDestri Foods bought a former film processing facility and is using pre-existing rail access to import tomatoes. Other preferred redevelopment sites on the west side of the City of Rochester could be more attractive if low-clearance overpasses could be replaced or bypassed, and if NY-390 north of I-490 were to be rebranded as an Interstate Highway. A low-clearance rail overpass is cited as the main obstacle to redevelopment of a brownfield site off Driving Park Avenue in Rochester, and certain firms have indicated their hesitancy to consider any development site that is more than 1 mile from an officially-designated Interstate Highway.
- Counties and local municipalities know what sites are candidates for development in the future, and therefore they need to plan and implement complementary transportation improvements now to help realize their visions for economic development.

- The region's relationships with neighboring metropolitan areas and state agencies can be leveraged to advocate for policies and incentives to mitigate the impacts of freight movement in terms of noise, vibration, and emissions. Mitigation measures can include such things as: construction of sound walls between major freight facilities and sensitive receptors; use of speed restrictions and prohibitions on the use of jake brakes to reduce truck noise; and use of signage and wayfinding to divert trucks away from village centers.
- Increase awareness about the importance of freight transportation to the region's economy. An education and marketing campaign could improve the image of freight transportation. Today, many who complain about freight's noise, emissions, and aesthetic impacts believe all trucks are coming from and going to "other places," not realizing that a large share of truck traffic has a local origin and/or destination. Marketing efforts by freight rail companies have emphasized the efficiency and environmental benefits of rail. Also, investments in passenger rail infrastructure could draw more people to the rails, presenting opportunities to educate people about freight rail.

Infrastructure Opportunities

- The expansion of the Panama Canal to accommodate larger ships creates the potential for more and larger vessels to call at East Coast ports. The region could benefit from its proximity to the Ports of New York and New Jersey, capturing value from increased flows of freight on East Coast highway and rail infrastructure. The increased carrying capacity of the ships also means transportation costs for exports from the region could be reduced, making the Genesee-Finger Lakes Region a more attractive location for manufacturers and exporters of food products, among other goods.
- The Port of Lyons/Lyons Industrial Park development could be an economic opportunity for the region. The site is located along the Erie Canal at the westernmost point that navigation would be feasible (dredging would be required) and is near the intersection of Norfolk Southern's Olean Secondary (the segment between Lyons and Geneva is currently embargoed), the CSX main line, and Route 14 (which intersects I-90 at Thruway Exit 42). A feasibility study, which will include proposed development costs, is underway. Industries such as food processors and agriculture could see considerable savings by having the choice of moving products by barge, two Class I rail lines, and/or truck. The canal and the Oswego River may need to be dredged deeper in order for the site to receive barges from the Port of Oswego. Another issue is the limitations that the height of existing bridges over the canal would place on barges coming from Port of Oswego. All of these limitations are technically surmountable, but a feasibility study is needed to determine how much the improvements would cost and whether the benefits would outweigh the costs.
- Aside from the Port of Lyons proposal, the region should explore making better connections to the Port of Oswego, since that nearby deepwater port has plans for expansion. The port is served directly by CSX, a Class I railroad that also runs through the region. Although the depth of the St. Lawrence Seaway restricts ships to a 32-foot draft, the Port of Oswego could be a point of import for inputs to the agriculture and food processing industry such as specialized feed and fertilizer; for building materials and other heavy, bulky items; and for inputs to future drilling wells in the Marcellus Shale and Utica Shale natural gas regions.
- Although the Greater Rochester International Airport (GRIA) is an international port of entry, freight forwarders bring freight to New York City. This is a marketing or communication

issue, not an infrastructure limitation. There may be an opportunity to expand air cargo in Rochester.

- The volume of freight moving into, out of, through, and within the region is expected to grow by 66 percent over the next 25 years. This growth in freight traffic, particularly trips with an origin or destination, or both, within the region, will place a strain on the region's transportation infrastructure. Overall, rail has 11-12 percent market share today. The region should build rail capacity so that the share of freight carried by rail can expand and absorb more of the future growth than current forecasts predict.
- Improved connections between modes and increased connections to global markets could make the region more competitive. Specific suggestions include building a rail intermodal transfer facility and expanding air cargo service.
- Marcellus Shale, Utica Shale, and other natural resources follow a boom/bust cycle. Investing in infrastructure now to serve this industry could lead to wasted investment if not careful, or a windfall if good planning and luck coincide. In some cases, companies that own and operate natural gas wells may be willing and/or required to pay for infrastructure improvements to serve the wells.

Operational Opportunities

- Increases in fuel prices could lead to shifts from truck to non-highway modes for freight transport, and shifts in how goods are shipped into the region from overseas. In 2008 when diesel prices spiked, a noticeable share of freight traffic shifted away from the western U.S. ports (and the connecting "land bridge" consisting of Interstate Highways and transcontinental rail lines) and instead landed at ports on the Eastern Seaboard, closer to the majority of the U.S. population. If fuel prices rise to a level where the Eastern Seaboard becomes the main point of import for goods from Asia as well as Europe and South America, Rochester could benefit from its proximity to these ports of import for raw materials, parts, and components.
- It is possible to move one ton of freight approximately 425 miles via rail using one gallon of diesel fuel. The energy efficiency of rail transportation is improving. For example, CSX is purchasing more fuel-efficient locomotives. New emissions and idling reduction technologies for trucks and rail locomotives could further reduce environmental impacts of freight movement

4.1.4 Threats to the Region

Institutional and Regulatory Threats

- Delays due to increased security at the U.S.-Canada border crossing is an issue that is impacting the region's economic competitiveness. Although Toronto and southern Ontario are close to the Genesee-Finger Lakes region geographically, current policies restrict trade, limiting the ability of businesses to get raw materials and supplies from Canada and artificially constraining access to a large consumer market.
- The common perception of freight transportation is dirty, polluting, and noisy. There is a lack of public understanding about the benefits of freight transportation to the region. Truck drivers, rail operators, and the businesses that depend on freight transportation have difficulty gathering political support for freight investments and favorable regulations because it is perceived that "freight doesn't vote" at the polls but, in reality, freight does "vote" with business location decisions and the employment produced by freight-generating businesses.
- The impacts of climate change are hard to predict with certainty, but climate change mitigation and adaptation strategies can be costly to implement. As an example, proposed new emissions and idling regulations could increase transport costs, but the benefits of these regulations may not be felt in our lifetimes. Adaptation strategies can be pursued when major facility reconstruction projects are designed and implemented, but the expense of adaptation also must be weighed against other potential uses of funding and the likelihood that climate change will affect the asset.
- Where freight's impacts on the environment and communities are most concentrated, infrastructure investments and mitigation measures are often the most costly. In urban areas, often there is not sufficient land available to construct a new route to divert trucks away from a residential area or business district. It may be hard to justify building a truck bypass around a small town, and the environmental impacts of doing so (for example, habitat loss) may outweigh the costs. Reducing or eliminating noise from train horns requires costly installation of crossing gates, signals, and crossing bells, or construction of a grade separated rail crossing. The noise impacts of night-time air cargo flights can be widespread across many residences, not all of which can be soundproofed or relocated.
- Although several brownfield sites around the region have been identified as candidates for development, there is a lack of funding to prepare many other brownfield sites and infill sites in the region for redevelopment. The region is rightly concentrating on the best prospects for redevelopment now, but should growth happen at an unexpectedly fast pace, more freight-generating development may be forced outward away from existing freight transportation facilities that have capacity available.
- Concentrated industrial or commercial clusters can result in concentrated impacts, which can have negative impacts depending on the surrounding land uses. On the other hand, less concentrated development patterns require far-reaching water, sewer, electrical, and communications infrastructure, with associated operations and maintenance costs. Less concentrated industrial and retail development also requires truck traffic to pass through rural villages and other communities where roads may not be designed to accommodate heavy truck traffic.

Infrastructure-Related Threats

- There is a great deal of truck traffic entering the region from the south on its way to regional landfills, causing impacts to the quality of life in towns and villages in the Finger Lakes region. New York State Department of Transportation is working with these communities and the generators of the freight traffic to determine an equitable way to encourage or require trucks to use routes that are most suitable for truck traffic.
- Marcellus Shale natural gas drilling could lead to large numbers of truck trips to and from each well, passing over county, town and village roads off the state system that are not designed for trucks. In parts of the region where the agriculture industry is prominent, large trucks hauling manure, milk, and other food products also impact local roads. In all of these cases, the impacts of freight traffic must be balanced against potential economic benefits of the landfills, natural gas drilling, and agriculture.
- The weight restriction on the Portage Bridge on Norfolk Southern's Southern Tier line could be an impediment to growth in the southern part of the region. If the bridge were to be taken out of service due to continued deterioration, some customers could lose rail access. Also, the Southern Tier line could be an important link for intermodal container traffic going to and from the Port of New York and New Jersey, but the bridge needs to be replaced. Finally, the Southern Tier line could be a critical rail link to supply drilling wells in the Marcellus Shale region and transport waste materials from the wells, sparing local communities from large numbers of trucks. If the bridge is taken out of service, it would be much more difficult to serve the wells via rail vs. via truck.
- Introduction of high-speed passenger rail service on existing freight rail infrastructure could absorb some or all remaining excess capacity. Devising a balance between intercity freight and passenger rail needs is critical, and should be considered by both the freight and passenger service operators.

Operational Threats

- Truck driver information systems don't reflect current information on clearances and restrictions, resulting in bridge strikes and unplanned rerouting. Some truck drivers use GPS systems developed for cars and not the commercial GPS systems that include appropriate truck routes.
- Shortages of truck drivers and other freight transportation operators could increase the cost of labor, a large component of overall freight transportation costs.
- Proposed revisions to truck driver hours-of-service rules by the Federal Motor Carrier Safety Administration (FMCSA) could increase truck operating costs and require additional truck parking. Federal Railroad Administration (FRA) Hours of Service affects rail operators as well.
- As rail traffic increases, so does the potential for rail/vehicle crashes and incidents involving hazardous materials (HAZMATs). Transportation and disposal of outputs of hydrofracking of Marcellus Shale (water or liquefied petroleum gas) is a risk: these can be low-grade hazardous materials.

4.2 Regional Freight Transportation Needs Assessment

Based on the SWOT analysis and input provided by planners, transportation system operators, and freight industry stakeholders, an assessment of the region’s freight transportation needs was undertaken. This section presents a summary of freight transportation needs that will serve as the basis for a compilation of specific investments, policy changes, and other strategies to be explored in the next phase of this study.

This Needs Assessment section of this document is structured to align with the goals and objectives of the GTC, as shown on the next page. Freight transportation needs will be assessed for each goal area presented in the *Long Range Transportation Plan for the Genesee Finger-Lakes Region 2035*, with two exceptions:

- The first goal, “Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency,” is addressed by the entire SWOT analysis and needs assessment process, and therefore is not singled out;
- The last goal, “Facilitate partnerships in planning, financing, and the execution of transportation initiatives,” will be addressed in the implementation guidance contained in the final recommendations of this plan.

Multimodal Transportation Goals and Objectives for the Genesee-Finger Lakes Region

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency

A. The transportation system should support balanced community and economic development of the metropolitan area

B. The transportation system should be a distinguishing competitive feature of the metropolitan area relative to other areas, serving the needs of existing businesses and enhancing the region's attractiveness to new business

2. Increase the safety of the transportation system for motorized and non-motorized users

A. Transportation designs, services, and education programs should enhance and protect life, health, and property

3. Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users

A. The transportation system, and its associated programs and services, should support both national and personal security initiatives

4. Increase the accessibility and mobility options available to people and freight

A. The transportation system should provide the capacity, coverage and coordination necessary to provide mobility to the region's population and commercial activities in a fashion consistent with the overall intent of Goal 1

B. Reasonable travel alternatives should be available to all persons in the area regardless of age, physical or mental ability, and/or income

5. Protect and enhance the natural environment, cultural heritage and community appearance, and promote energy conservation

A. Transportation planning and decision making should support and reinforce local land use and development objectives

B. Transportation planning and decision making should recognize local priorities balanced with broader community goals

C. Transportation planning and decision making should strive to address issues on a corridor level, recognizing both the multi-jurisdictional component of travel and the interrelationship between transportation and non-transportation policies and investments

D. The transportation system should encourage the efficient use of non-renewable energy resources and the exploration of renewable alternatives

E. Transportation planning and decision making should strive to embrace designs and processes that respect the natural environment and enhance the overall contribution of the transportation system to community livability

6. Promote efficient system management and operations

A. The transportation system should be designed and managed in a fashion that minimizes lifetime maintenance and user costs

B. Transportation investments should advance the Long Range Transportation Plan's goals and objectives in a fashion which maximizes benefits relative to costs*

C. Transportation and land use planning should be integrated in a fashion that optimizes the use of existing transportation and other municipal infrastructure

D. Transportation investments should be guided by cooperative planning, design, and maintenance standards to promote system continuity and uniformity across jurisdictional boundaries

7. Facilitate partnerships in planning, financing, and the execution of transportation initiatives

A. The transportation planning and decision making process should be multi-jurisdictional, fostering coordination and cooperation among local, county, state, and federal governments, concerned agencies, and the private sector

B. The transportation planning process should be conducted in as open and visible a manner as possible, encouraging community participation and interaction between and among citizens, professional staff, and elected officials

C. Financial and non-financial support for transportation initiatives should be provided by all levels of government and the private sector in a fashion which reflects their relative responsibilities for, and/or benefits from, the initiatives and related economic and social impacts

D. Innovative financing/partnerships for transportation initiatives that reflect the full scope of interests impacted or served should be explored

E. Transportation and transportation-related information resources should be developed and shared in a fashion that promotes informed public and private sector decision making

F. Awareness should be promoted regarding the impact of individual, public, and private sector decisions on the quality of mobility and the potential impact of these decisions on others

Underlined text corresponds to the shorthand abbreviations for these goals used in the remainder of this report.

Source: Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035

4.2.1 Safety Needs

Goal*	Increase the <u>safety</u> of the transportation system for motorized and non-motorized users.
Objective*	Transportation designs, services, and education programs should enhance and protect life, health, and property
Related Freight Transportation System Performance Measure	Number of Fatalities on Regional Freight Corridors

* From Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*

The primary safety performance measure suggests a need to reduce fatalities on multimodal regional freight corridors. This needs assessment considers safety issues on both rail and highway infrastructure.

Safety needs associated with rail infrastructure include grade crossing safety improvements (such as installation of modern safety equipment and improving grade crossing infrastructure or eliminating or closing existing highway-rail grade crossings), track maintenance to prevent derailments, security fences to prevent accidents involving trespassers, modernization of signal systems to prevent train-train collisions, grade crossing safety improvements to prevent rail-motor vehicle collisions, and operator-specific measures to reduce incidents involving employees of private rail operators. The *2009 New York State Rail Plan* contains a list of specific rail improvement needs identified by rail operators in the Genesee-Finger Lakes Region.

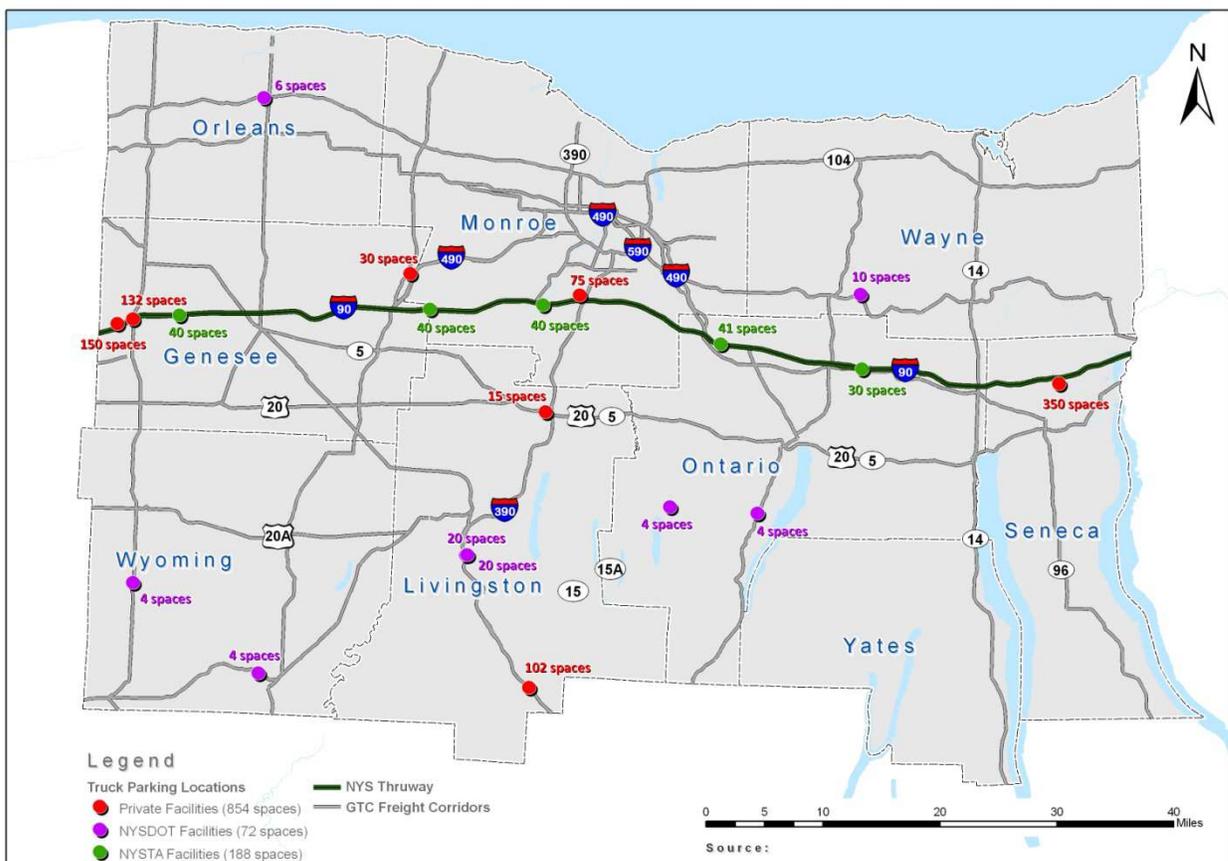
Figure 4.1 shows a summary of Priority Investigation Intersection (PII), Priority Investigation Locations (PIL), and Safety Deficient Location (SDL) data overlaid on roadways that are part of multimodal regional freight corridors. (Regional freight corridors were identified via the commodity flow analysis in Section 3.)

district, then Main Street should be designed to safely accommodate truck traffic along with cars, buses, bikes, pedestrians, and other users.

Driver fatigue and distracted driving. While the design of vehicles and infrastructure can mitigate the severity of crashes due to driver fatigue and distracted driving, behavioral factors can be addressed by driver training, education, and enforcement. The Federal Motor Carrier Administration and the Federal Railroad Administration, for example, require truck drivers and locomotive operators to limit the number of consecutive hours on duty, limit the total number of hours in a work week, and maintain a minimum rest period between duty cycles. Although regulatory responsibilities fall on state and Federal agencies, there is a need to maintain and enforce so-called Hours of Service regulations in a way that appropriately balances public safety with driver productivity.

At a regional level, provision of truck rest areas at sufficient intervals along major freight corridors allows truck drivers to stop and rest when necessary for safety and/or to comply with Hours of Service requirements. Truck rest areas currently have a sufficient supply of parking spaces to meet demand, as indicated in Figure 4.2.

Figure 4.2 Truck Parking Locations



Education, training, and experience level. Train and truck drivers must undergo extensive training on the operation of their vehicles in order to get a license and a job, but most automobile

drivers are not trained and educated in how to share the road with freight vehicles. Organizations like the New York State Motor Truck Association (NYSMTA) provide regular training opportunities for independent truck owner-operators. Responsibilities for education and training need to be shared among public agencies, the private sector, independent owner-operators, and non-governmental organizations like NYSMTA.

Categories of Freight Safety Improvement Projects, Operational Strategies, and Policy Initiatives:

SAF-1	Design and implement context-sensitive improvements to ensure that roadways that make up major freight corridors can safely accommodate freight traffic along with other users of the roadway
SAF-2	Address fatigue among truck drivers and rail engineers, as well as distractions such as use of mobile communication devices
SAF-3	Improve highway-rail grade crossings, including safety improvements at existing crossings and crossing closures or elimination
SAF-4	Modernize and upgrade railroad signal systems and other rail safety systems
SAF-5	Continue education and training programs for operators of freight vehicles and the general public

4.2.2 Security Needs

Goal*	Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users.
Objective*	The transportation system, and its associated programs and services, should support both national and personal security initiatives.
Related Freight Transportation System Performance Measure	Extent of freight corridors with prevention and protection measures in place Freight system redundancy and resiliency

* From Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*

Transportation resiliency is a term that describes the ability of the transportation system to adapt and respond to incidents and disruptions. Transportation resiliency applies to natural threats, such as hurricane storm surges and floods, as well as man-made threats such as terrorist attacks. According to *NCHRP Report 525, "Incorporating Security into the Transportation Planning Process"*, four major categories of security incident countermeasures exist to address threats and vulnerabilities to the nation's transportation infrastructure. These four categories include prevention, protection, redundancy, and recovery (or resiliency). These four measures apply more broadly than security. For example, climate change adaptation strategies often are grouped into similar categories.

The categories "prevention" and "protection" are discussed together because they both refer to proactive, preventative measures taken in advance of an attack or unauthorized access. Their results are measured in terms of the extent of the system's critical services or pieces of infrastructure from being damaged, destroyed, or used for illicit purposes. "Redundancy" and "recovery" needs address resiliency in the operations of the freight transportation system after a major disruption occurs. Needs can be assessed in terms of how well the system operates (or would operate) after a major disruption.

Prevention and protection needs include *preventing or discouraging* unauthorized access to a transportation facility or a specific sensitive feature of a transportation facility like a bridge or equipment room, before and after construction; measures taken to prevent or discourage illicit activity in or near a transportation facility; measures taken to prevent or discourage direct and indirect attacks on a facility; and measures taken to protect against the impacts of natural events like extreme weather events. Examples cited in *NCHRP Report 525* include access control systems like fences and locked doors, container seals to prevent unauthorized access to an intermodal container or truck trailer, highly visible closed circuit television (CCTV) systems, and intrusion detection systems such as alarmed entrances and fence-line detection systems. The design of the facility is also important, for example, allowing for open sight lines into a truck parking area from nearby roadways and development, adding lighting to a freight rail yard, hardening a major bridge to prevent physical incursions and/or increase blast resilience, or building a levee and pumping system to protect a roadway from flooding. Hazardous materials (HAZMATs) traveling by truck or rail through the region require specific prevention and protection measures by New York State and the Federal government.

Redundancy needs can be assessed quantitatively, by assigning a criticality score to each highway and rail segment and then evaluating network connectivity in both networks under various scenarios in which the most critical segments are taken out of service. For purposes of this study, redundancy needs were identified through stakeholder outreach. For example, one major shipper cited the Irondequoit Bay Bridge as a specific piece of infrastructure that, if closed due to an accident, caused significant impacts on that company's operations. Another critical piece of infrastructure cited often was the Portage Bridge on Norfolk Southern's Southern Tier Line. This bridge is in need of replacement, and if it were to be found unsafe, Norfolk Southern (NS) and all the short line railroads connecting to NS would have few or no alternative routes.

A measure of freight resiliency needs is the extent to which communication systems are deployed in a redundant fashion to ensure information is available to system operators and users in an emergency, system failure, or system disruption. Along with the physical infrastructure, communications protocols must be in place between various agencies responsible for emergency response. GTC has already worked closely with its partners to establish such protocols in the event of an emergency or other event with regional impacts.

Categories of Security Improvement Projects, Operational Strategies, and Policy Initiatives:

SEC-1	Implement security measures aimed at preventing and protecting against threats.
SEC-2	Improve the resiliency of the freight transportation system and its ability to recover from system disruptions and incidents.

4.2.3 Access and Mobility Needs

Goal*	Increase the accessibility and mobility options available to people and freight.
Objective*	The transportation system should provide the capacity, coverage and coordination necessary to provide mobility to the region's population and commercial activities in a fashion consistent with the overall intent of Goal 1 (economic vitality).
Related Freight Transportation System Performance Measure	Travel Time Index on Regional Freight Corridors Regional Priority Economic Development Sites with Truck and Rail Access Meeting Design Standards.

* From Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*

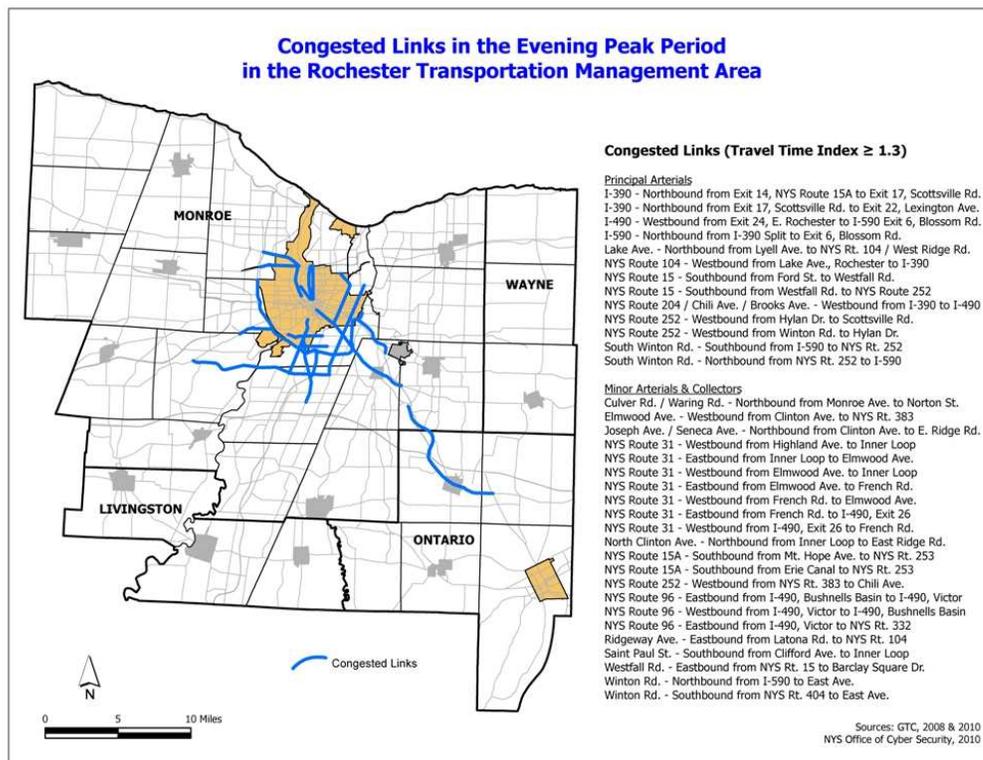
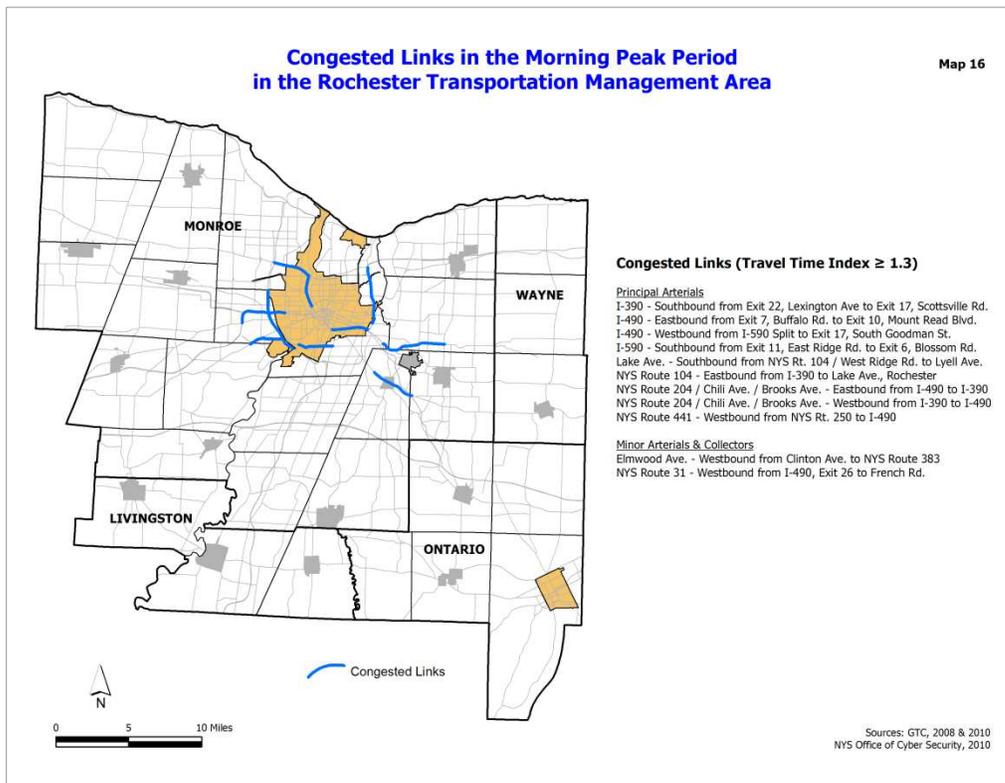
Access and Mobility is the largest category of freight transportation improvement needs in the Genesee-Finger Lakes Region. From a system perspective, two performance measures are recommended to measure access and mobility of the freight transportation system:

- Travel Time Index and
- Regional Priority Economic Development Sites with Truck and Rail Access Meeting Design Standards

The **Travel Time Index** is a ratio of the time it takes to make a trip during the peak period compared to making the same trip at free-flow speeds (mid-day period). A Travel Time Index of 1.3 on a single segment indicates that the trip takes one-third longer in the peak period than in the mid-day period (i.e., a 20-minute free-flow trip requires 26 minutes in the peak period). Figure 4.3 shows links that have a Travel Time Index of over 1.3 that are congested during the morning peak period, and Figure 4.4 shows the evening peak.

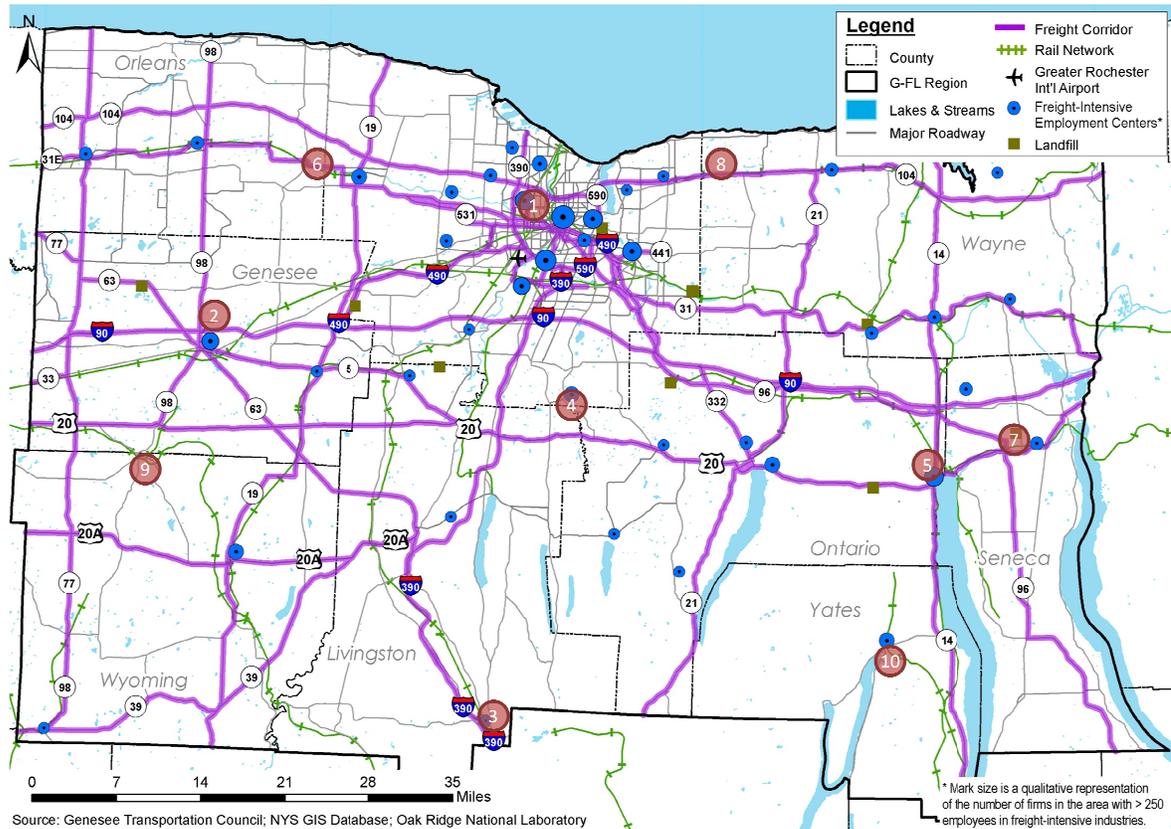
All of the congested links in Figures 4.3 and 4.4 are on regional freight corridors. The durations of the two peak periods are short enough that truck drivers can plan their trips to avoid these periods, with little additional cost and therefore little impact on the region's competitiveness. However, congestion on the regional freight network should be monitored closely. In other regions of the country that experience more severe congestion over a longer period of the day, truck drivers start to use parallel alternate routes to get around congested highway segments, some of which may not be appropriate for truck traffic. In the extreme, congestion can reach a point at which the region's competitiveness is impacted and businesses begin to locate elsewhere to reduce shipping costs.

Figure 4.3 Congested Links in the Morning and Evening Peak Periods



The measure, **Regional Priority Economic Development Sites with Truck and Rail Access Meeting Design Standards**, can help the region understand where there are issues that may prohibit a desired development site from finding a tenant. GTC completed a series of *Transportation and Industrial Access-Site Reports* in 2007 that identified site access needs for 10 sites around the Genesee-Finger Lakes Region (one in each county plus one in the City of Rochester, see Figure 4.4). Access needs identified in the studies include widening of narrow access roadways to accommodate truck traffic, elimination of clearance issues associated with low clearance railroad bridges, and provision of freight rail spurs and rail access points.

Figure 4.4 Transportation Industrial Access Study Sites



- | | |
|---|--|
| 1. City of Rochester (Driving Park Avenue Site) | 6. Orleans County (Holley Business Park) |
| 2. Genesee County (Batavia Gateway II Corp. Park) | 7. Seneca County (Cadbury-Schweppes) |
| 3. Livingston County (Dansville Industrial Park) | 8. Wayne County (BEH Industrial Park) |
| 4. Monroe County (Village Square) | 9. Wyoming County (Hillcrest Industries) |
| 5. Ontario County (Geneva Enterprise Dev. Center) | 10. Yates County (Horizon Business Park) |

In addition to these two system-level performance measures, other freight access and mobility needs were identified via stakeholder outreach, including the following:

Proactive land use and economic development planning, coordinated at a regional level. Hand in hand with access improvements, local stakeholders need to coordinate at a regional level to proactively plan for regional freight transportation investments to support desired future development. Planned correctly, the freight traffic generated by these developments will create well-paying employment opportunities while minimizing freight's impacts on communities and the environment. The region should continue to find appropriate tenants for brownfield redevelopment sites while carefully limiting greenfield development to those sites that have good highway and rail access.

Four examples of development sites, each with their own access and mobility needs, include the following :

- Seneca Army Depot in Seneca County has existing rail infrastructure and is close to the NY State Thruway. Access needs include better connections to the Thruway that don't require trucks to drive through village centers.
- The Village of Lyons is exploring the feasibility of developing an industrial park and intermodal facility in Lyons to take advantage of Erie Canal access and access to the Port of Oswego via a connection to the Oswego Canal at Three Rivers. The industrial park site lies at the junction of two Class I rail rights of way.
- The STAMP site in Genesee County is a third example of a large-scale development that was pursued with local, regional, and state coordination. The region should continue to make necessary transportation improvements to support development at the STAMP site in Genesee County and in desired development areas in southern Orleans County.
- Eastman Business Park in Monroe County has been identified by the Finger Lakes Regional Economic Development Council as the highest priority for the expansion of businesses in emerging industries considered critical to the region's economic success. The park encompasses 1,200 acres, has dedicated infrastructure suitable for industrial activities, and is accessible via NYS Route 390 and several major highways. Ensuring the continued safe and efficient access by vehicles along NYS Route 390 and highways in the vicinity of the park should be monitored with respect to volumes and associated delay that could compromise the viability of the park.

Low-clearance and weight-restricted bridges. Bridges that cannot accommodate trucks, either because they are too low or narrow, or because they cannot accommodate heavy vehicles, are a hindrance to regional freight mobility. Some low-clearance or weight restricted bridges are identified in the Transportation and Industrial Access site reports or other similar studies that focus on access. Other functionally-deficient bridges are on facilities that comprise regional freight corridors. As an example, stakeholders in Orleans and Wayne Counties cited several bridges across the Erie Canal as being unable to accommodate trucks due to width, height, or weight restrictions, or some combination of the three, limiting the potential for freight-intensive industries to locate north of the canal in these counties.

Existing rail service and rail rights of way preservation. The Genesee-Finger Lakes Region once had an extensive rail network criss-crossing the region and connecting former hubs of industrial activity. The region still benefits from its short-line railroads, but each year additional miles of track fall below standards that can accommodate even lightly-loaded and slow trains. When service is disrupted for extended periods of time, shippers and receivers who depend on rail may switch to other modes, and they are difficult to win back. Maintenance needs will be discussed further below under “Management and Operations.”

The New York State Rail Plan identifies several needs related to existing rail service. Improvements to freight mobility and access mainly include capacity expansions (via sidings, increases in the weight-bearing capacity of the rail track and other infrastructure), major operational improvements that affect throughput of trains, and construction of new links in the rail network. All of these investments can make rail a more competitive and viable option for long-distance freight movement to or from the region, freeing up capacity on the region’s highways for local deliveries and higher-value and/or time-sensitive goods that must move by truck.

Those rail operators who would like to expand service in the region are faced with a series of obstacles: rights-of-way that have been encroached upon by non-rail land uses or have been converted to recreational trails, sidings and mainline tracks need extensive rehabilitation, and major structures like rail overpasses and retaining walls may need to be completely rebuilt. If freight rail is to expand its market share by absorbing a larger share of future growth than it has in the past, existing tracks must be brought to a state of good repair and existing rights-of-way must be preserved for future service expansions. The region’s *Rail Right of Way Preservation Study* produced a prioritized list of rail right of way preservation initiatives, which will be presented in further detail in Section 5.

The rail network needs to be able to accommodate 286,000-pound railcars, the industry standard, and portions that handle containers may need improvements to accommodate double-stacked rail cars, which vastly improves the efficiency of each train. Operational improvements like installing passing sidings and improved signals can help improve a line’s capacity.

Intermodal rail service Several interviewees cited a desire for an intermodal rail transfer point to be located in the Genesee-Finger Lakes Region to reduce the cost of shipping freight via rail-to-truck intermodal services. The most recent study to look at the feasibility of intermodal rail service did not conclusively recommend development of an intermodal terminal at the time. However, in several industry interviews, respondents cited an increase in the amount of intermodal container traffic being generated in and destined for the Genesee-Finger Lakes Region, coupled with rising fuel prices that have increased the cost of draying intermodal freight to intermodal rail facilities in either Buffalo or Syracuse. If enough shippers and receivers of intermodal containers can band together and “buy a train” (or assemble enough containers to form a regular train service departing from the Genesee-Finger Lakes Region), then one or both of the Class I rail lines may be interested in operating the service. Potential industries that could benefit from intermodal rail service include optics and imaging, nonperishable food products, and electronics. All three of these industries produce items that are easily boxed and containerized for shipment across the globe. Even high-value cargo can be shipped by intermodal container via rail and water if the shipping times are reliable and predictable. The need for intermodal rail and the

potential origins and destinations for commodities traveling by intermodal container will be further explored in Section 5.

Air cargo service. Currently, the vast majority of freight shipped by air travels via either JFK or Newark Airports in the New York/New Jersey metropolitan area. The Genesee-Finger Lakes Region has access to almost the entire world within 24 hours via these two airports. However, the region could be more competitive on cost if a frequent air cargo service were located at GRIA. The challenges associated with establishing and sustaining air cargo service will be explored in Section 5.

Access to Seaports and Air Cargo facilities in other regions. Almost 100 percent of the region's imports and exports move via a deepwater seaport or air cargo facility outside the region. Thus, the Genesee-Finger Lakes Region is dependent on the state of the highway and rail networks in other regions in order to continue to have competitive access to global markets for exports and suppliers of imports. The region needs to work through NYSDOT and in coordination with neighboring regions to ensure that this access does not deteriorate.

Border crossing delays and reliability. Interviews with freight shippers and receivers based in the region revealed that delays and lack of reliable travel times associated with border crossings from Canada to the U.S. limit the amount of trade that is possible between the Genesee-Finger Lakes Region and greater Toronto, Ontario. Ontario's economy has been growing faster than upstate New York's, and the proximity of the Genesee-Finger Lakes Region suggests that it should be able to capitalize on some of the extraordinary growth of its neighbor. However, businesses report that most trucks can make only a single round trip per day between the two countries, raising the cost of draying freight and goods back and forth and putting even a city as close as Hamilton, Ontario on par with Cleveland, Pittsburgh, Baltimore, or Philadelphia in terms of round trip shipping time and cost.

I-390/I-490 interchange reconstruction. The planned reconstruction of the interchange between I-390 and I-490, while not strictly a freight project, was cited as one of the region's major sources of recurring congestion. Reconstruction of this interchange could benefit freight traffic in addition to passenger vehicles.

I-390 designation. Another access and mobility need identified in stakeholder and public outreach is related to the designation of NY Route 390 on maps of the region. Industrial site location specialists often require a site to be within 1-5 miles of a designated Interstate Highway in order to consider that site for a heavy industrial use or a warehouse/distribution center. If NY-390 north of the I-490/I-390 interchange were to be redesignated as I-390, several desired redevelopment sites on the west side of Rochester may become more attractive to national site selection consultants who are unfamiliar with the design standards and capacity of current NY-390.

Finally, the many corridor studies performed by GTC and NYSDOT in the region, and local circulation, access, traffic calming, and related studies performed by GTC and local municipalities, all have identified freight access and mobility needs, some of which may rise to the level of regional significance. Specific improvement options to address mobility and accessibility needs will be discussed in Section 5.

Categories of Access and Mobility Improvement Projects, Operational Strategies, and Policy Initiatives:

AMB-1	Implement targeted capacity expansions and operational improvements to provide congestion relief and travel time reliability improvements
AMB-2	Improve access to the freight transportation system to better serve the needs of existing businesses and enhance the region's attractiveness to new business
AMB-3	Coordinate land use, economic development, and transportation investment policies and strategies
AMB-4	Address low-clearance and weight-restricted bridges on the highway and rail networks
AMB-5	Preserve existing rail service and preserve rights-of-way for future rail system expansion
AMB-6	Provide additional access points to the regional rail network
AMB-7	Improve air cargo service in the Genesee-Finger Lakes Region and maintain reliable access to air cargo access points outside the region
AMB-8	Maintain reliable access to seaports outside the region
AMB-9	Improve the reliability and decrease the travel time and cost associated with international border crossings
AMB-10	Explore the feasibility and benefits of designating additional roadway in the region as Interstate Highways

4.2.4 Environment, Community, and Energy Needs

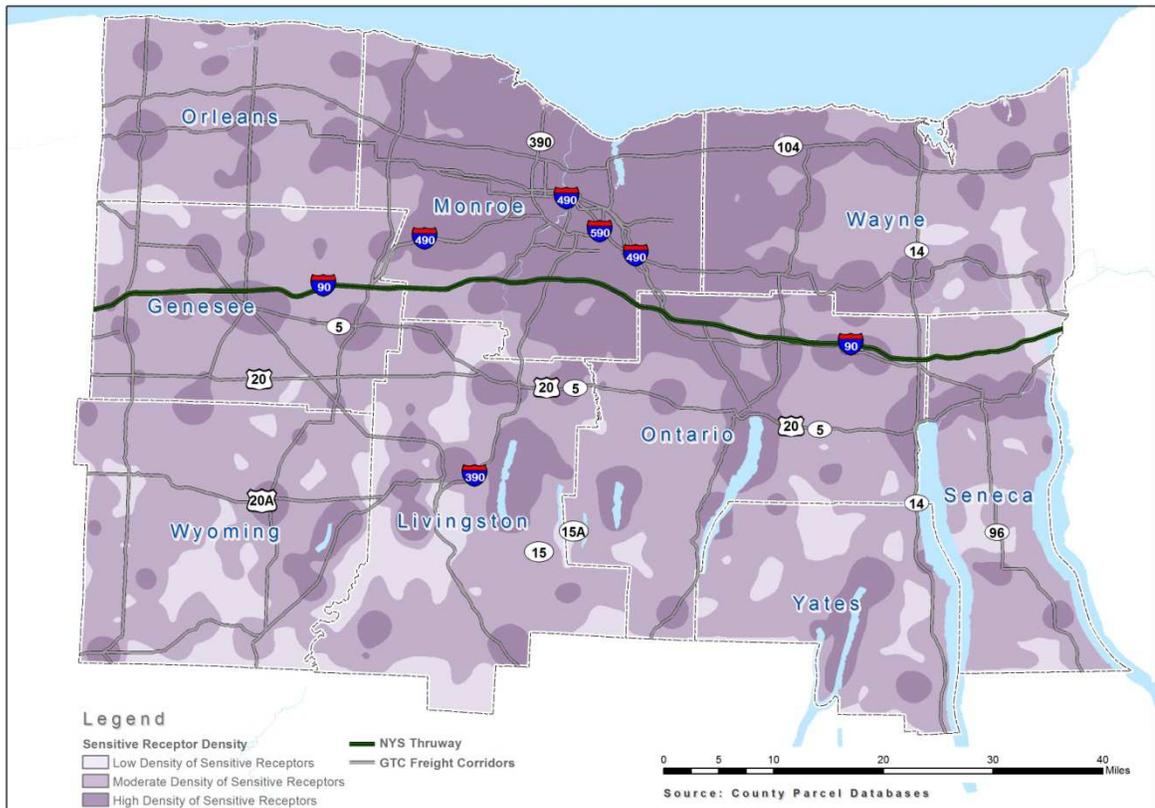
Goal*	Protect and enhance the natural environment, cultural heritage and community appearance, and promote energy conservation.
Objectives*	<p>Transportation planning and decision making should support and reinforce local land use and development objectives</p> <p>Transportation planning and decision making should recognize local priorities balanced with broader community goals</p> <p>Transportation planning and decision making should strive to address issues on a corridor level, recognizing both the multi-jurisdictional component of travel and the interrelationship between transportation and non-transportation policies and investments</p> <p>The transportation system should encourage the efficient use of non-renewable energy resources and the exploration of renewable alternatives</p> <p>Transportation planning and decision making should strive to embrace designs and processes that respect the natural environment and enhance the overall contribution of the transportation system to community livability</p>
Related Freight Transportation System Performance Measure	<p>Emissions of Nitrogen Oxides, Volatile Organic Compounds, and Carbon Dioxide Attributable to Freight Vehicles</p> <p>Direct Energy Usage Attributable to Freight Vehicles</p> <p>Sensitive Receptors on Regional Freight Corridors with Noise and Vibration Mitigation Measures in Place</p>

* From Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*

This broad goal area encompasses many types of needs. First, in the area of the environment, the share of regional emissions attributable to freight vehicles is an important indicator of how quickly freight transportation is adopting new vehicle technologies and taking other measures to reduce freight emissions. Second, closely related to emissions is direct energy usage attributable to freight vehicles.

Given the sensitivity of many portions of the study area to the impacts of freight transportation, an analysis of needs related to sensitive receptors is appropriate. Using truck volumes as a proxy for noise, vibrations, and other impacts, Figure 4.5 shows examples of sensitive receptors located on major freight transportation corridors in the region. Transportation infrastructure should be designed to respect the natural environment and enhance the overall contribution of the transportation system to community livability, for sensitive receptors and other elements of a community like residential areas.

Figure 4.5 Density of Sensitive Receptors in the Genesee-Finger Lakes Region



Finally, the region’s stakeholders need to improve coordination of public/private planning, investment, and operations of the freight transportation system. All stakeholders should continue to find opportunities to give the private sector a “seat at the table” so they are engaged in regional transportation planning, are offered an opportunity to supply insight and data to inform the planning process as appropriate, and feel that their voices are being heard.

Categories of Environment, Community, and Energy Improvement Projects, Operational Strategies, and Policy Initiatives

ECE-1	Retrofit and replace the truck and locomotive fleets to reduce emissions and improve energy efficiency
ECE-2	Avoid and mitigate the impacts of freight movement
ECE-3	Facilitate participation by freight stakeholders in the transportation planning process

4.2.5 Management and Operations Needs

Goal*	Promote efficient system management and operations.
Objectives*	<p>The transportation system should be designed and managed in a fashion that minimizes lifetime maintenance and user costs</p> <p>Transportation investments should advance the Long Range Transportation Plan's goals and objectives in a fashion which maximizes benefits relative to costs</p> <p>Transportation and land use planning should be integrated in a fashion that optimizes the use of existing transportation and other municipal infrastructure</p> <p>Transportation investments should be guided by cooperative planning, design, and maintenance standards to promote system continuity and uniformity across jurisdictional boundaries</p>
Related Freight Transportation System Performance Measure	<p>Federal-Aid Highways on Regional Freight Corridors with Pavement Fair or Better</p> <p>Non-Deficient Bridges on Regional Freight Corridors</p>

* From Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*

The Genesee-Finger Lakes Region should improve the percentage of lane-miles with pavement fair or better on Federal-aid highways that are Regional Freight Corridors. The region needs to ensure that the necessary safeguards are in place so that state and local governments are compensated for impacts to local roads resulting from freight movements, and in particular Marcellus Shale and Utica Shale drilling operations in and south of the Genesee-Finger Lakes Region. Although most drilling operations will be outside the region, trucks carrying supplies to wells and waste materials from wells will pass through the Genesee-Finger Lakes Region. Pennsylvania, having had more experience with drilling than New York State, has put agreements and regulations in place to ensure that drillers pay their fair share of roadway maintenance costs.

Structurally-deficient bridges were mentioned previously in the context of mobility and access. All bridges need to be maintained in a state of good repair in order to keep the freight transportation system operational. Maintaining a state of good repair implies a combination of preventative maintenance to prevent good bridges from dropping below standard, more extensive repairs to bridges that have deteriorated, and outright replacement of bridges that have reached the end of their useful lives.

In addition to capital improvements, the Genesee-Finger Lakes Region needs to implement transportation system management and operational (TSM&O) strategies to reduce the cost and time needed to transport freight into, out of, through, and within the region. On the freight rail system, the use of low-cost rail freight runaround tracks, rail spurs, and sidings are all relatively low-cost improvements that can have a high benefit-cost ratio. The New York State Rail Plan contains a list of operational needs and corresponding improvement projects in the region.

Similarly, operational improvements on highways, ranging from restriping to signal retiming to improved traveler information, can also have a high benefit-cost ratio.

Categories of Management and Operations Improvement Projects, Operational Strategies, and Policy Initiatives

MOP-1	Provide tax and capital improvement incentives for use of rail and waterways for freight transportation where feasible so that a larger share of future growth is carried by non-highway modes.
MOP-2	Improve design and operational standards to accommodate modern, efficient freight vehicles.
MOP-3	Investigate the feasibility of implementing Positive Train Control on Class I and short-line railroads where required by FRA and, where not required, where operational benefits would outweigh costs of implementation
MOP-4	Improve incident response times to reduce non-recurring delay on roadways
MOP-5	Provide better information on system condition and operations to freight system users.
MOP-6	Improve existing rail interchanges (physical improvements, new or relocated sidings, and institutional changes to streamline paperwork and procedures) so both Class I and short line operators benefit.

4.3 Performance-Based Planning for Freight Transportation

One of the main objectives of this project, *Transportation Strategies for Freight/Goods Movement in the Genesee-Finger Lakes Region*, is to improve the region’s overall transportation planning process by better integrating freight into the policies and procedures used to plan, design, and implement transportation projects and strategies in the region. This technical memorandum lays out a framework for performance-based planning and programming that is consistent with the process already used by GTC and its stakeholders, but further incorporates freight and goods movement considerations at each stage.

As GTC and its partners and stakeholders have already concluded, performance-based planning provides a level of transparency and objectivity that is critical for setting long-term policy priorities, determining where and how to allocate resources, and demonstrating accountability to the public. Within a performance-based planning framework, the actual performance measures used by GTC and its partners can be used to monitor progress toward achieving the region’s goals and objectives and make adjustments so that the transportation system can support a better future for the region.

Successful communities don’t simply copy others’ answers; they ask the same questions recognizing that their answers may differ (sometimes significantly) based on their own characteristics and resources, learning from others’ successes and failures.

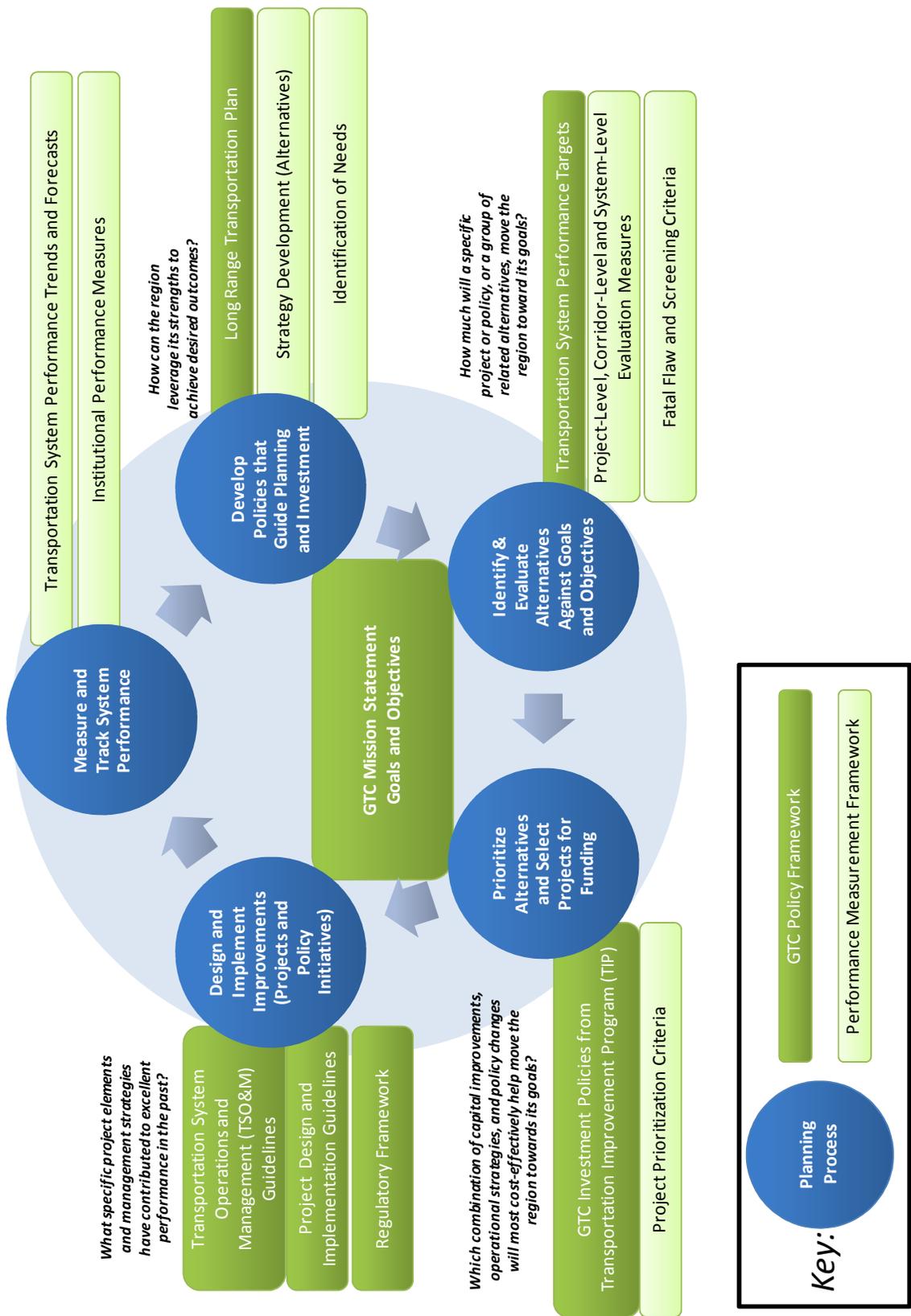
Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035

At the scale of a region like the Genesee-Finger Lakes Region, performance measures can be used in different ways at different points in the planning cycle, as shown in Figure 4.6. The blue circles represent steps in a generalized representation of the transportation planning cycle. The dark green boxes represent elements of GTC’s policy framework, and the light green boxes show how performance measures are used at each step. A planning “cycle” is shown rather than a linear planning “process” because performance data can and should be used to feedback information about the transportation system and everything related to it (the economy, the environment, public health and wellbeing, etc.) to improve each step in the cycle.

Appropriately, at the center of the diagram is the core of GTC’s performance-based planning process: the council’s mission statement and the goals and objectives specified in the *LRTP 2035*. All of the region’s transportation regulations, procedures and guidelines, as well as the performance measures used at each step in the planning cycle, should stem from the policies contained in the LRTP.

Around the cycle are various policy-driven elements of the planning cycle, like the transportation system performance targets that are used as the basis for evaluating the projected impacts of individual projects and combinations of projects and strategies. The investment policies of GTC’s Transportation Improvement Program (TIP) determine how the region allocates funds to each program area (e.g., safety, preservation, system management and operations, etc.), how to prioritize projects, and which packages of projects to select for funding.

Figure 4.6 Performance-Based Planning, Programming, and Project Implementation Cycle



Elements of the performance measurement framework rest on the foundation of GTC's policy framework. Starting at the top of Figure 1, measuring and tracking system performance is an essential step that feeds into every other step in the planning cycle. Information about **transportation system performance trends and forecasts** is essential input to a freight transportation needs assessment. The "Regional Freight and Economic Profile" document completed in this study contains a wealth of performance information specific to the region's freight transportation system. **Institutional performance measures** can help the region assess the extent to which implementation of this Freight and Goods Movement Plan is successful (e.g., the number of freight stakeholders participating in public meetings each year, or the number of local comprehensive plans that address freight and goods movement).

Information on performance trends and forecasts can be combined with *LRTP 2035* goals and objectives to help the region set meaningful and realistic transportation system performance targets. In turn, alternative projects and strategies can be evaluated alone or in combination using **project-level, corridor-level, and system-level evaluation measures** to determine the extent to which freight investment alternatives, operational strategies, and related policies will help move the region towards its goals and objectives. **Fatal flaw and screening criteria** can be used to eliminate projects that are clearly in conflict with regional goals and objectives or flag those projects that require more careful consideration in the project development, design and implementation process.

GTC's Transportation Improvement Program (TIP) contains policy guidance for prioritizing and selecting projects for funding. **Project prioritization criteria** are used by GTC to determine which combination of projects will be most cost-effective when benefits and costs are considered against the *LRTP 2035* goals and objectives. Finally, system performance data can be used in an evaluation of regulations, policies, and procedures to determine which specific project elements and combinations of projects and strategies have contributed to better system performance. Both project- and system-level data can be used to improve the design, implementation, operations, and maintenance of the freight transportation system.

The process for selecting evaluation and prioritization measures to apply to projects and strategies should consider the following:

- Performance measures should be **policy-driven**, tied to the goals and objectives of GTC as formalized in the LRTP and other relevant policy documents;
- The measures should provide a **consistent** way of comparing a range of projects, whether large or small; urban, suburban, or rural; or passenger or freight;
- Measures and presentations of their results should be as **transparent** as possible, and be both **easy to explain** to and understood by GTC's stakeholders;
- Measures should have **realistic and feasible data requirements**; and
- Evaluation requirements should not exceed a **reasonable level of effort**.

The last two principles imply the potential use of qualitative measures where quantitative data is currently unavailable or difficult to assemble. A mix of qualitative and quantitative measures are appropriate to convey the full range of a project's or strategy's impacts.

The balance of this technical memorandum provides examples of how GTC's existing policy framework is tied to its planning process and how freight-specific performance measures can be added to or incorporated into the region's existing performance-based planning framework. The next section provides an overview of GTC's policy foundation, and the five following subsections correspond to the five steps in the planning cycle shown in Figure 1. Each subsection provides an overview of how to integrate the recommended freight performance measures into GTC's overall planning process, with more detailed implementation guidance will be contained in Section 7.

4.3.1 Genesee-Finger Lakes Region's Policy Framework

The Genesee Transportation Council's (GTC's) existing mission statement promotes a strong link between transportation and the economy:

The mission of GTC is to maximize the contribution of the transportation system to the social and economic vitality of the Genesee-Finger Lakes Region. Simply put: GTC is not interested in transportation for transportation's sake. Every transportation policy, planning, and investment decision made by GTC is based on how quality of life and economic opportunity will be improved by that choice.

Freight transportation clearly plays an important role in the region's economic vitality. The region's transportation goals and objectives, quoted on the next page from the *Long Range Transportation Plan for the Genesee Finger-Lakes Region 2035 (LRTP 2035)*, make more clear the specific direction the region hopes to take in the future. The *LRTP 2035* also lays out specific investment strategies, many of which are relevant to freight. For example, under "Preservation and Maintenance," the *LRTP 2035* calls on the region to "Reconstruct and rehabilitate rail infrastructure to allow for the efficient movement of freight into, out of, and within the region."



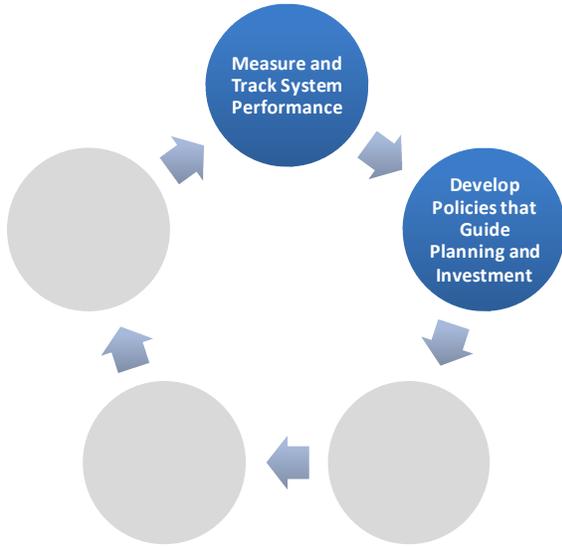
Finally, the Transportation Improvement Program (TIP) contains a set of high-level criteria for prioritizing freight investments, acknowledging that a major objective of this study would be to recommend improvements to the region's project prioritization process to include freight. The current criteria are consistent with the policy framework laid out in the *LRTP 2035*:

Does the proposed project:

- 1. Promote efficient intermodal connections?*
- 2. Improve the efficiency of truck or rail freight transportation?*
- 3. Remove physical barriers to truck or rail goods movement?*
- 4. Contribute to cost effective maintenance/rehabilitation of existing investments?*

These prioritization criteria will be revisited in the discussion of the fourth step of the planning cycle below.

4.3.2 Measure and Track System Performance; Develop Policies and Guide Planning and Investment



Performance Measure Framework Elements:

- Transportation System Performance Trends and Forecasts
- Institutional Performance Measures

Relationship to Policy Framework:

- Measures used to define system performance trends and institutional performance measures should be linked to regional goals and objectives.
- Measures of system performance should be directly tied to the system performance targets that are used in project evaluation.

Recommended Freight Transportation System Performance Measures

Goal Area	Freight Transportation System Performance Measures	Existing Measure in LRTP
Safety	Number of Fatalities*	✓
Security	Highway and Rail Segments with Redundant Alternative Routes*	
Accessibility and Mobility	Travel Time Index *	✓
Accessibility and Mobility	Regional Priority Economic Development Sites with Truck and Rail Access	
Environment, Community, Energy	Emissions of Nitrogen Oxides, Volatile Organic Compounds, and Carbon Dioxide**	✓
Environment, Community, Energy	Direct Energy Usage**	✓
Environment, Community, Energy	Sensitive Receptors with Noise and Vibration Mitigation Measures in Place*	
Management and Operations	Federal-Aid Highways with Pavement Fair or Better*	✓
Management and Operations	Non-Deficient Bridges*	✓

* On major freight and goods movement corridors.

** Attributable to freight vehicles (trucks and rail locomotives)

Improving the Regional Freight Transportation Planning Process

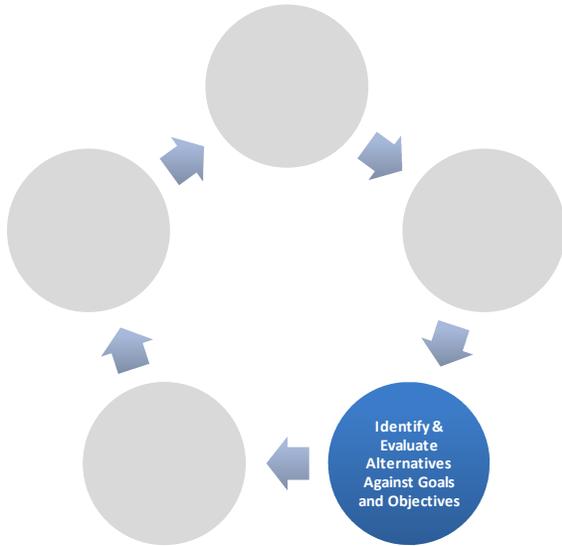
At this stage, performance data should be used to help determine how the region can leverage its strengths to achieve desired outcomes. Measuring and tracking system performance provides the data needed to assess every other step in the planning cycle. For example, information about the results of past investments, at a project level, corridor level, or system level, can be used to make adjustments to regional transportation goals and objectives. Transportation system performance measures are the basis for a system needs assessment, the performance targets that are used later to evaluate alternative projects and strategies, and the prioritization criteria used to determine which combination of projects and strategies should be funded.

In addition to transportation system performance measures, it may be appropriate to track one or more institutional performance measures at this stage in the cycle. Examples of institutional measures include things like:

- Median incident clearance time on roadways in major freight and goods movement corridors,
- Number of freight stakeholders (from a list maintained by the MPO) that attend freight-related outreach events as a percentage of those invited,
- Share of the public responding favorably to questions about freight transportation in period public surveys, or
- Share of freight project costs borne by the private sector.

These institutional measures imply shared responsibility between the public sector (design, operation, and enforcement) and the private sector (operation and compliance), and need to be revisited regularly to ensure they are capturing the region's priorities and goals for institutional coordination and cooperation.

4.3.3 Identify and Evaluate Alternatives Against Goals and Objectives



Performance Measure Framework Elements:

- Project-Level, Corridor-Level and System-Level Evaluation Measures
- Fatal Flaw and Screening Criteria

Relationship to Policy Framework:

- Transportation system performance targets should stem from transportation system performance measures used to assess trends and forecasts.
- Fatal Flaw and Screening Criteria should be linked to LRTP goals and objectives.

Recommended Freight Alternative Evaluation Measures

Goal Area	Freight Alternative Evaluation Measures	Performance Direction
Economic Vitality	Alternative supports regional economic development strategy (e.g., supports transportation needs of existing and emerging industries)	Yes
Safety	Change in number of fatalities*	Reduce
Security	Alternative provides redundant alternative route or mode within a freight and goods movement corridor	Yes
Accessibility and Mobility	Change in Travel Time Index*	Decrease
Accessibility and Mobility	Alternative improves truck or rail access to development or redevelopment site of regional priority	Increase
Environment, Community, Energy	Change in Emissions of Nitrogen Oxides, Volatile Organic Compounds, and Carbon Dioxide**	Reduce
Environment, Community, Energy	Change in Direct Energy Usage**	Reduce
Environment, Community, Energy	Alternative mitigates noise and vibration at Sensitive Receptors*	Yes
Management and Operations	Change in Pavement Condition on Federal-Aid Highways*	Improve
Management and Operations	Alternative Addresses a Deficient Bridge*	Yes

* On major freight and goods movement corridors.

** Attributable to freight vehicles (trucks and rail locomotives)

Fatal Flaw and Screening Criteria

At this stage in the planning cycle, alternatives that could clearly produce negative impacts or that conflict with adopted regional and local policies should be flagged for further analysis and assessment, or may be dropped from consideration at this point. It is up to stakeholders in the region to determine acceptable tradeoffs between economic and mobility benefits and community and environmental impacts on a case-by-case basis.

Example Fatal Flaw and Screening Criteria

Goal Area	Freight Alternative Fatal Flaw and Screening Criteria
Economic Vitality	Alternative is inconsistent with local or regional economic development strategy or policy document
Security	Alternative presents an unacceptable risk to national and personal security interests
Accessibility and Mobility	Alternative would result in deterioration in available travel alternatives to a population based on their age, physical or mental ability, and/or income
Environment, Community, Energy	Alternative is inconsistent with a local land use or development objective
Environment, Community, Energy	Alternative would impact an area identified as a priority for conservation in local or regional conservation plans
Environment, Community, Energy	Alternative would impact a developed area with identified Sensitive Receptors
Environment, Community, Energy	Alternative would substantially increase use of non-renewable energy
Management and Operations	Alternative would result in substantial increases in lifetime maintenance and user costs
Management and Operations	Alternative would deviate substantially from cooperating planning, design, and maintenance standards in a manner that reduces continuity and uniformity across jurisdictional boundaries and/or results in negative outcomes for communities and the environment
Planning, Financing, and Execution	Alternative would require financing and/or funding that does not reflect the full scope of interests impacted or served

If any of these fatal flaw or screening criteria trigger a more in-depth evaluation, several possible courses of action could be taken:

- Alternatives that are inconsistent with an adopted state, regional, or local policy or planning document (for example, a municipal land use plan, an existing corridor or subarea plan, a Title VI or environmental justice plan, or a regional economic development plan) should be discussed with relevant stakeholders. As a result of these discussions, any commitments made between relevant parties should be tracked and carried forward through the project development process.

- Alternatives that may have negative impacts on communities or the environment should be flagged, and any further design or development should incorporate mitigation measures to ensure that these impacts can be reduced or eliminated entirely. For example, if a regional connectivity project would require improvements to a corridor that runs through a sensitive habitat identified as a priority for conservation by local and regional land use plans, that corridor should be flagged as needing context-sensitive design measures and perhaps a greater-than-normal degree of stakeholder coordination through the project development process. As a result of discussions between stakeholders, any commitments made between relevant parties should be tracked and carried forward through the project development and implementation process.
- Alternatives that would produce results that are clearly detrimental to regional goals and objectives should be eliminated from further consideration.

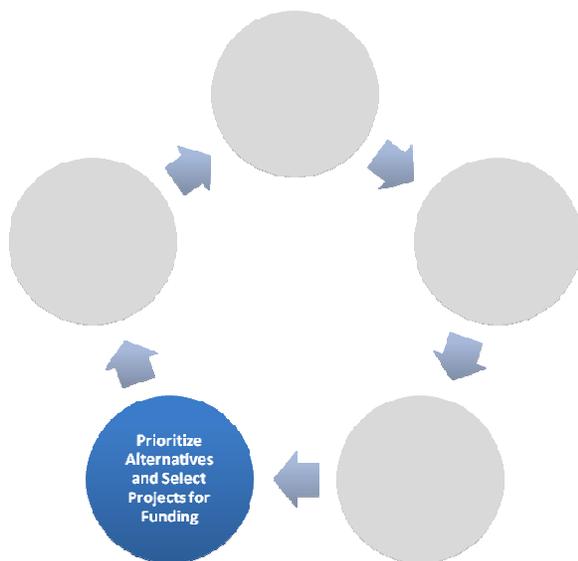
Although cost is often considered a fatal flaw for large capital projects and long-term operational strategies, at this stage the alternatives evaluation process should be conducted independent of costs or available revenues. Cost should not be given too much emphasis in a project's concept phase so that stakeholders feel free to propose and compare a full range of capital projects, operational strategies, and policy initiatives against each other. Often what seems like an "expensive" alternative could be modified or enhanced in the project development process, or elements from that alternative could be incorporated into the final alternative that is advanced into the prioritization process. The next step in the planning cycle, the "Prioritize Alternatives and Select Projects for Funding" will consider which alternatives are feasible and should be given priority from a cost perspective.

Improving the Regional Freight Transportation Planning Process

Evaluation of project alternatives should help determine how much a specific project or policy, or a group of related alternatives, will move the region toward its goals. "Alternatives" can consist of individual projects, operations and management strategies, or policies; or combinations of projects, operations strategies, and policy changes that together work toward a common goal. Typically, corridor studies result in a list of related improvement alternatives that may be evaluated and prioritized against corridor-specific goals. The evaluation process and information contained in these corridor studies may be useful for this step in the freight transportation planning process.

Performance targets are already defined by GTC and its stakeholders in the *L RTP 2035*. The targets listed above are consistent with existing regional performance directions, with additional freight-specific directions consistent with the system-level and institutional performance measures from the previous step.

4.3.4 Prioritize Alternatives and Select Projects for Funding



Performance Measure Framework Elements:

- Project Prioritization Criteria

Relationship to Policy Framework:

- Project prioritization criteria should reflect the region's investment priorities and the performance targets set in the previous step.

Recommended Freight Project Prioritization Measures

The evaluation process in the previous step should provide a baseline level of information about each alternative that carries forward into prioritization. Although alternative evaluation criteria span the entire range of goals and objectives, prioritization implies that certain goals and objectives must be valued or weighted greater than others. Also, it is at this step that financial considerations should be taken into account in determining whether and when a project, operational strategy, or policy should be implemented.

At this stage, the concept of assigning benefits to the Genesee-Finger Lakes Region and outside region may be introduced into the evaluation process. Some projects will have benefits that accrue mainly to through traffic and therefore to regions outside the study area. On the other hand, other regions may implement projects that have large benefits to the Genesee-Finger Lakes Region. It is important to use a consistent methodology to allocate benefits so that regions, the State of New York, and the Federal Government can come to an agreement about a fair allocation of project costs for projects that have interregional, statewide, or multi-state benefits.

The fatal flaw criteria in the previous step can be used to help screen out projects that are expected to have negative impacts that outweigh any positive outcomes. The prioritization process is used to determine which of the remaining projects should be funded immediately, which should be funded as soon as possible given reasonable expectations of future resources, and which will have to wait until additional funding becomes available in future years.

GTC uses a scoring methodology to prioritize projects for funding based on a combination of qualitative and quantitative criteria. Each project's impacts are evaluated across a broad set of criteria representing the range of goals and objectives in the *LRTP 2035*. The existing criteria specific to goods movement projects are as follows:

Does the proposed project:

- 1. Promote efficient intermodal connections?*
- 2. Improve the efficiency of truck or rail freight transportation?*
- 3. Remove physical barriers to truck or rail goods movement?*
- 4. Contribute to cost effective maintenance/rehabilitation of existing investments?*

To make these criteria more objective and quantitative, the following could be substituted and added, primarily focusing on freight accessibility, mobility, and intermodal connectivity:

Prioritization Criteria for Freight Highway Alternatives

Goal Area	Freight Highway Alternative Prioritization Criteria
Accessibility and Mobility	Alternative promotes efficient intermodal connections
Accessibility and Mobility	Change in travel time index on major freight corridors*
Accessibility and Mobility	Alternative addresses a major highway system bottleneck on a major freight corridor*
Accessibility and Mobility/ Management and Operations	Alternative addresses truck design and operational constraints on routes used to access development or redevelopment site of regional priority
Management and Operations	Alternative addresses lifecycle maintenance costs on existing infrastructure on major freight corridors*

* Can be used as an additional prioritization factor for highway and bridge projects on major freight corridors.

Prioritization Criteria for Freight Rail Alternatives

Goal Area	Freight Rail Alternative Prioritization Criteria
Accessibility and Mobility	Alternative promotes efficient intermodal connections
Accessibility and Mobility	Alternative promotes efficient connection between Class I and short line railroads
Accessibility and Mobility	Alternative addresses capacity or operational issues that limit rail capacity (in terms of railcar weight, railcar height, or train travel speed)
Accessibility and Mobility	Alternative improves rail access to development or redevelopment site of regional priority
Accessibility and Mobility	Alternative promotes preservation of current or future freight rail service
Management and Operations	Alternative addresses lifecycle maintenance costs on existing rail infrastructure

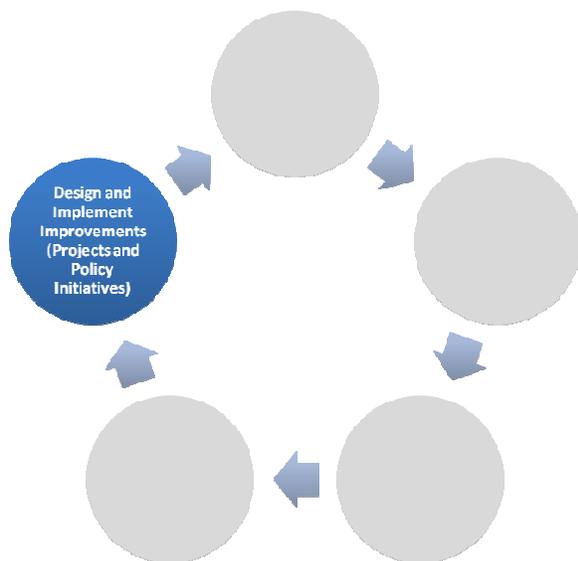
In addition to the prioritization criteria listed above, additional qualitative factors must be considered when making prioritization decisions and selecting projects to include in the TIP. For example, a project to improve rail travel speeds should be designed and implemented in a manner that maintains or improves safety on the rail corridor. Qualitative and quantitative impacts on safety, security, the environment, communities, and energy use all should be considered when determining the priority of freight highway and rail alternatives.

For example, the criterion “Does the proposed project address a key transportation system safety deficiency (e.g., a PIL, HAL, SDL or other accepted safety priority ranking system) and Facility Condition Scores for pavement and bridges should be considered.

Improving the Regional Freight Transportation Planning Process

At this stage in the planning cycle, available funding must be matched with project priorities to develop a program of fiscally-constrained improvements to incorporate into the TIP. The region should use performance data to determine which combination of capital improvements, operational strategies, and policy changes will most cost-effectively help move the region towards its goals.

4.3.5 Design and Implement Improvements



Performance Measure Framework Elements:

- Transportation System Performance Trends and Forecasts
- Institutional Performance Measures

Relationship to Policy Framework:

- Transportation system operations and management guidelines should be influenced by system and project-level performance data.
- Project design and implementation guidelines should be revised periodically to take into account project-level and system-level performance data.

Recommended Freight Transportation System Performance Measures

See “Measure and Track System Performance” for a list of recommended system-level and project-level performance measures.

Improving the Regional Freight Transportation Planning Process

Performance data should be used at this stage to help determine what specific project elements and management strategies have contributed to excellent performance in the past, and to make adjustments to design and implementation guidelines accordingly.

5

Identification, Evaluation and Prioritization of Alternatives

The Needs Assessment and Strengths/Weaknesses/Opportunities/Threats (SWOT) analysis in the previous section guides the identification of freight transportation system projects, operational strategies, and policy changes (collectively referred to as alternatives) to address these needs. This section describes in detail the process for prioritizing freight transportation improvement alternatives and determining what near, medium, and long-term actions the region should take in order to meet the goals set for its freight transportation systems.

Some of the improvements are well-defined capital projects that have already advanced through the planning and design process. Other priorities are operational strategies that can be implemented quickly as additions to existing toolboxes used by state, regional, and local entities that are responsible for managing and operating the transportation system. Finally, some institutional and policy-oriented priorities may translate into legislation, regulations, and procedures to be adopted at various levels of government and by the private sector.

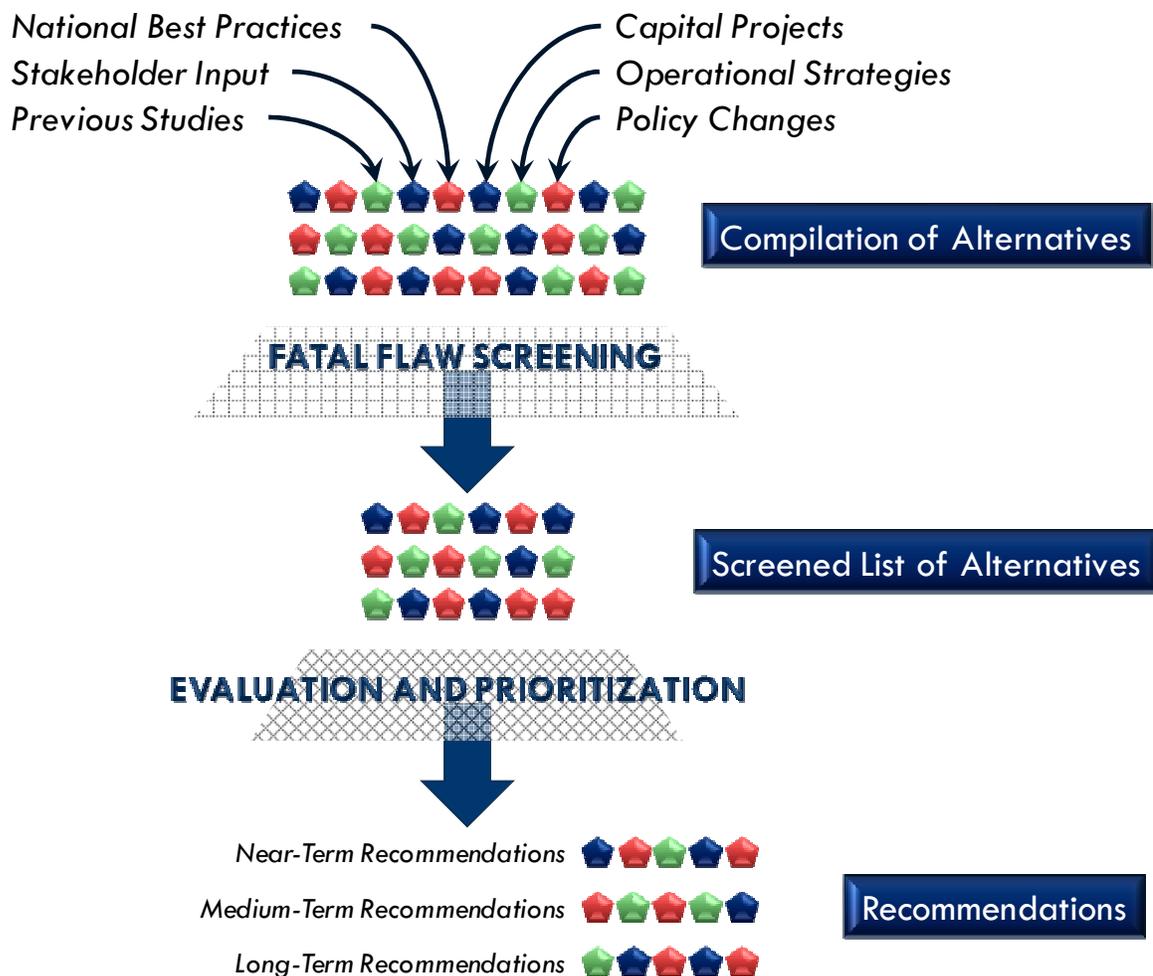
In order to develop the prioritized list of alternatives in this section, first a long list of freight improvement alternatives was compiled from three sources:

- A review of previous studies completed in the region that identified options for improving freight transportation;
- A review of best practices and innovations in freight and goods movement from other parts of the country; and
- Input received from stakeholders during focus groups, public meetings, and meetings with representatives of the region's key existing and emerging industries.

The result was an unfiltered, unconstrained compilation of alternatives for improving the freight transportation system in the Genesee-Finger Lakes Region to help businesses remain competitive. The unconstrained compilation of alternatives was filtered through an initial screening process to eliminate those with fatal flaws (for example, those that were clearly inconsistent with local and regional plans, or those with potential for significant adverse environmental or community impacts). Then the remainder were evaluated using the criteria and performance measures described in Section 4.4 of this report, "Performance-Based Planning for Freight Transportation." Finally, a set of prioritization criteria were used to group projects into recommended near-term, medium-term, and long-term actions. These three groups of recommendations are discussed in detail in the remainder of this section. Figure 5.1 provides a graphical representation of the process used to compile, screen, and prioritize alternatives.

Note: Inclusion on the list of alternatives is not necessarily an endorsement of the project by the Genesee Transportation Council, New York State Department of Transportation, or others. Likewise, stakeholders that proposed projects for consideration are not obligated to implement the projects. In addition, this plan identifies solely freight-related improvements that will need to be considered in the context of the overall goals and objectives of GTC.

Figure 5.1 Process for Compiling, Screening, and Prioritizing Freight Improvement Alternatives



The following prioritization factors are based on the *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035 (LRTP 2035)* and were used to help determine which projects, strategies, and policy changes should be regional priorities for implementation. Higher priority should be given to alternatives that:

- Keep regional freight transportation costs competitive by improving the efficiency of freight movement (**Efficiency**);
- Preserve and improve access to the freight transportation system for existing and emerging industries (**Access**);
- Are designed to accommodate freight transportation operations safely and securely, while mitigating community and environmental impacts of freight (**Mitigation**);
- Create employment in the transportation sector¹⁸ in the Genesee-Finger Lakes Region (**Jobs**); and
- Are cost-effective, considering up-front capital costs and ongoing operating and maintenance costs, and considering the share of public vs. private-sector funding needed to implement the alternative (**Cost-Effectiveness**).

Alternatives are evaluated against these five categories of priority factors and assigned a score in each category. The readiness of the alternative in terms of its ability to be implemented is considered as a final step to determine which priority tier to assign each alternative. Projects that are far enough along in the planning process that they can be implemented quickly are prioritized above those projects that require further planning, design, or evaluation.

The prioritization process helps determine how to assign alternatives to one of three buckets:

1. **Near-term recommendations.** These alternatives meet immediate needs and have benefits on a regional, state-wide, or national scale and rank high on the cost scale. They should be implemented as soon as resources are available. They include “shovel-ready” projects, operational strategies that require relatively little design work before implementation, and policy changes and institutional changes that can be implemented in the near-term.
2. **Medium-term recommendations.** These alternatives may not be immediately ready to be implemented, but they have the potential to make the region’s transportation system a distinguishing competitive feature relative to other regions, serving the needs of existing businesses and enhancing the region’s attractiveness to new businesses. Alternatives that suggest capital investments should be priorities for further planning and development to determine if the projects are cost-effective and can be implemented quickly.
3. **Long-term recommendations.** These include alternatives that require further analysis and planning and may be dependent on changes in external factors that are influenced by global

¹⁸ Most investments in the freight transportation system could result in job creation in the region across various industries, but for most alternatives there is not enough information to estimate and compare the level of indirect and induced employment that may be generated. Therefore, for purposes of prioritization, employment impacts are limited to direct job creation in the transportation sector.

market forces such as energy prices, labor rates, and other considerations in the location of firms and choice of modes for goods movement.

The color-coded tables on the following pages provide more detail about how the prioritization factors listed above are evaluated. Each table shows the scoring scale used to assign a score to each alternative, as well as the goal areas from the GTC's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035* that are used to derive each priority factor.

Following the detailed descriptions of the scoring mechanisms are tables summarizing the alternatives assigned to each priority tier.

Efficiency

Keep regional freight transportation costs competitive by improving the efficiency of freight movement.

Prioritization Factors for Efficiency:	Example Types of Alternatives	Applicable Modes
Alternative reduces congestion and improves reliability (travel time index) on major freight corridors	<ul style="list-style-type: none"> Highway system bottleneck or rail interchange improvements Freight Congestion Management strategies 	Truck and Rail
Alternative promotes efficient connections between modes of freight transportation	<ul style="list-style-type: none"> Intermodal rail-truck transfer facility and new/improved rail access points 	All
Alternative improves capacity and operational efficiency of the freight transportation system	<ul style="list-style-type: none"> Projects to increase bridge clearance or weight capacity Rail operational improvements Border crossing improvements 	All
Alternative improves the resiliency of the freight transportation system and its ability to recover from system disruptions and incidents.	<ul style="list-style-type: none"> Alternatives to improve incident response times Management and operational measures including ITS and traveler information 	All



The **Efficiency** score considers how the alternative addresses all five prioritization factors above. Both the magnitude and geographic scope of impacts are considered when assigning each alternative an Efficiency score.

Relevant goals from Genesee Transportation Council’s *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
- Promote efficient system management and operations
- Increase the accessibility and mobility options available to people and freight
- Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users

Access

Preserve and improve access to the freight transportation system for existing and emerging industries.

Prioritization Factors for Access:	Example Types of Alternatives	Applicable Modes
Alternative addresses lifecycle maintenance costs and viability of service on existing infrastructure in major freight corridors	<ul style="list-style-type: none"> • Preservation and state-of-good-repair projects 	Truck and Rail
Alternative improves multimodal access to existing freight generators and development sites of regional priority	<ul style="list-style-type: none"> • Design and operational improvements on routes used to access major freight generators or development sites of regional priority 	Truck and Rail
Alternative improves connections between the Genesee-Finger Lakes Region and global markets	<ul style="list-style-type: none"> • Regional air cargo service expansion • Improved access to seaports and air cargo terminals outside Genesee-Finger Lakes Region 	All
Alternative promotes coordinated land use, economic development, and transportation investment policies and strategies	<ul style="list-style-type: none"> • Interagency coordination mechanisms • Incentives for development at sites that utilize existing freight system capacity 	All

Access Scoring Scale: ● ●● ●●● ●●●● ●●●●●

Corresponding Impacts: Small/Local → Large/National

*The **Access** score considers how the alternative addresses all five prioritization factors above. Both the magnitude and geographic scope of impacts are considered when assigning each alternative an Access score*

Relevant goals from Genesee Transportation Council’s *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*:

- Increase the accessibility and mobility options available to people and freight
- Promote efficient system management and operations

Mitigation

Accommodate freight transportation operations safely and securely, while avoiding and mitigating community and environmental impacts of freight.

Prioritization Factors for Mitigation:	Example Types of Alternatives	Applicable Modes
Alternative addresses safety and operational issues associated with freight movement, particularly near sensitive receptors	<ul style="list-style-type: none"> Corridor-level safety and operational improvements 	Truck and Rail
Alternative addresses fatigue and distracted driving among truck drivers and locomotive engineers	<ul style="list-style-type: none"> Policy and regulatory changes Training and education initiatives 	Truck and Rail
Alternative improves two-way communication and coordination between public and private-sector freight stakeholders, and provides opportunities to expand participation in the freight transportation planning process	<ul style="list-style-type: none"> Education and outreach to the public Forums for public and local business input 	All
Alternative reduces noise, emissions, and energy consumption associated with freight movement near sensitive receptors and does not disproportionately introduce or shift impacts to communities with above-average concentrations of minority and low-income populations	<ul style="list-style-type: none"> Policies and regulations to mitigate the impacts of Marcellus Shale and solid-waste-related freight operations Vehicle retrofit programs 	Truck and Rail
Alternative improves the security of the freight transportation system by preventing and protecting against threats.	<ul style="list-style-type: none"> Proactive security measures 	All



The **Mitigation** score considers how the alternative addresses all five prioritization factors above. Both the magnitude and geographic scope of impacts are considered when assigning each alternative a Mitigation score

Mitigation

Accommodate freight transportation operations safely and securely, while avoiding and mitigating community and environmental impacts of freight.

Relevant goals from Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*:

- Increase the safety of the transportation system for motorized and non-motorized users
- Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users
- Protect and enhance the natural environment, cultural heritage and community appearance, and promote energy conservation
- Promote efficient system management and operations
- Facilitate partnerships in planning, financing, and the execution of transportation initiatives

Jobs

Create employment in the transportation sector¹⁹ in the Genesee-Finger Lakes Region.

Prioritization Factor for Jobs:	Example Types of Alternatives	Applicable Modes
Alternative may result in direct creation of employment in the transportation sector, over and above what would otherwise be created by other alternatives that support existing goods movement industries (manufacturing, agriculture, etc.).	<ul style="list-style-type: none"> • Intermodal rail-truck transfer facility and new/improved rail access points • Regional air cargo service expansion 	All



*The **Jobs** score considers how the alternative addresses the prioritization factor above. Both the magnitude and geographic scope of impacts are considered when assigning each alternative a Jobs score*

Relevant goals from Genesee Transportation Council’s *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency

¹⁹ For purposes of prioritization, employment impacts are limited to direct job creation in the transportation sector (e.g., warehousing and distribution, truck driving, etc.). However, investments in the freight transportation system could result in job creation in the region across various industries, but for most alternatives there is not enough information to estimate and compare the level of indirect and induced employment that may be generated.

Cost Effectiveness

Make efficient use of resources available to fund up-front capital costs and ongoing operations and maintenance costs.

Prioritization Factors for Cost:	Example Types of Alternatives	Applicable Modes
Capital costs and ongoing operations and maintenance (O&M) costs	<ul style="list-style-type: none"> • Capital projects • Transportation System Management and Operations (TSM&O) strategies • Policy changes intended to address efficiency and cost 	All

Share of capital and O&M costs to be borne by the public sector	<ul style="list-style-type: none"> • Public-private partnerships 	All
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Cost Effectiveness Scoring Scale: ● ●● ●●● ●●●● ●●●●●

Corresponding Impacts: Large Capital Costs and Ongoing Operating/Maintenance Costs Net Reduction in Total Costs

*Both the magnitude of costs and the share of costs to be borne by the public sector are considered when assigning each alternative a **Cost** score*

Relevant goals from Genesee Transportation Council's *Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035*:

- Facilitate partnerships in planning, financing, and the execution of transportation initiatives

5.1 Summary of Recommendations

Note: Inclusion on the list of alternatives is not necessarily an endorsement of the project by the Genesee Transportation Council, New York State Department of Transportation, or others. Likewise, stakeholders that proposed projects for consideration are not obligated to implement the projects. In addition, this plan identifies solely freight-related improvements that will need to be considered in the context of the overall goals and objectives of GTC.

5.1.1 Near-Term Recommendations

Near-term recommendations meet immediate needs and have benefits on a regional, state-wide, or national scale and/or rank high on the Cost-Effectiveness scale. They should be implemented as soon as resources are available. They include “shovel-ready” projects that can be completed in 1-7 years, operational strategies that require relatively little design work before implementation, and policy changes and institutional changes that can be implemented in the near-term.

Near-term, regional priorities include the following **capital projects** or groups of projects (note that numbers are for reference only and do not imply rank or priority):

- NT-1 Address low-clearance and weight restricted bridges on major freight corridors and on access routes to development sites of regional priority.
- NT-2 Implement planned improvements to the I-390/I-490 interchange to alleviate peak-period congestion and prevent this congestion from spreading to off-peak hours.
- NT-3 Replace the Portage Bridge on NS’s Southern Tier rail line to eliminate a major weight and speed restriction on the line.
- NT-4 Complete remaining projects identified in the series of Transportation & Industrial Access Site Reports published in 2007, with projects located in all nine counties in the study area, plus the City of Rochester, and also improve access to the Livonia Gateway Park Road project and the Western NY Science and Technology Advanced Manufacturing Park (STAMP) facility.
- NT-5 Construct rail sidings to major regional landfills to facilitate the shift of inbound municipal solid waste from truck to rail.
- NT-6 New York State Route 63 Corridor Near-Term Improvements to address immediate needs, balancing operational needs of local and through freight traffic against safety concerns.
- NT-7 Implement efficiency, access, and safety improvements on major regional freight corridors, as recommended by completed corridor and local area studies throughout the region.

5.1.2 Medium-Term Recommendations

Alternatives that are classified as **medium-term recommendations** may not be immediately ready to be implemented, but they have the potential to improve the status of the region’s transportation system as a distinguishing competitive feature relative to other regions, serving the needs of existing businesses and enhancing the region’s attractiveness to new business. Alternatives that suggest capital investments should be priorities for further planning and

development to determine if the projects are cost-effective and can be implemented quickly. Medium-term projects can be completed in 8-15 years.

Medium-term recommendations include the following **capital projects** and **project concepts** (note that numbers are for reference only and do not imply rank or priority):

- MT-1 Substantial capacity and operational improvements in the New York State Route 63 corridor, balancing the operational needs of local and through freight traffic against the safety concerns raised by small communities along the route.
- MT-2 Improve productivity of truck operations by increasing allowable weight and length of trucks on roadways that are designed to safely accommodate them.
- MT-3 Identify the appropriate location(s) for a regional-scale rail/highway intermodal transfer facility and identify potential customers to justify private rail investment in new intermodal rail service to the region.
- MT-4 Identify possible locations for local businesses to access regional short line railroads at smaller cross dock and transload facilities throughout the region.
- MT-5 Investigate the feasibility of developing a multimodal logistics center or “freight village” at the Lyons Industrial Park, taking advantage of freight and goods movement opportunities provided by the intersection of the CSX main line and the Corning Secondary (former Norfolk Southern service and potential Finger Lakes Railway service), the Erie Canal (with an opportunity for connecting barge service to the Port of Oswego), and access to the NY State Thruway.
- MT-6 Preserve right of way and make necessary infrastructure improvements to re-instate rail service along Norfolk Southern’s Corning Secondary Line between Geneva and Lyons.
- MT-7 Investigate the feasibility of implementing rail improvements described in the “Seneca Army Depot Industrial Rail Facility” concept plan.
- MT-8 Make improvements to overhead clearance restrictions and sidings on the Rochester & Southern Railroad (RSR) line to allow for improved connections to Rochester and Monroe County from Norfolk Southern’s Southern Tier line.
- MT-9 Preserve rail right of way and make necessary infrastructure improvements to re-instate rail service along the former Falls Road rail corridor between Brockport and Rochester.
- MT-10 Take action to preserve rights of way on other lines identified in the Regional Right of Way Preservation Study, with higher priority given to lines on which potential new customers have been identified.
- MT-11 Address weight, width, and clearance restrictions on roadway crossings of the Erie Canal to improve truck access to those portions of the region located north of the Erie Canal.
- MT-12 Identify and implement safety improvements to reduce truck accidents at the S curves on I-490 between the Genesee River and Goodman Street.
- MT-13 Extend Pre-Emption Street (Co. Road #5) from North Street to New York State Route 5 and U.S. Route 20 in the City of Geneva via an overpass across the Norfolk

Southern Corning Secondary rail tracks. An overpass is required due to the presence of a rail switching yard at that location.

Transportation System Management and Operation (TSM&O) strategies that could improve freight transportation in the medium-term include the following (note that numbers are for reference only and do not imply rank or priority):

- MT-14 Work with navigation system developers and fleet dispatchers to update truck driver information systems with better information about bridge clearance, width, and weight restrictions, and establish signed truck route networks to guide drivers along safe and appropriate routes where feasible.
- MT-15 Monitor the operational performance of major freight corridors at congestion hot spots and implement freight-specific congestion management strategies to keep major freight corridors congestion-free.
- MT-16 Reduce the impact of incidents and freight system disruptions by improving the resilience of the freight transportation system.
- MT-17 Conduct a freight infrastructure vulnerability needs assessment to identify critical infrastructure and potential strategies to protect against preventable incidents and adapt to foreseeable long-term changes.

Other freight-oriented **policies and strategies** that should be implemented in the medium term include the following (note that numbers are for reference only and do not imply rank or priority):

- MT-18 Develop policies to manage and mitigate the impacts of trucking operations on roads used to access Marcellus Shale natural gas drilling wells inside and outside the region.
- MT-19 Identify and implement specific policies and incentives to mitigate the noise, vibration, and emissions-related impacts of freight movement.
- MT-20 Where suitable alternate routes do not exist, explore the feasibility of constructing new truck bypasses using innovative funding sources and financing strategies that include private sector participation.
- MT-21 Work with SmartWay Transport Partnership, New York State Energy Research and Development Authority, and others to access low-interest loan programs and grants for auxiliary power units, aerodynamic vehicle retrofit kits, truck stop electrification, and other measures to reduce freight transportation fuel consumption and emissions.
- MT-22 Reduce delays associated with Canada-U.S. border crossing inspections and related traffic congestion upstream of border crossings through a combination of infrastructure improvements, traffic management strategies, and policy changes.
- MT-23 Change the designation of "New York State Route 390 " to "Interstate Highway 390" north of the I-490 interchange to make redevelopment parcels along the highway more attractive to national site location consultants.
- MT-24 Improve the efficiency and lower costs associated with interchanges of rail cars between rail operators.

- MT-25 Review existing truck stop demand, identify gaps, and build additional truck parking facilities where there is demand for overnight and daytime truck parking to help truck drivers comply with Federal hours-of-service regulations.

5.1.3 Long-Term Recommendations

The following **long-term recommendations** have the potential to be transformative in terms of their impact on the region's freight transportation system and the region's economic competitiveness. They will require further study and planning before they can be considered priorities from a regional perspective. Long-term projects may take 15 years or beyond depending on the feasibility of the projects moving forward, (note that numbers are for reference only and do not imply rank or priority):

- LT-1 To facilitate trade with Canada, explore options to move freight across the border by non-highway modes, including a roll-on/roll-off highway trailer-on-flatcar (TOFC) rail shuttle service or ferry service between Ontario and the Genesee-Finger Lakes Region and the necessary support infrastructure to connect the landing point with existing major regional freight corridors.
- LT-2 Address growing congestion in the New York City metropolitan area (including northern New Jersey) that increases costs of transporting air cargo and marine cargo between the Genesee-Finger Lakes Region and that region's airports and seaports. Also closely monitor and address congestion and delays on routes connecting the two regions that may affect this region's ability to conduct business with global trading partners.
- LT-3 Extend the main runway at Greater Rochester International Airport to accommodate larger freight aircraft and identify potential customers to justify new air cargo service to one or more destinations.

5.2 Detailed Evaluations of Near-Term Recommendations

NT-1 Low-Clearance and Weight Restricted Bridges

Address low-clearance and weight restricted bridges on major freight corridors and on access routes to development sites of regional priority.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●	●	●●

As a whole, mitigating for low-clearance and weight-restricted bridges will improve the operational efficiency of the freight transportation system and provide both localized and region-wide benefits. The bridge projects provided here will improve access to existing freight generators and development sites of regional priority, while also addressing safety and operational issues associated with freight movement. While these projects themselves will not generate transportation industry jobs, they do support freight transportation-dependent businesses located across the region.

Specific examples of low-clearance and weight restricted bridges include the following:

- Low highway clearance under a rail bridge passing over New York State Route 77, south of New York State Route 33 in Corfu. This low clearance bridge restricts truck traffic to the Village of Corfu and also provides for non-standard stopping sight distance for all vehicular traffic coming into the Village from the south, resulting in rear-end and left-turn accidents. In addition to bridge replacement, other mitigation alternatives include lengthening the tight turning radii, reducing high truck speeds, providing more uniform speed limits, and reducing congestion during Darien Lake Theme Park Resort operating times.
- Low highway clearance under the former CSX railroad bridge overpass over NY 259 in Spencerport (BIN 7043560) leading to the central business area of the Village of Spencerport. This bridge restricts truck traffic to the central business district of the Village. In order to mitigate this situation the grade of the tracks will have to be raised to gain additional bridge clearance. However, a recent announcement by CSX and the Village of Spencerport indicate that the bridge is going to be removed. While this will remove the height restriction for trucks in the near term, if this corridor is reactivated for freight movement a new bridge and track grade adjustments will be necessary.
- Low highway clearance under two railroad bridges located on Driving Park Avenue between an available brownfield redevelopment site and Mount Read Boulevard in the City of Rochester. (BIN # 7706750/CSX over Driving Park Avenue and BIN #7706740/RSR over Driving Park Avenue). The City desires to improve truck access from the west via Mount Read Boulevard and Driving Park Avenue to the site. Two railroad bridges are located on Driving Park Avenue between the site and Mount Read Boulevard. Providing the standard clearance would allow free movement of truck traffic from Mount Read Boulevard to the site.

- Highway clearance and highway flooding issues where Brooks Avenue passes under the Rochester Southern Railroad (RSR) line near Greater Rochester International Airport (BIN #7040300). Occasional flooding in warmer months and ice buildup in the winter that reduces the lateral clearance of the abutments sometimes restricts truck travel between the industrial sites located to the west and Interstate 390 located to the east. To address flooding, pumps have been installed, however a longer term solution includes relocating abutments and adjusting bridge approach grades and could be explored as a joint project with the railroad. This corridor is experiencing a growth in truck traffic to service nearby businesses and regional economic growth can be expected in the future.
- Low highway clearance under the rail bridge located on St. Paul Street north of the Inner Loop in Rochester (BIN #7706900). This bridge has been struck numerous times. Trucks traveling to and from the north on St. Paul Street to the Inner Loop fail to see signs warning about the height restriction. Near term solutions which should be investigated further may include installing vehicle height detection systems and variable message signs to supplement the static warning signs. Long term solutions may include the construction of a new bridge or raising the elevation of the existing structure including raising the grades of the mainline railroad tracks. Lowering the highway pavement may also be an option.

In addition to these specific examples, there are 62 additional height- and/or weight-restricted bridges on state-owned roadways in the region, not including railroad bridges. Of these 62 bridges:

- 16 bridges are located on a major freight corridor identified in this study;
- 5 bridges are located on road segments with more than 500 trucks per day;
- 34 bridges are located in areas of high-density freight generation and could provide alternative or redundant access routes to nearby major freight generators;
- 42 bridges cross the Erie Canal, restricting freight connectivity to the northern portions of Orleans, Monroe, and Wayne Counties;
- 37 bridges are height-restricted only;
- 15 bridges are weight-restricted only; and
- 10 bridges are both height- and weight-restricted.

Finally, there are additional low-clearance bridges on locally-owned roadways for which data are not readily available. Recommendation MT-14 discusses need to improve dissemination of information to truck drivers about low-clearance bridge location.

These improvements may be costly in some cases due to the necessary design work, coordination with multiple agencies, and material and labor costs associated with construction. Under the right circumstances, it could be cost-effective to alleviate a bridge clearance issue in order to attract a firm to a desired development site, if the costs are appropriately shared between the public sector and private sector beneficiaries.

NT-2 I-390/I-490 Interchange

Implement planned improvements to the I-390/I-490 interchange to alleviate peak-period congestion and prevent this congestion from spreading to off-peak hours.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●●	●●	●●

The existing I490/I390/NY390 interchange and NY390/NYS Route 31 interchange serves nearly 200,000 vehicles daily commuting between Rochester and the western suburbs. The interchanges experience the following transportation system deficiencies:

- Higher than average accident rates
- Heavy traffic congestion during peak periods
- Deteriorated facilities with high operational costs

There is a need to address the highest priority deficiencies of the two interchanges. These needs have been prioritized as those that offer the greatest transportation system benefits and the lowest life cycle costs. These needs are as follows:

- Reduce congestion for NY390 southbound to I490 eastbound traffic in the AM peak
- Reduce congestion for I490 westbound to NY390 northbound in the PM peak
- Reduce accidents related to the congestion and non standard weave lengths in the above locations.
- Improve operational geometry for trucks exiting northbound to Route 31 (Lyll Ave.) and continuing north on Lee Rd.
- Address the deteriorated condition of the Lyell Ave. Bridge over NY390.
- Improve pedestrian, bicycle and transit conditions on Lyell Ave.

Although the project’s design is not complete, it is anticipated it could include sound barriers to reduce noise impacts on nearby residential areas, dependent on funding.

The project itself will not generate transportation industry jobs, but it does support freight transportation-dependent businesses located on the west side of Rochester. Maintaining congestion-free access to these existing businesses and to priority redevelopment sites in the area could result in an increase in transportation industry jobs.

The first stage of the project is estimated to cost \$32 million. The project is expected to be divided into at least three construction phases; costs for future stages have not yet been estimated at a level sufficient for inclusion in this plan.

(See <https://www.dot.ny.gov/390lyell> for additional details about the project.)

NT-3 Portage Bridge

Replace the Portage Bridge on the Southern Tier Line to eliminate a major speed and weight restriction on the line.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●●	●●●●●	●●●●●	●●●●●	●●

The Portage Bridge, a cast-iron high-span rail bridge spanning the Genesee River and Letchworth Gorge between Wyoming and Livingston Counties, lies on Norfolk Southern Railroad’s Southern Tier rail line, which forms the most direct freight rail link between Buffalo, Binghamton, and New York City. The existing bridge, which was originally built in 1875 and partially rebuilt in 1903, has deteriorated over time from corrosion and fatigue, and has been deemed structurally deficient and operationally obsolete. This \$39 million project would replace the bridge with a new structure meeting modern rail design standards. The benefit-cost ratio of the project is estimated to be 23.1 assuming a 3 percent discount rate or 11.0 assuming a 7 percent discount rate.²⁰

The Portage Bridge is the last remaining weight-restricted segment of the rail line between Buffalo and Binghamton, with rail cars limited to 273,000 pounds instead of the national standard 286,000 pounds. Trains also are currently limited to speeds of 10 miles per hour on the single track that carries trains over the bridge. Improvements in reliability and speed would make rail more cost-competitive with truck for through traffic and for traffic serving businesses in the region.

This project would preserve freight rail service on a key component of the regional and national rail system, improve reliability, and maintain redundancy in the multimodal freight transportation network. Two Class I rail lines (Norfolk Southern Railroad and Canadian Pacific Railroad) and four short-line railroads in the study area depend on service operated over the Portage Bridge to provide access to the national rail system for their customers.

The project would preserve competition and the accompanying cost advantages available to customers of short line railroads that interchange with Class I rail operators on both the Southern Tier Line and the CSX main line. Completion of the project would allow a larger share of future growth in regional freight traffic to be accommodated by rail, an energy-efficient and cost-effective mode of freight transportation. Completion of a new bridge built to modern design standards would result in substantial reductions in maintenance costs compared to the existing bridge’s maintenance needs, and trains operating over the bridge could save fuel by remaining at constant speeds over the bridge and on adjacent sections of track.

²⁰ TIGER III Grant Application for the Portageville Bridge Replacement Project, 2011. Submitted by New York State Department of Transportation to the U.S. Department of Transportation, in partnership with Norfolk Southern and Canadian Pacific Railway.

NT-4 Improve Access to Regional Priority Economic Development Sites

Complete remaining projects identified in the series of Transportation & Industrial Access Site Reports published in 2007 and other identified economic development sites in the region .

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●●	●●	●●

As a whole, these projects improve the operational efficiency of the freight transportation system, with regional-scale benefits. They would significantly improve multimodal access to existing freight generators and development sites of regional priority, and they reflect coordinated land use, economic development, and transportation investment policies. They also are intended to address safety and operational issues associated with freight and reduce noise, emissions, and energy consumption associated with freight. There would be few transportation-sector jobs directly associated with these projects, except in cases where the projects would facilitate development or expansion of warehouses and distribution centers. Overall, the aggregate benefits for these projects are expected to exceed the small to moderate costs associated with them.

A summary of access improvements recommended for each site is as follows (note that some improvements may already be underway or completed):

Batavia Gateway II Corporate Park in the Town of Batavia, Genesee County: (1) Reconstruct the intersection of New York State Route 98 and West Saile Drive (County Route 46); (2) Construct a new intersection at New York State Route 98 and Call Parkway; and (3) Widen New York State Route 98 between the New York State Thruway entrance and West Saile Drive.

Hillcrest Industries in the Town of Attica, Wyoming County: (1) Construct a lead track from the existing Norfolk Southern tracks and a loading/unloading facility for access by Hillcrest Industries and (2) Improve Favor Street to accommodate truck traffic.

BEH Industrial Park in the Town of Ontario, Wayne County: (1) Extend Timothy Lane east and Lincoln Road north to form an intersection that would create a complete loop road through the industrial site and (2) Improve the intersection of New York State Route 104 and Dean Parkway to offset traffic impacts from the industrial park.

Horizon Business Park in the Village of Penn Yan, Yates County: (1) Improve the intersection of Horizon Park Drive and New York State Route 14A near the Horizon Business Park and (2) Improve short stretches of New York State Route 14A and Horizon Park Drive near the intersection. This reconfiguration would provide an acceptable LOS for the intersection until the last lot is developed.

Cadbury-Schwepps redevelopment site in the Village of Waterloo, Seneca County: (1) Improve the intersection of Swift Street and New York State Route 5 and U.S. Route 20 to provide dedicated turning lanes and a traffic signal to facilitate the turning movements of large trucks; (2) Improve the intersection of Swift Street and Mechanic Street to improve turning radii for truck

traffic turning right onto Swift Street; and (3) Improve the intersection of Swift Street and North Road to improve the turning radii for truck traffic.

Holley Business Park in the Village of Holley, Orleans County: (1) Improve Veteran's Drive to create a legitimate easterly entrance point into the Business Park that is capable of accommodating truck traffic; (2) Improve New York State Route 237 (South Main Street) to provide truck access from points north and south along New York State Route 237 to the business park via Veterans Drive; (3) Construct a rail spur from the existing Falls Road Railroad tracks into the Business Park; and (4) Construct a turning lane on New York State Route 31 into the Business Park.

Geneva Enterprise Development Center (GEDC) in the City of Geneva, Ontario County: (1) Improve the highway vertical clearance under the Gates Avenue Railroad underpass (BIN 7707050) to create a legitimate easterly entrance point into the GEDC that is capable of accommodating tractor trailer truck traffic and (2) Improve Gates Avenue to create a legitimate easterly entrance point into the GEDC that is capable of accommodating truck traffic. *(Additional improvements to the New York State Route 14 corridor in Geneva are included in Alternative NT-7.)*

Village Square development site in the Village of Honeoye Falls, Monroe County: (1) Improve the intersection of Village Square Boulevard and West Main Street; (2) Improve the intersection of New York State Route 15A and West Main Street, and (3) Improve access from Marketplace Plaza to West Main Street Westbound.

Dansville Industrial Park in the Town of North Dansville, Livingston County: (1) Construct a rail spur from the existing Genesee and Wyoming Railroad tracks into the business park (approximately 1,250 feet of rail spur); (2) Improve the intersection of New York State Route 36 and Maple Street by increasing truck turning radii and expanding pavement widths to accommodate truck traffic; (3) Remove the truck prohibition on Maple Street; and (4) Install wayfinding signage to direct trucks to/from I-390.

Although not the subject of a Transportation and Industrial Access Site Report, the construction of the **Livonia Gateway Park Road** project in Livingston County will have benefits and costs that are similar to those identified above on a larger scale along with larger costs. Improvements include the construction of the new road from the Village of Livonia (east of West Avenue) to New York State Route 15 near the Town's northwest border will provide access to preferred industrial development sites.

Also in Livingston County, the **Caledonia Industrial Development Area** is a multi-modal development site located on State Route 5 just west of the Village of Caledonia in Livingston County. The area contains 40 acres of vacant industrial property that contains a rail yard with 400 car spots and has connections to all Eastern Class One Railroads. Land O'Lakes Purina Feed LLC operates the existing 90,000 square foot Commodity Resource Corporation (CRC) facility, a multi-modal feed and fertilizer transload facility. Improvement to State Route 5 to accommodate increased truck traffic for future additional development may be needed.

Improvements along New York State Route 77 between New York State Route 5 and New York State Route 63 in Genesee County to accommodate increased freight traffic associated with the **Buffalo East Technology Park** in Pembroke and the **Western NY Science and Technology Advanced Manufacturing Park (STAMP)** facility in Alabama are needed to provide for future growth in manufacturing in the western portion of the region.

NT-5 Rail Access to Landfills in the Region

Plan and implement extensions of rail sidings to regional landfills to promote the transport of municipal solid waste into the region via rail rather than via truck.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●	●●●●●	●●●

There are several proposals to construct rail sidings and spurs to provide rail access to the region’s landfills and thus divert a portion of truck trips to rail. An application prepared by Seneca County for a Federal Transportation Investment Generating Economic Recovery (TIGER) grant claims that a rail spur to Seneca Meadows landfill in Seneca County could divert 10 percent of truck trips to rail, approximately 6,500 diverted trips per year. Recent discussions with other landfill operators, including Waste Management, Inc., the operator of the High Acres landfill in Monroe County, revealed that the operators and the waste haulers with whom they contract would be interested in switching a significant share of municipal solid waste from truck to rail.

Making investments in rail infrastructure to provide rail access to the region’s landfills would have the following benefits:

- Rail is a more efficient mode of transportation than truck, particularly for low-value and bulky cargo like municipal solid waste.
- Removing a portion of landfill-associated truck traffic from the region’s roadways would help preserve the existing capacity on the region’s roads for higher-value freight.
- Removing trucks from the region’s roadways would reduce highway maintenance costs, which are largely borne by the public sector. While operating and maintenance costs for private-sector rail operators would increase, these costs are typically lower than highway maintenance costs on a per-ton basis.
- Removing long-distance truck traffic from the region’s roadways would reduce the impact that these trucks have on safety, noise, and emissions.
- Construction of rail spurs would generate transportation industry jobs in the Genesee-Finger Lakes Region, most likely among the short line rail operators based here.

NT-6 New York State Route 63 Corridor Near-Term Improvements

Implement near-term improvements on New York State Route 63 Corridor to address immediate needs, balancing operational needs of local and through freight traffic against safety concerns.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●●	●	●●●

The *Route 63 Corridor Study*, available on NYSDOT’s website, contains a detailed investigation of the benefits and costs associated with various bypass concepts, along with complementary policy and operational changes to the corridor. The study is available here:

<https://www.dot.ny.gov/regional-offices/region4/Repository/TM3Fianl4-18-08.pdf>

In the process of identifying freight-specific improvement alternatives in the Genesee-Finger Lakes Region, stakeholders have identified additional projects or refinements of projects recommended in the *Route 63 Corridor Study*. Options for major capacity and operational improvements are discussed in alternative MT-1, “New York State Route 63 Corridor Medium-Term Improvements,” below. Potential near-term improvements include the following:

- Install caution signs/flashers in the vicinity of the Arkema Chemical Plant entrance in the Town of York. Construct a westbound deceleration lane and an eastbound left turn lane to remove turning trucks from the traffic stream on New York State Route 63 near the Arkema Chemical Plant entrance in the Town of York.
- Use traffic calming measures to reduce traffic speeds on New York State Route 63 near the intersection with New York State Route 36 and the area around the York Central School District campus. Extend the restricted speed zone further east on New York State Route 63 in the Town of York.
- Use targeted enforcement of speed, weight restrictions, and other regulations to encourage safe and legal operations by drivers on Route 63.
- Improve the intersection of New York State Route 63/U.S. Route 20A/ New York State Route 39 in the Village of Geneseo as recommended in the corridor study. Align this intersection to form a 90 degree "T" or combine north/south intersection into one; Install northbound left turn lanes on New York State Route 63; Realign eastern intersection to form a 90 deg. "T" or signalize both intersections; Flatten vertical curve to the west or raise the intersection; Improve drainage design - cross slope; Increase pavement friction at the intersection and on approaches; Traffic calming techniques (appropriate techniques to be determined by NYSDOT, which may include channelization, landscaping, rumble strips, neckdowns and others).

These near-term improvements would improve efficiency and safety on a critical component of the region’s freight network. The improvements also would maintain or improve access to existing businesses and industrial development sites in the corridor. There would be few transportation industry jobs created in the region as a result of the improvements. The cumulative cost of the improvements would be low to moderate.

NT-7 Efficiency, Access and Safety Improvements on Major Regional Freight Corridors

Make efficiency, access, and safety improvements on major regional freight corridors, as recommended by various completed corridor studies.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●	●●●	●●●	●	●●●

Corridors that have been studied recently include the following:

- **New York State Route 14** Truck Study in Geneva, Ontario County. Most remaining projects involve traffic calming or enforcement of existing speed and turning restrictions. [Access, Safety]
- **New York State Routes 96 and 318** Rural Corridor Study in Ontario County. The study proposes minor adjustments to the configurations of the intersection of Route 96/Route 21 and the intersection of Route 21 / Thruway entrance ramp. [Efficiency, Safety]
- **New York State Route 21** Truck Study in the Village of Palmyra, Wayne County to alleviate northbound traffic conflicts on Route 21 near the Palmyra Elementary School. One potential solution is to identify alternate roads that can be used by truck traffic from the Thruway to points north, and another solution is to construct a truck bypass around the Village of Palmyra. [Efficiency, Safety]
- **Town of Williamson** New York State Route 21 and New York State Route 104 Gateway Study in Wayne County, including landscaping and turning-radius improvements. [Access, Efficiency]
- **Village of Macedon/ New York State Route 31** Circulation, Accessibility, and Parking (CAP) Study in Wayne County, including streetscape improvements and roadway profile adjustments to accommodate all users safely. [Access, Safety]
- **New York State Route 31 Town of Macedon-** Corridor analysis between Monroe /Wayne County line to Route 350 to evaluate the existing and future transportation needs in the corridor study area. [Access, Efficiency, Safety]
- **Village of Arcade** in Wyoming County: new connection to facilitate the movement of through traffic in the New York State Route 39 corridor and remove through trucks from residential streets; [Access, Efficiency] and
- **New York State Route 14A** Corridor Study in Yates County to improve safety and operations. [Efficiency, Safety]
- Study of extending **New York State Route 250** into the Eastview Commons/Eastview Mall developments to connect to the road that now divides the Home Depot and Staples stores.

All of these projects are intended to improve safety and operational efficiency of all traffic moving through these corridors including freight movements. Each also would improve the safety and efficiency of freight movement. These impacts would be regional in scale because the improvements are on major freight corridors and/or on routes used to access current or proposed future freight generators. Cumulatively, the cost of these improvements would be moderate, but the benefits would outweigh the costs.

5.3 Detailed Evaluation of Medium-Term Recommendations

MT-1 New York State Route 63 Corridor Medium Term Improvements

According to commodity flow data analyzed in the Regional Freight and Economic Profile, truck volumes in the New York State Route 63 Corridor is forecast to nearly double by 2035. Given this additional information, which was not available to NYSDOT when the 2008 *Route 63 Corridor Study* was completed, there is a need to investigate more substantial capacity and operational improvements in the corridor, balancing the operational needs of local and through freight traffic against the safety concerns raised by small communities along the route.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●●	●	●●

The *Route 63 Corridor Study*, available on NYSDOT’s website, contains a detailed investigation of the benefits and costs associated with various bypass concepts, along with complementary policy and operational changes to the corridor. The study is available here:

<https://www.dot.ny.gov/regional-offices/region4/Repository/TM3Fianl4-18-08.pdf>

Two scenarios that recommended construction of long bypass roadways were not included as near-term recommendations due to cost and time needed to implement, but they do have the potential for significant benefits in terms of corridor-level efficiency, access to buyer and supplier markets in other regions, and mitigation of the impacts of freight on small communities in the New York State Route 63 corridor.

Of these two, the improvement that may have the largest benefits (despite the cost and time issues noted above) would involve constructing a bypass from I-90, either at the existing I-490 interchange or from a new interchange located between I-490 and Batavia, to I-390 south of Geneseo. It is assumed to be approximately 26 miles of a new limited access roadway. In addition to its two termini, two other interchanges are assumed – one with New York State Route 63 and one with New York State Route 19. An estimated 38 new bridges may be needed. This option would improve “safety, traffic operations, mobility, connectivity, economic opportunities, and overall quality of life throughout the corridor. There appears to be significant benefits realized by shifting a substantial volume of truck traffic to a new limited access highway facility and away from noted accident locations, village settings, and schools. This scenario also has a potential for negative environmental impacts and high cost associated with it and may be difficult to deliver in the near future.”

MT-2 Increasing Allowable Truck Weights and Lengths on Appropriate Roadways

Provide incentives for long-distance trucks to use major Interstate highways and the New York State Thruway by increasing allowable weight and length of trucks on roadways that are designed to safely accommodate them.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●	●●●	●	●●●

Currently, the New York State Thruway is the only highway in New York State where tandem trailers are permitted. On the Thruway, 48-foot tandem trailers are permitted between the westernmost toll plaza, just east of the Pennsylvania border, and the southernmost tandem trailer lot in Sloatsburg in the northern suburbs of New York City. Tandem trailers also are permitted on the Berkshire Connector of the Thruway, which connects the main line to the Massachusetts Turnpike, where tandem trailers also are permitted. Thus, a single driver can haul two 48-foot trailers from the Pennsylvania border to either Sloatsburg or to the outskirts of Boston.²¹

The distance from Batavia to Sloatsburg via the Thruway is about 40 miles longer than via New York State Route 63, I-390, I-86 and New York State Route 17. Trucks bound for northern New Jersey, Philadelphia, Baltimore, and Washington use I-390 or I-81 and may only be on the Thruway for a short portion of their trip. Trucks to these destinations mainly haul a single 53-foot trailer, they are allowed to use most New York State Highways, and they commonly use the shortest distance route, even if it means cutting through portions of the Genesee-Finger Lakes Region that are not suitable for large volumes of through truck traffic.

In order to incentivize longer-distance trucks to use the Thruway and Interstate Highways instead of more direct state highway routes, New York State Department of Transportation could investigate allowing longer trucks to use roads that are designed to safely accommodate them. The State also could investigate allowing heavier trucks to use appropriate roadways if there is a mechanism to recoup the additional bridge and pavement maintenance costs that these trucks would create. In addition to the Thruway and Interstate Highways, NYSDOT and local governments could investigate the feasibility of allowing longer and/or heavier trucks to use limited segments of connector roadways off the Thruway and Interstates when there is major freight generator in close proximity to an interchange.

Changes to truck size and weight allowances can improve productivity in the trucking industry. Allowing heavier and longer trucks increases the amount of product that can be carried on each trip, thus reducing the number of drivers needed to move a given quantity of freight from one point to another. Heavier vehicles cause bridges and pavements to deteriorate more quickly, however, imposing costs on NYSDOT and local governments who are responsible for maintaining the roads. Heavier vehicles also need longer distances to stop, making them incompatible with areas where there is significant pedestrian activity. Longer vehicles need larger turning radii at

²¹ If Pennsylvania were to allow tandem 48-foot trailers on its portion of I-90 and if Ohio were to allow tandem trailers on I-90 east of Cleveland, there would be a continuous 48-foot tandem trailer route from Chicago to New York City and Boston. Further, triple trailers are allowed on the Indiana Toll Road and the Ohio Turnpike.

intersections and they have large blind spots, requiring specific design standards for roadways on which they travel.

Some states have, after extensive research into impacts on safety and pavement/bridge conditions, modified regulations to allow longer and heavier vehicles without a special permit. For example, Wisconsin recently introduced legislation to allow higher weight limits for certain vehicles and commodities based on the results of one such study²². Long combination vehicle limitations across the U.S. were examined in detail in a study by The University of Texas at Austin.²³

The following recommendations apply to longer and heavier vehicles:

Truck Size. The most practical option given current legislation and regulations would be to amend the NYS Vehicle & Traffic Law to allow 48-foot tandem trailers to operate on some subset of National Network of Qualifying Highways (for commercial vehicles designated under the Federal Surface Transportation Assistance Act, or STAA) and New York State Truck Access Highway System. For example, highways with full control of access that are designed to a minimum standard (to be determined by NYSDOT) could accommodate longer trucks. Very short segments of state highways that connect Thruway Interchanges to major concentrations of freight activity like warehouses and distribution centers also may be candidates for permitting long combination vehicles if they are designed to safely accommodate these vehicles.

Truck Weight. NYSDOT could explore allowing heavier vehicles on state highways if there is a compelling reason to do so, such as an agreement to share additional bridge and pavement maintenance costs with a private-sector partner. In 2012, the U.S. House of Representatives proposed authorizing states to allow truck-trailer vehicles weighing up to 97,000 pounds (with 6-axles) on Interstate highways. The provision was removed from the bill by amendment. There has also been some discussion of allowing overweight vehicles from Canada to travel into the Genesee-Finger Lakes Region along pre-approved roadways to serve major freight generators in order to facilitate cross-border trade. In this region, examples of such destinations may include manufacturers of heavy equipment and parts or food processors who rely on bulky, heavy inputs.

Infrastructure to Support Oversize and Overweight Truck Operations. Currently, the Thruway has “tandem trailer” lots at major interchanges so that tandem trailers permitted on the Thruway mainline can exit the Thruway and divide the trailers between two tractors (and two drivers) for the “last mile” of the trip to their destination. Study stakeholders have identified a need to add or expand tandem trailer lots at Thruway interchanges. In the scenario above in which tandem trailers are allowed on roads other than the Thruway, additional tandem lots would need to be strategically located at major interchanges, particularly near concentrations of major freight origins and destinations.

The benefits of this strategy include improved efficiency of freight movement, as tandem trailers can exit the Thruway at the interchange closest to the cargo’s destination, or enter the Thruway at the interchange closest to the cargo’s origin. Providing tandem lots closer to major freight

²² Wisconsin Truck Size and Weight Study

http://www.topslab.wisc.edu/workgroups/tsws/deliverables/WisDOT_TS&W%20Study_1-1-09_final.pdf

²³ Potential Use of Longer Combination Vehicles in Texas: First

Year Report http://www.utexas.edu/research/ctr/pdf_reports/0_6095_1.pdf

generators shortens the distance that a local driver must haul a single trailer along regional roadways, thus reducing truck operating costs.

MT-3 Regional Rail/Highway Intermodal Transfer Facility

Identify a feasible location(s) for a regional-scale rail/highway intermodal transfer facility and, simultaneously, identify potential customers to justify private rail investment in new intermodal rail service to the region.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●	●	●●

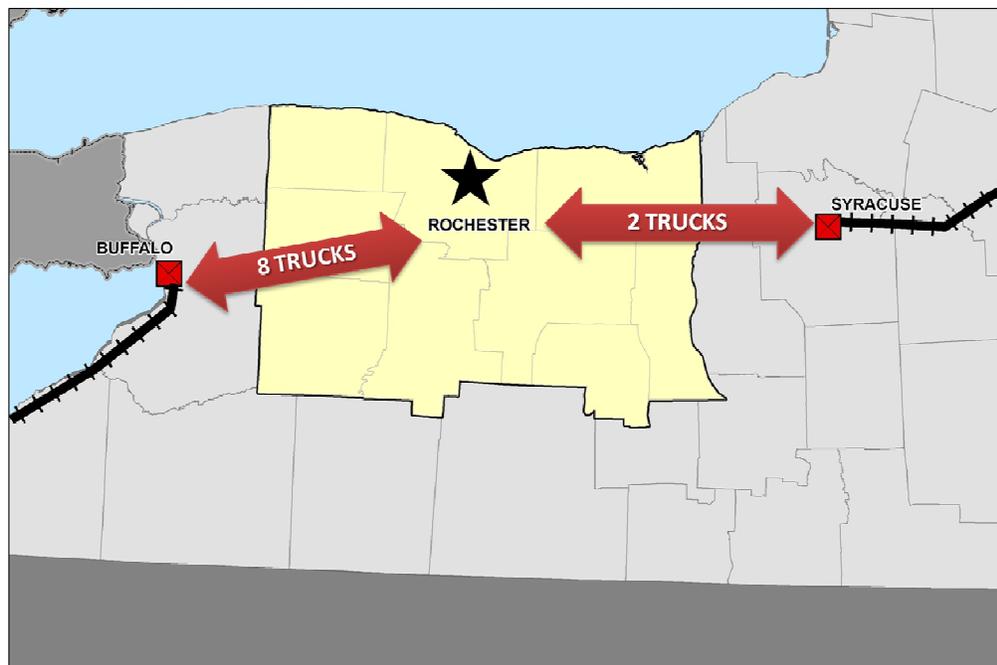
The commodity flow forecast analyzed in the Regional Freight and Economic Profile anticipates that rail tonnage into and out of the nine-county region will increase by 52 percent between 2010 and 2035. Rail intermodal, a subset of rail traffic that hauls containers or trailers that can be carried by truck without re-packing the loaded cargo, is expected to be the driving force for growth in rail tonnage. Today, the nearest intermodal terminals where trailers and containers may be shifted from rail to truck (and vice versa) are located in Buffalo and Syracuse. Shippers in the Genesee-Finger Lakes region must have their shipments drayed to one of these terminals to access rail intermodal service.

An analysis of one market segment, consisting of intermodal containers that currently travel to an intermodal terminal in Buffalo or Syracuse, that are then drayed to the Genesee-Finger Lakes Region by truck, was completed for this study. Using the commodity flow database, analysts linked rail intermodal trips that originate or terminate in Erie County (Buffalo) or Onondaga County (Syracuse), where the nearest intermodal terminals are located, and linked them to truck drayage trips of intermodal commodities to/from those two counties to/from the nine-county Genesee-Finger Lakes Region. The result was an estimate that about 6 intermodal units per day currently terminating at the Buffalo and Syracuse terminals are ultimately destined for the Genesee-Finger Lakes Region, with 10 units expected by 2035, as shown in 5.2. This estimate suggests that long-haul moves of commodities that could be handled by intermodal services are traveling to and from this region completely by truck, rather than by rail intermodal through terminals in Buffalo or Syracuse and truck drayage to or from the Genesee-Finger Lakes Region.

This analysis suggests that there is not sufficient demand in this market segment alone to support regular intermodal service to and from the Genesee-Finger Lakes Region. However, this analysis also does not make any assumptions about a reduction in price that might occur with introduction of a competing freight transportation mode, and subsequent induced demand and mode shifts that might follow this price reduction.

To estimate other market segments, a detailed market analysis involving shipper surveys could help identify the cost, speed and reliability thresholds that an intermodal service to this region would have to meet in order to shift a sufficient share of long haul truck traffic to a rail intermodal service offered within the nine-county region. A strategy to generate demand for direct intermodal service is to unite a number of shippers in the region who will commit to “buy” an intermodal unit train on a daily, twice-per-week, or weekly service schedule.

Figure 5.2 Intermodal Drayage, 2035



Source: IHS Global Insight TRANSEARCH

The benefits of rail intermodal service to the Genesee-Finger Lakes Region include increased time, fuel and cost efficiency of shipments relative to service through terminals outside the region, and in many cases, relative to long haul trucking. Access to the nation's rail network would be improved as well. Direct intermodal service would mitigate air quality and other truck-induced impacts along highways leading into and out of the region. Intermodal terminals do not generate a large number of jobs directly, though induced business activity resulting from direct rail access could generate some indirect jobs, including those created by businesses that expand in the region and new businesses attracted to the region by intermodal rail service.

MT-4 *Transload and Cross Dock Facilities on Short-Line Railroads*

Improve access to the rail system region-wide by identifying possible locations for smaller-scale transload and cross dock facilities along the region’s short-line railroads.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●	●	●●●

The large, regional intermodal transfer facility described in recommendation MT-3 above would need to attract sufficient volume of intermodal cargo in one centralized location to justify having a Class I rail operator start a new service to/from the region or have a through train stop to pick up intermodal railcars. At the same time, there is a parallel need for facilities to load and offload bulk cargos and to transfer small and/or infrequent shipments of intermodal containers between truck and rail closer to the origins and destinations of the freight.

The Genesee-Finger Lakes Region is home to six short line railroads that connect customers throughout the region to the national rail network. These railroads carry primarily bulk and carload commodities such as building materials, minerals, and chemicals. According to the commodity flow database, these rail bulk commodities are expected to increase in volume by nearly 50 percent between 2010 and 2035. Some of the short lines’ terminals for transloading and drilling railcars may not have the capacity to accommodate the anticipated growth in traffic, especially when and where some of the industrial (re)development activities presented in this plan occur.

Bulk transfer facilities, including efficient “cross-dock” operations, can be located closer to businesses who rely on cargo that cannot be containerized easily. Smaller-scale intermodal container transfer facilities that handle irregular shipments or small numbers of containers also can be more efficiently operated by short-line railroads than by Class I rail companies. GTC’s member agencies, particularly NYSDOT and sub-regional Industrial Development Agencies (IDAs) should work with the railroads to develop new rail access points when and where needed. These agencies can assist railroads in identifying expansion opportunities and marketing services to existing or potential customers.

MT-5 Lyons Industrial Park Freight Village

Develop a multimodal logistics center or “freight village” at the Lyons Industrial Park.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●●	●●●	●●

Freight villages or multimodal logistics centers are designated areas in which freight and logistics facilities where any number of supply chain activities (such as consolidation, value-added activities, and transloading) occur. Often, freight villages include support services such as truck rest areas, banks, Customs for international cargo, restaurants, and vehicle repair services. By accommodating all of these activities in close proximity, freight villages offer shippers and carriers efficiency, and may be able to induce more activity and attract new industrial development.

A freight village at the Lyons Industrial Park could be particularly advantageous to the region’s shippers, as it would take advantage of access to the CSX Main Line and the Norfolk Southern Corning Secondary, along which service could be operated by Finger Lakes Railway. The site is in close proximity to major highways, including the New York State Thruway, and to water via the Erie Canal. Should an opportunity to connect barge service via the canal to the Port of Oswego on Lake Ontario be explored and advanced, a valuable waterborne connection could enhance the value of the Lyons site as a multimodal freight transportation hub.

The concept of a freight village at Lyons scores particularly well against the efficiency and access evaluation criteria, as it would provide shippers who co-locate there access to three transportation modes without any need to dray between terminals and a variety of support services. Potential employment in transportation, warehousing, manufacturing, and a number of other sectors could number in the hundreds or thousands depending upon the size and number of businesses willing to locate there and the scale and type of activities that will be offered. The Wayne County Industrial Development Agency has completed a geographic feasibility and proposed site layout plan (see Figure 5.3) and has finalized a detailed market and economic impact analysis rooted in not only freight data but shipper and carrier input that will pinpoint the types of activities feasible at this site.

Figure 5.3 Lyons Industrial Park Freight Village Proposed Site Layout



MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons

Preserve right of way and make necessary infrastructure improvements to re-instate rail service along Norfolk Southern's Corning Secondary Line between Geneva and Lyons.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●●	●●●	●●

Norfolk Southern's Corning Secondary Line is approximately 14.9 miles long and runs between Geneva and Lyons. Norfolk Southern has suspended service on the line and has proposed filing a petition to abandon the line with the Surface Transportation Board. The Finger Lakes Railway had trackage rights over this line and operated service until the suspension. The line is in a state of good repair and double tracked for approximately 1.8 miles (a portion of the double-tracked section is owned by CSX at the interchange in Lyons). The only location for potential remedy of structural overhead clearance issues is in West Junius, just east of Interchange 42, where the line goes under the Thruway.

Reactivating this line would provide direct linkage from the industrial facilities in Geneva to the CSX mainline track in Lyons. In addition an active rail line can help industries in this part of the region to expand and reduce truck traffic on Route 14. The project would preserve competition and the accompanying cost advantages available to local and regional shippers by reducing the amount of additional miles freight must now travel to interchange with CSX, particularly freight that travels to and from the west. Completion of the project would allow a larger share of future growth in regional freight traffic to be accommodated by rail, an energy-efficient and cost-effective mode of freight transportation.

If the project is not completed, the Lyons Industrial Park Freight Village would have fewer options for rail freight service. If the site were to be served by the Corning Secondary, Finger Lakes Railway could serve the yard and interchange cars with either Norfolk Southern or CSX, providing options and competition to help reduce shipping rates for tenants of the Lyons Industrial Park.

MT-7 Seneca Army Depot Industrial Rail Facility

The Seneca Army Depot Industrial Rail Facility is located 15 miles south of the Waterloo / Seneca Falls Thruway exit in Seneca County. It is approximately 40 miles north of I-86 and New York State Route 17. Alternative energy projects, such as the regionally-endorsed Seneca AgBio Green Energy Park, which produces biodiesel at the former Seneca Army Depot in Seneca County are among the regional economic development priorities identified by the Genesee-Finger Lakes Regional Economic Development Council.

The Seneca County Industrial Development Agency (IDA) has developed a conceptual plan for improving 4.3 miles of rail track owned by the IDA in the former Seneca Army Depot property. The existing rail line has suffered from neglected maintenance, however is still operable and currently being used for rail car storage. Inside the Depot, track rehabilitation includes strengthening curves, replacing rail and timbers along with significant and appropriate tie replacement. This track replacement and surface rehabilitation is paramount for successful upgrade to the existing track. Upgrades will allow Finger Lakes Railway, a short-line rail operator, to handle 286,000 pound rail cars, which in turn will improve the viability of commercial rail-truck transfer services.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●●	●●●●	●●●	●●●

A benefit cost analysis prepared by the IDA cites two significant public benefits of the project. One is the reduction in truck vehicle miles traveled which results in reduction of future public expenditures for highway and bridge maintenance. The second is the reduction in diesel fuel consumption which equates to greater fuel savings associated with freight goods movement by rail. The IDA estimated a benefit-cost ratio of 41.96. The cost of the project is estimated to be \$826,416, but would be higher if the full extent of track within the site were upgraded to provide access for 286,000 pound rail cars to all potential redevelopment parcels in the site. The project would help accommodate demand for truck/rail transfers, particularly for freight destined for the rapidly-growing natural gas drilling operations in Northeast Pennsylvania and planned operations in the Southern Tier of New York. The facility also would offer convenient connections to truck and rail for new and expanding industries in the Genesee-Finger Lakes Region, such as the aforementioned alternative energy industries and food processors. Although many jobs associated with this project could be located in or near the Seneca Army Depot property, others could be added outside the nine-county study area.

MT-8 Rochester & Southern Railroad (RSR) Line Capacity and Operational Improvements

The Rochester & Southern Railroad (RSR) is a 58 mile short line freight railroad that interchanges with the Buffalo & Pittsburgh Railroad, Canadian National, Canadian Pacific, CSX Transportation, Livonia, Avon & Lakeville Railroad, and Norfolk Southern. This alternative would make improvements to vertical clearance restrictions and sidings on the RSR line to allow for improved connections to Rochester and Monroe County from Norfolk Southern's Southern Tier (Hornell) line.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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According to the New York State Rail Plan the Rochester & Southern Railroad has allowable railcar clearances designated for Plate “F” 17’-0”. Over the 58 miles there are eight locations for potential overhead clearance issues. These clearance locations include US 390 (twice), the New York State Thruway, the CSX line from Chili to Fairport, NY, SR 63, high tension power lines at the Greater Rochester International Airport, Covington Rd and a pedestrian bridge in Leicester, NY. The overhead conflict locations are also provided in a table below.

Table 5.1. Overhead Clearances of Overpasses on RSR Line

BIN	Carried	Crossed	Vertical Clearance
1072492	I-390 NB	RSR	23’-0”
1072491	I-390 SB	RSR	23’-0”
3316310	Covington Rd. Ped Bridge	RSR	21’-5”
1028710	NY 63	RSR	22’-4”
5510619	I-90 CSX	RSR	22’-0”
	Power Lines	RSR	> 23’
1025842	I-390 SB	RSR	21’-11”
1025841	I-390 NS	RSR	22’-3”

Improvement to the clearance restrictions and secondary sidings will provide competition for direct shipment of freight and goods between firms in Monroe County, the largest employment center in the region, and the rest of the U.S. by way of the Norfolk Southern and Canadian Pacific networks, in addition to existing service offered over the CSX network. Completion of the project would allow a larger share of future growth in regional freight traffic to be accommodated by rail, an energy-efficient and cost-effective mode of freight transportation. Recommendation NT-3, replacement of the Portage Bridge on NS’s Southern Tier Line, would be a prerequisite to this alternative if access to New York and New Jersey is required.

MT-9 Re-instate rail service along the former Falls Road Branch rail corridor between Brockport and Rochester

The Falls Road Branch from Brockport to Rochester, NY is a former rail corridor of CSX. The track structure has since been removed but the Rights of Way and the corridor itself remains. It has recently been announced that the New York State Route 259 Railroad bridge in the Village of Spencerport is scheduled to be removed. In order to activate this corridor for rail service a new bridge would need to be constructed. This alternative involves preserving right of way and making necessary infrastructure improvements to re-instate rail service along the former Falls Road Branch rail corridor between Brockport and Rochester.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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The corridor is approximately 12.6 miles in length. The right-of-way includes 8 at-grade crossings and 5 bridges. The estimated cost for reactivation of the right-of-way is \$20,000,000 of materials, design, and construction. If businesses along this corridor had an active rail line they could ship product by rail; at the same time, it may not be economically justifiable to re-instate rail service in the absence of a rail customer. There is no economic or financial justification to re-instate rail service at this time. However, assuming such a customer were to be identified, completion of the project would allow freight traffic to be accommodated by rail, an energy-efficient and cost-effective mode of freight transportation

MT-10 Regional Right of Way Preservation

Preserve rights of way on lines identified in the Regional Right of Way Preservation Study, with higher priority given to lines on which potential new customers have been identified.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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Preserving existing linear rights-of-way suitable for transportation purposes is a priority so that cost-effective transportation service options can be provided in the future. These rights-of-way offer the potential to develop new transportation options, including new rail corridors, roadways, and dedicated transit or freight corridors. Once all or a portion of an existing linear right-of-way have been sold, however, it can be very challenging and expensive to reestablish the corridor. As such, preserving these rights-of-way for future transportation options is key to maintaining this region’s mobility advantages.

Official maps often do not reflect freight corridors and do not show the impact of freight activity on surrounding areas. Improved maps can be used to identify potential areas of conflict before incompatible developments are approved or constructed. Another strategy is to incorporate freight corridor preservation language into state enabling acts. This is a solution with long term impacts that codifies the language and the goal of freight preservation into the core mission of planning entities.

The following is a summary of the highest priority right-of-way preservation projects in the Genesee-Finger Lakes Region:

- Preserve 5.7 miles of the Lehigh Valley RR Hemlock Line right of way between the Town of Mendon ("Rochester Junction" near Plains Road) and the Livonia Town Line for future freight rail service. (Towns of Lima and Mendon; Village of Honeoye Falls.)
- Preserve 7.2 miles of intact rail right of way on the Conrail Hojack New York Central Railroad BeeBee Running Track between Brown Street in the City of Rochester and the abandoned rail line north of Lake Shore Boulevard in the Town of Irondequoit for future freight rail service.
- Preserve 4.5 miles of intact rail right of way on the Livonia, Avon and Lakeville line between Main Street in the Village of Livonia and the end of the active Livonia, Avon & Lakeville rail line near the Avon/Livonia Town Line for future freight rail service.
- Preserve 9.2 miles of rail right of way on the Conrail New York Central Railroad Peanut Line between the City of Batavia (junction with the active CSX line east of Cedar Street) and the Village of LeRoy (at the active Rochester and Southern line just west of Lake Street/ New York State Route 19) for future freight rail service. (City of Batavia, Village of LeRoy, Towns of Batavia, Stafford, and LeRoy.)
- Preserve the first 11.3 miles of mostly intact rail right of way on the Lehigh Valley Railroad Ithaca Line south of the Town of Waterloo for future rail service.

- Preserve the first 3.6 miles of somewhat intact rail right of way on the Lehigh Valley Railroad Naples Line west of the City of Geneva (North Genesee Street) for future freight rail service. This line could serve two competing gravel pits; however, the right of way passes adjacent to Geneva High School. (City of Geneva and Towns of Geneva and Seneca.)

The benefits associated with acquisition of rail rights of way for interchanges are numerous. They include preserving existing transportation corridors during economic downturns so they are available for reactivation during more prosperous times. They promote greater opportunities for freight transportation from short line railroads for small businesses that would typically be unavailable. They also increase the region's viability for future growth due to interconnectivity and redundancy in the freight transportation system that promotes competition and reduces shipping costs.

The ultimate uses of these rights-of-way will be determined as part of the comprehensive transportation planning process conducted by GTC that will weigh the benefits of the various uses against overall regional priorities, feasibility of the specific uses compared to each other, and the ability to advance particular uses based on available funding and community demand.

MT-11 Erie Canal Highway Bridge Crossing Improvements

The Erie Canal, which extends from Albany west to Buffalo, forms a water barrier that bisects Orleans, Monroe, and Wayne Counties. While there are many locations at which one can cross the canal, many of these crossings are characterized by steel truss bridges that have weight, width, and/or clearance restrictions. This alternative would address weight, width, and clearance restrictions on roadway crossings of the Erie Canal to improve truck access to those portions of the region located north of the Canal.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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A review of bridges in the region found that 42 of the bridges that cross the Erie Canal are either weight- and/or height-restricted (10 bridges are both height- and weight-restricted, 8 bridges are weight-restricted only, and 24 bridges are height-restricted only). Additional analysis revealed that 18 of these bridges are located in areas of high-density freight generation. In addition many of these bridges crossing the canal are considered to be historically significant according to the State Historic Preservation Office (SHPO).

By mitigating for these issues, multimodal access to existing freight generators and development sites north of the canal would be improved. These projects could also potentially open these areas to future development by improving access to large amounts of undeveloped land. Overall, the aggregate benefits for these projects are expected to exceed the small to moderate costs associated with them.

MT-12 S Curves on I-490

A series of “S” curves on Interstate 490 creates load shift in trucks travelling above the speed limit. Several trucks have overturned, causing long road closures and delays for vehicles traveling east and west on the Interstate. This alternative would identify and implement safety improvements to reduce truck accidents at these curves.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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Near term solutions such as truck speed sensors coupled with advisory warnings devices should be investigated to be installed in advance of the curves in order to give trucks adequate time to adjust to the appropriate speed. Education and enforcement efforts can supplement near-term design and safety improvements. Also in the near term, improved incident management strategies, including more rapid clearance of accidents and debris from the roadway and improved traveler information to help travelers divert around the incident, can help.

Long term, costly solutions would involve reconstruction of the curves to soften the degree of curvature and increase the banking. This project is quite involved and very costly because of the existing geometry of the intersecting ramps to and from the Rochester Center City.

Near term solutions costs would be approximately \$ 1.0 million. Longer term geometric solutions involving reconstruction of the interchanges would be extremely costly perhaps exceeding \$20-30 million. Other than short-term construction jobs, few jobs could be expected from this type of local safety improvement.

MT-13 Extend Pre-Emption Street (Co. Road #5) from North Street to New York State Route 5 and U.S. Route 20 in the City of Geneva

Truck traffic along the New York State Route 14 corridor has been increasing in recent years in support of both local industry and industrial and commercial uses to the south in locations like Penn Yan and Watkins Glen. New York State Route 14 is desirable as a truck route as it provides the most direct connection between communities located on the west side of Seneca Lake, the north end of Keuka Lake and the Thruway, which intersects with New York State Route 14 at Exit 42.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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The purpose of the Pre-Emption Street Extension is to provide a bypass route between New York State Route 5 and U.S. Route 20 and New York State Route 14 north, improve truck access between New York State Route 5 and U.S. Route 20 and the north side commercial/industrial district, and eliminate pass-through commercial vehicles from Lake Street and the section of Exchange Street south of Forge Avenue.

Extending this roadway south to intersect New York State Route 5 and U.S. Route 20 will require crossing the tracks of the Norfolk Southern and Finger Lakes Railway at-grade. While train speeds on these tracks are very low, the potential crossing location is very close to the Finger Lakes Railway freight yard which could result in an at-grade crossing of up to five tracks and several low-speed train crossings per day.

Because of potential safety issues involved with this option, it is recommended that the City, Town and County explore this option with NYSDOT and learn more about the local operations of both railroads.

MT-14 Intelligent Transportation System Technology Specific to Freight Movement

This strategy explores the effects of increasing the availability and accuracy of data that is readily available to industry through various ITS solutions. The objective is to provide industry with better quality information to assist in operational decision making processes. This strategy has been applied in other states through the implementation of 511 alert systems, use of real time traffic monitoring tools, and the development of interactive truck route maps containing freight related data.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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Increasing the amount of information available to the trucking industry will allow for carriers to safely and effectively design their operations around existing conditions. GTC’s role in this effort would be to coordinate collection and maintenance of locally-sourced data, such as truck size and weight restrictions on local and county roadways. The result will be an increase in efficiency from increased productivity, and a reduction in operating costs from increased system reliability. For example, one of the biggest challenges with providing traveler information is ensuring the information is accurate and as up-to-date as possible. The inclusion of “live” updates through a system such as 511 will further increase the productivity and safety benefits of this strategy by allowing carriers to make decisions based on current circumstances. The costs of in-vehicle navigation systems with real-time information for trucks can be high, but trucking companies and independent owner-operators can decide whether the long-term operations and maintenance cost reductions outweigh the initial up-front costs of the devices.

While this approach may not have an immediate effect on access to the freight transportation system, the development of a network of truck routes published and distributed in various formats (including via electronic applications) allows for better asset management moving forward. Once a core network is established, government agencies can develop investment strategies to increase multimodal access, reduce system gaps, and coordinate land use. The network can also be used help mitigate the impact of freight on communities by focusing freight volume on designated routes.

This particular solution would not have a direct effect on job creation. Over time, however, increases in efficiency of operations as a result of these efforts could result in economic growth opportunities. The costs associated with this strategy would vary depending on the type of solutions to be implemented and the area to be covered but would likely fall in the moderate range.

MT-15 Congestion Monitoring and Management Systems

Monitor the operational performance of major freight corridors at congestion hot spots and implement freight-specific congestion management strategies to keep major freight corridors congestion-free.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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Nationally, there is a need to confront increasing levels of highway congestion caused by the ever growing gap between existing infrastructure and freight demand. This effort focuses on identifying areas of high congestion along major freight corridors and the development of strategies to reduce the congestion. The following 8 step process will be employed:

1. Develop Congestion Management Objectives;
2. Identify Area of Application;
3. Define System or Network of Interest;
4. Develop Performance Measures;
5. Institute System Performance Monitoring Plan;
6. Identify and Evaluate Strategies;
7. Implement Selected Strategies and Manage Transportation System; and
8. Monitor Strategy Effectiveness.

Currently, several state agencies and port authorities use various methods to monitor traffic flows along major corridors in order to develop performance measures and implement various congestion management strategies. These strategies can include the addition of dynamic message signs to area roadways, the development of congestion pricing, expanded use of a 511 traveler information system, or development of policies to redirect freight flows.

This strategy would increase system reliability by reducing congestion along major freight corridors. Access to major freight generators could be improved as a result of reduced congestion and potential policy changes. A reduction in congestion could also reduce emissions and energy consumption, resulting in better air quality and operational cost savings to carriers. This scenario would not be directly responsible for any job creation.

GTC is currently updating its federally-required Congestion Management Process. This update will include an expanded freight component in which the vast majority of this recommendation will be advanced.

MT-16 Improve Freight System Resiliency

Key characteristics of freight system resiliency include connectivity between major freight generators and the freight system, and responsiveness to changes caused by disasters and other emergencies. System resiliency is critical to the state and regional economic recovery in the wake of an emergency.

The regional freight system and its connections to the global system would be examined to identify areas on the freight system that are exceptionally susceptible to disruption. Strategies to minimize the impact of disruptions to the freight system would be developed and project opportunities to upgrade sections of resiliency hampering obsolete infrastructure would be highlighted. Potential ITS solutions that could be implemented to increase system responsiveness and user awareness would also be identified a part of this strategy.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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GTC is currently working on Diversion Route Planning for major routes in the region. Improving the resilience of the freight transportation system could help reduce the impact of incidents and freight system disruptions. Some examples of efforts to improve freight system resiliency that have been implemented elsewhere include traveler alert systems, congestion monitoring and management technology and strategies, highway design manual modifications, freight focused asset management, work zone coordination, policy creation, and internal process enhancements.

This strategy would increase efficiency of the regional freight system and preserve access to major freight generators in less than optimal operating circumstances. Increasing system resiliency will also improve the safety and security of the system while potentially minimizing negative impacts of system disruption in areas sensitive to freight movement. This strategy would not directly affect job creation in the region.

The cost of implementing the recommendations resulting from this strategy would vary but would mostly fall in the moderate range for ITS improvements and could be in the higher range for infrastructure improvements.

MT-17 Freight Infrastructure Vulnerability Needs Assessment

A freight infrastructure vulnerability needs assessment would assess the system’s ability to withstand and/or recover from future natural and man-made disruptions that can reasonably be predicted and have a moderate to high likelihood of occurring. The assessment would entail the following steps:

- Identification of critical infrastructure (for example, the major goods movement corridors identified in this study),
- Building consensus among regional stakeholders around a set of likely future disruptions (for example, flooding , high winds, or high snowfall accumulations),
- Pairing of event locations and severity with critical infrastructure, and
- Identification of recommended adaptation strategies to prevent or mitigate against the impacts of the disruptions on the broader freight transportation system.

Adaptation strategies can range from policy changes to design elements to be incorporated into major reconstruction or system expansion projects.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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A vulnerability needs assessment and subsequent adaptation strategies would prevent or mitigate against disruptions to the efficient movement of freight and could prevent loss of access to major freight generators. A flood that removes a section of a Class I rail line with no alternate route could require long detours around the track outage, costing rail operators and their customers in lost time and lost efficiency. Where there are few redundant links in the freight network, an outage could completely cut off access to a freight generator.

Infrastructure adaptation measures often entail significant costs, and therefore the vulnerability needs assessment would need to carefully quantify risks and potential impacts associated with each type of disruption, and prioritize adaptation strategies depending on the criticality of a given piece of infrastructure to the functioning of the transportation system and the broader economy. Ideally, adaptation can occur incrementally as other major projects are undertaken, but some adaptation projects may need to be stand-alone to prevent against more immediate threats.

MT-18 Managing the Transportation Impacts of Marcellus Shale Natural Gas Drilling

The growth in Marcellus Shale gas drilling operations just outside the region has led to an increase in trucking operations on roadways near drilling sites. Furthermore, operations have been proposed in the Southern Tier of New York State, including some sites in the Genesee-Finger Lakes Region. Equipment and drilling materials hauled into the region by water and rail are increasingly being offloaded at rail terminals in the Genesee-Finger Lakes Region, and trucks carrying these supplies to and from wells are already traveling over roadways in the region.

Increases in truck volumes have the potential to reduce infrastructure life for roadways not designed to handle large volumes, with serious fiscal consequences. Increased volume also has the potential to reduce safety and have a negative impact on the quality of life for area residents. This strategy focuses on determining the effects that Marcellus Shale drilling operations have on local roadways and communities and exploring the creation of potential policies to mitigate these impacts. A key component of this alternative is developing policies to manage and mitigate the impacts of trucking operations on roads used to access proposed Marcellus Shale natural gas drilling wells inside the region as well as existing wells outside the region

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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Mitigation and regulatory options to address impacts could include the following:

- Require NYSDOT, county, and town approval of the transportation elements of mitigation plans submitted as part of the state well permitting process;
- Establish, through mutual agreement between well operators, NYSDOT, and towns, a set of permissible state and local roadways for trucks to use to access each well;
- Ensure towns and well operators set up enforceable excess maintenance agreements for the local roads used to access wells;
- Develop fair and enforceable mitigation strategies for noise, vibrations, and emissions caused by drilling-related vehicles on state and local roadways used to access wells, in cases in which such impacts cannot be avoided; and/or
- Ensure there is an adequate number of oversize and overweight vehicle permits set aside for well-related truck trips, and that the time to process the permits is reasonable.

These alternatives could require extensive data collection and analysis in combination with public education and outreach. There are resources available to towns and counties such as model ordinances and laws for mitigating the impacts of through truck traffic.

Depending on which policies are implemented as a result of this effort, the effects of freight on local communities and the environment could potentially be reduced. This strategy would have neutral impacts on efficiency freight system operations, access to freight generators, or job creation. It may actually have a negative impact on job creation if policies limit the amount of drilling allowed. The overall cost of implementation would be on the lower end because there would be no need for any substantial investments. The costs of doing nothing, on the other hand, could be extreme because NYSDOT and local municipalities do not have the resources needed to repair damage caused by high volumes of heavy trucks on local roads.

MT-19 Identify and Implement Specific Policies and Incentives to Mitigate the Noise, Vibration, and Emissions-Related Impacts of Freight Movement

The following are examples of mitigation strategies that may be appropriate in parts of the region, with relevant local government entities responsible for implementation shown in parentheses:

- Establish, through mutual agreement between major freight generators and the transportation firms that serve them, a list of routes for trucks to use to access facilities in the region (counties, towns, cities, and villages);
- Use directional and wayfinding signage to direct through truck traffic to appropriate routes around village centers where possible (counties and towns);
- Establish and enforce speed limits in village centers and through other areas with sensitive receptors for truck noise, vibration, and emissions (towns, cities, and villages);
- Restrict the use of jake brakes in village centers and other areas with sensitive receptors for truck noise (towns, cities, and villages);
- Enforce idling restrictions, particularly in overnight hours, in parking areas near sensitive receptors for truck noise and emissions (towns, cities, and villages);
- Identify appropriate areas for on-street truck parking where off-street parking capacity is unable to meet demand, and establish reasonable restrictions on truck parking near sensitive receptors (towns, cities, and villages);
- Identify appropriate rail sidings and yards for long-term rail car storage (towns, cities, and villages); and
- Utilize the right of way of transportation facilities to generate renewable energy to offset the energy consumption associated with freight transportation.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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The impacts of mitigation strategies are felt locally, but cumulative benefits of local decisions can be significant at a regional level. Effective planning and mitigation can allow a freight facility to expand when it would otherwise be held back by community resistance. It can also lead to more effective land use and more freight jobs per acre of land. Proactive mitigation efforts can be limited to regulatory changes with small associated costs, while more substantial reactive mitigation efforts are often cost intensive and require substantial engineering efforts and/or the acquisition of land for buffering purposes.

Local governments control land use decisions and are in the best position to adopt policies to prevent incompatible development from occurring in the first place as opposed to mitigating against the impacts of freight movement after the fact. While mitigation through the use of active sound barriers such as walls and berms is often presented as a solution to the noise associated with freight activity, such interventions are better regarded as a method of last resort given their high cost and mixed record of reducing freight noise to acceptable levels.

Noise associated with rail activity is particularly difficult to mitigate due to its specific characteristics such as low frequencies and vibrations. The use of setbacks and context sensitive solutions is generally a preferred method to mitigate the impact of rail and/truck associated noise and vibrations. In addition, the use of FRA designated “quiet zones” in which freight trains do not blow their horns is an effective mechanism for improving the integration of freight operations. The creation of a quiet zone is often a lengthy and expensive process, yet can have long term benefits for the community.

MT-20 Where Suitable Alternate Routes Do Not Exist, Explore the Feasibility of Constructing New Truck Bypasses around Village Centers and Concentrations of Sensitive Receptors

Truck traffic is an important part of the local and regional economy, providing goods and services to the people living in the Genesee-Finger Lakes Region every day. In recent years, the movement of freight by trucks has increased in New York and across the nation in response to the public's rising demand for goods and services. While this has provided increased access to goods and services, the increased truck volumes on local and state roads can present issues for the local transportation system, particularly those passing through regional villages and hamlets.

This conflict between the travel patterns of large trucks and local/regional economic development, environmental and safety concerns are clearly evident in this region, which is one of the state's premier economic engines due to its agricultural and wine industries and its tourism destinations. As such, the use of truck bypass signage should be the first consideration where feasible and suitable alternate routes exist. Where such routes do not exist (e.g., Canandaigua, Geneva, and Lyons), the region's stakeholders could explore the feasibility of designating alternative truck bypasses.

In the exceptional case where construction of additional roadways and bridges on a new alignment is deemed an appropriate alternative for further consideration, the feasibility analysis shall include and be dependent on a funding and financing strategy that assigns detailed costs and benefits to the parties involved and, to the greatest extent possible, is supported by additional revenues that would not otherwise be realized (i.e., not be existing public transportation monies from federal, state, or local sources) .

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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Truck bypasses via short detours to parallel routes that are more appropriate for truck traffic can significantly improve truck travel times through congested towns and villages, improving the efficiency of freight movement and the accessibility to freight generators throughout the region. This alternative is primarily geared toward mitigation of existing impacts of freight movement. Solutions may simply involve working with communities to post signage on appropriate detour routes.

MT-21 Assist Local Shippers and Carriers in Securing Low-Interest Loans and Grants to Mitigate Emissions Impacts and Reduce Fuel Consumption

The SmartWay Program is a public/private collaboration between the United States Environmental Protection Agency (EPA) and the freight industry, which aims to assess and limit freight-related emissions and energy consumption. The program helps carriers identify opportunities to improve efficiency reduce energy costs, and demonstrate their efficiency to potential customers. Through the SmartWay Program, the EPA has partnered with trucking companies throughout the country to upgrade truck fleets with power units, generator sets, and other emissions-reduction technologies. Government agencies may find it worthwhile to direct motor carrier and locomotive fleet operators to programs like SmartWay for assistance in determining their emissions reduction needs and opportunities.²⁴

The New York State Energy Research and Development Authority (NYSERDA) is a public benefit corporation that partners with governments and private companies to reduce fuel consumption and facilitate the use of alternative fuels. NYSERDA offers several programs to help industrial facilities improve the efficiency of their buildings and manufacturing processes, and to explore new technologies or practices that achieve fuel consumption reductions and associated environmental benefits.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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By helping local industries—including manufacturers, motor carriers, railroads, and other freight stakeholders—connect with SmartWay and NYSERDA programs, the GTC member agencies can help to reduce the emissions impacts of freight transportation and freight-generating industry on public health and the natural environment.

²⁴ More information regarding the U.S. EPA SmartWay Program is available from: <http://www.epa.gov/smartwaylogistics/>.

MT-22 Border Crossing Improvements

As the economy of Toronto-Buffalo-Rochester mega-region grows more interconnected, demand for freight movement between the U.S. and Canada is increasing. Currently, international border crossings are complicated and time consuming for trucks and freight trains. Numerous agencies perform inspections to ensure the vehicles are safe operationally, and that their cargo meets federal regulations. The number of inspections, traffic volumes, and shortage in staffing, can combine to cause costly delays. The costs of these delays are not just operational costs incurred by the truck drivers, but also include environmental costs, negative effects on non-commercial vehicle traffic flow and safety due to the backup of commercial vehicles. Easily monetized costs are passed along to consumers in the form of higher-priced goods.

This alternative would involve working with the U.S. Department of Homeland Security, the NYSDOT, and local stakeholders at U.S-Canada border crossings to identify projects, process enhancements and other changes that could be implemented to reduce the delays around border crossings. Improvements identified could include construction of new infrastructure to improve traffic flow, implementation of ITS solutions to monitor congestion and alert travelers, or streamlining existing processes such as inspection procedures.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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Improving travel times for freight traveling through border crossings, by streamlining inspection and clearance procedures and/or expanding border crossing capacity, would have several positive impacts including improved efficiency due to reduced congestion and greater access to global markets. Reduced congestion could also cut down on noise and emissions associated with high levels of freight traffic in communities near border crossings. Implementing these changes would require coordination with the U.S. Department of Homeland Security, the Transportation Security Administration, the Customs and Border Protection Service, and their counterparts in Canada.

Changes that resulted in enhanced international trade could provide opportunities for growth of the freight industry in the area and could lead to the creation of additional jobs in the future due to increased efficiencies and willingness of companies to locate in the area, particularly if the improvements were marketed jointly with efforts to promote Foreign Trade Zone #141 in Monroe County. The cost of this strategy would vary slightly depending on the changes to be implemented and likely be on the higher end of the spectrum.

MT-23 Change the Designation of "New York State Route 390 " to "Interstate Highway 390 " North of the I-490 Interchanges

The designation of New York State Route 390 north of Interstate 490 as an Interstate highway could assist in the marketing of developable industrial sites in northern Monroe County to national site location consultants.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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According to research conducted as part of NCFRP Project 23, transportation network access is one of the top criteria developers of warehousing and distribution centers, urban logistics centers, manufacturing facilities, and other freight-generating facilities use when selecting candidate sites. Often, transportation access is defined as distance to Interstate highways. For developable industrial sites in northern Monroe County, the designation of New York State Route 390 as a state highway may artificially handicap them in some firms' transportation network analysis and site selection processes.

To designate a highway as an Interstate in the Administrative path, the Federal Highway Administration generally requires that the proposed highway be a "logical addition" to the Interstate Highway System. Thus in order for New York State Route 390 to be designated as Interstate Routes it would need to terminate at a connecting corridor. New York State Route 390 on the west side of Monroe County could be extended as I-390 to the north terminating at New York State Route 18 (Latta Road) in the Town of Greece.

MT-24 Improve the Efficiency and Lower Costs Associated with Interchanges of Rail Cars between Rail Operators

Costs associated with rail to rail interchange introduce inefficiencies into the rail transportation system. These costs are sometimes associated with a lack of infrastructure combined with deficiencies in communication and coordination. Thus, corridors that are “optimized” from the perspective of a single operator’s network may be less than optimal when considering the whole network. There are many potential roles for public institutions in ensuring that coordination between different rail operators and securing funding for ‘gap’ infrastructure potentially including cranes and sidings for linking different operators.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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This strategy promotes efficient connections, improves resiliency and improves capacity in the regional rail system. It helps to develop new intermodal options and improves connections between the region and global markets. Although inefficient operations today may require redundant employment at two interchanging railroads, improved efficiency could help increase rail traffic, leading to employment gains in the transportation sector. Resolving interchange issues may require moderate capital investments, but many issues can be resolved through regulation or legal and operational agreements between rail firms.

MT-25 Truck Parking Facilities

Commercial motor vehicle drivers are limited by current regulations to 11 cumulative hours driving in a 14-hour period, following a rest period of no less than 10 consecutive hours. As such the availability of adequate parking is important if truck drivers are to obtain the rest needed to operate their vehicles safely. This alternative would review existing truck stop demand, identify gaps, and build additional truck parking facilities where there is demand for overnight and daytime truck parking to help truck drivers comply with Federal hours-of-service regulations.

Based on an initial review of existing truck parking facilities in the region, there are more than 1,110 spaces available for trucks passing through the region. The spaces are spread among private facilities (854 spaces) such as Pilot and Flying J, NYSTA facilities (188 spaces) located along the Thruway, and NYSDOT facilities (72 spaces) located along State Routes. If it is determined that this supply does not meet the current demand, the following three projects are only examples of projects that might help meet the demand:

- Investigate the reopening of closed rest areas on I-490 in Churchville and near the Victor exit;
- Investigate the feasibility of a new public or private rest area along New York State Route 14 or New York State Route 318 at the Thruway (source: Routes 96 and 318 Rural Corridor Study); and
- Investigate the feasibility of a new rest area in the New York State Route 14A corridor in the Town of Milo (source: Route 14A Corridor Study).

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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The primary benefit of this strategy is safety and mitigation of the impacts of truck movement. However, providing adequate rest areas throughout the region in places where truck drivers need to rest can improve efficiency by allowing drivers to travel as far as possible before stopping to rest. Truck parking facilities have only tangential relationship to improving access to freight generators. Public rest areas result in little if any job creation, while new private truck stops can be a small source of transportation sector employment.

5.4 Detailed Evaluation of Long-Term Recommendations

LT-1 To Facilitate Trade with Canada, Explore Options to Move Freight across the Border by Non-Highway Modes

The Genesee-Finger Lakes Region has the advantage of being within close proximity to southern Ontario, a region that is home to more than 12 million people, or 35 percent of Canada’s population. Despite the close proximity, anecdotal evidence from shippers and carriers suggests that trade with southern Ontario is inhibited by lengthy and unreliable delays at border crossings between the United States and Canada. To address this issue, an intermodal shuttle service between the greater Toronto area and the greater Rochester area with pre- or on-board screening and inspection, could facilitate faster and more reliable trans-border trade.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
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A detailed market demand analysis complete with shipper mode choice experiments could reveal the demand and establish minimum operating parameters to maintain the service. Although the commodity flow database at the disposal of the team completing this study has limited capabilities in estimating international truck and rail traffic, a rough estimation of the market for intermodal commodities that could potentially use a shuttle link between Toronto and Rochester was performed.

A shuttle could attract shipments traveling to or from areas in close proximity to Toronto, or to or from areas of Northern Ontario or Western Canada, for which Toronto is “on the way” toward the Genesee-Finger Lakes Region (see Figure 5.4). Between those two regions and the Genesee-Finger Lakes Region, about 1.6 million tons of intermodal commodities currently travel by truck and 161,000 tons travel by rail (see Table 5.2). Assuming 100 percent diversion of all existing shipments to a rail shuttle, 30 units (intermodal containers via truck or rail) could be diverted daily. Expanding the potential market to include other U.S. destinations could increase the demand further.

The provision of a shuttle service would provide the benefits of more efficient trans-border trade, which could induce a stronger economic tie between the Genesee-Finger Lakes Region and the metropolitan regions of southern Ontario. If the shuttle offered a fast and reliable travel time, trucking firms could save logistics costs by hiring a single driver, who would ride the shuttle from Canada into the U.S. or vice versa and then drive the truck to its final destination.

Figure 5.4 Intermodal Shuttle Market Areas

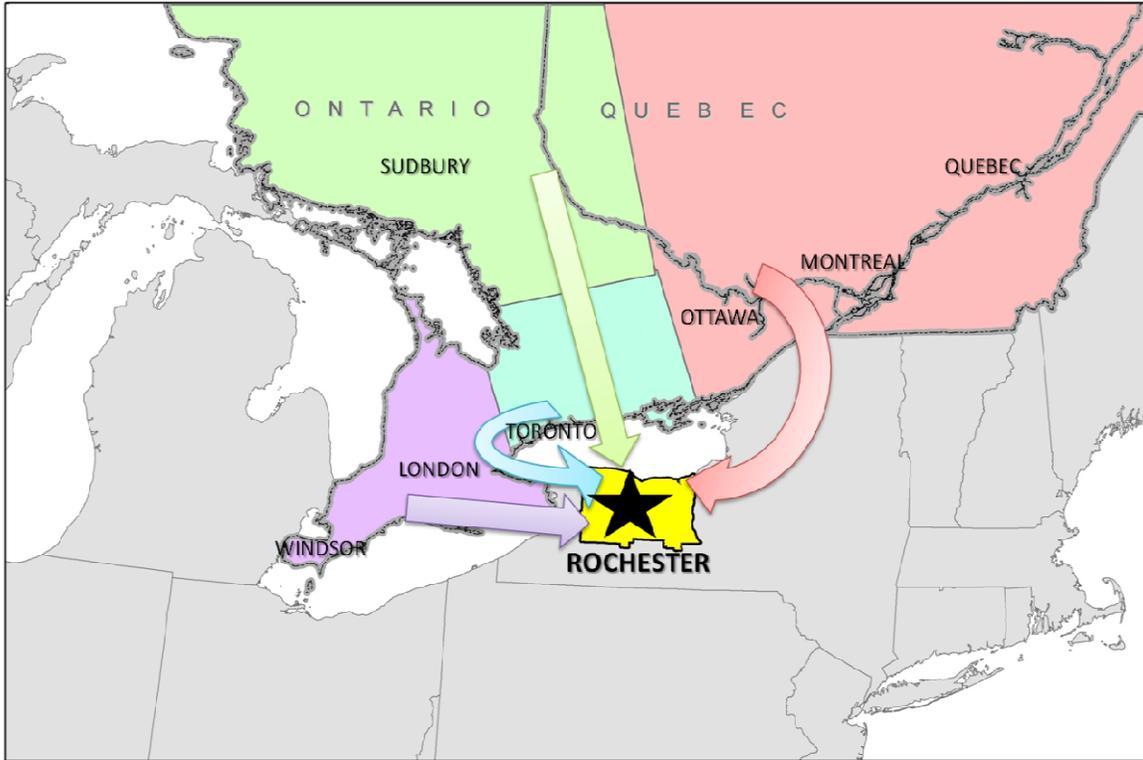


Table 5.2 Intermodal Shuttle Market Size by Geographic Region (Tons)

Region	Truck Tons 2010	NAFTA Rail Tons 2010
Near Toronto	513,486	31,830
Southwestern Ontario	306,034	5,794
Eastern Canada	632,506	87,749
Northern Ontario & Western Canada	171,109	35,346
<i>Total</i>	<i>1,623,136</i>	<i>160,720</i>

LT-2 Address Growing Congestion in the Freight Transportation System Around Major Import and Export Points in the New York City Metropolitan Area

With strict restrictions on truck driver’s hours of service, delays in moving cargo from the heavily congested seaports in the New York/New Jersey area can have significant impacts on markets such as the Genesee-Finger Lakes Region which is currently a long daily dray from the port terminals. An increase in congestion that would cargo movements from a daily to an overnight journey would substantially drive up the cost of delivering cargo to and from the Ports of New York and New Jersey and the region’s airports and would curtail the types of businesses that could rely on this supply chain. Supply chains connecting manufacturing and distribution centers within the Genesee-Finger Lakes Region to the facilities in the New York area can be impacted by congestion on any portion of the route. The Genesee-Finger Lakes Region would benefit from greater real time information on congestion conditions on the corridors, at the gates and within the marine terminals that would allow shippers and carriers to avoid congested conditions.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●●	●●●	●	●●	●●

The strategy is rated high in terms of efficiency due to the fact that the New York City port terminals have a national and global impact and improvements in overall efficiency will have wide ranging impacts. In the access category, the evaluation score is driven by the ability of the strategy to improve connections between the Genesee-Finger Lakes Region and outside markets. The mitigation score for this strategy is rated low given that it is principally tied to improving capacity rather than improving freight integration, though the relief of congestion and bottlenecks may produce side benefits for surrounding communities. The helps to preserve existing transportation employment and creates the potential for new opportunities. Finally, the strategy would entail a combination of IT improvements and infrastructure enhancements that would like entail significant costs.

LT-3 *Extend the main runway at Greater Rochester International Airport to accommodate larger freight aircraft and identify potential customers to justify new air cargo service to one or more destinations*

In the long-term, economic growth in the Genesee-Finger Lakes Region may result in increased demand for air cargo service. This long-term alternative involves extending the main runway at Greater Rochester International Airport to accommodate long-haul air cargo aircraft and identifying potential inbound and outbound customers in a broad catchment area to utilize the air cargo service.

Efficiency	Access	Mitigation	Jobs	Cost-Effectiveness
●●●	●●●	●●	●●	●●

The Greater Rochester International Airport (GRIA) has had steady freight shipments averaging close to 50,000 tons per year. However, the current volume of freight is not enough to justify regular dedicated air cargo service to a single destination. For now, many individual shippers pay to have their freight drayed between the Genesee-Finger Lakes Region and air cargo hubs elsewhere, most prominently New York City’s JFK International Airport and Newark International Airport.

In order to attract additional, regular air cargo service to Greater Rochester International Airport, a critical mass of cargo would need to be destined for a single air cargo hub overseas, and a relatively equal volume of cargo would need to be flowing into the Genesee-Finger Lakes Region from that same overseas hub. Airports like JFK and Newark are successful at attracting air cargo flights because they have a critical mass of cargo flowing inbound and outbound in dedicated air cargo aircraft and in the cargo holds of passenger aircraft from many combinations of origins and destinations.

If local industries were to express the need to provide air freight through the use of larger aircraft the main runway would have to be expanded. This project would then open the Region to new industries which require this type of service.

6

Next Steps

Implementation of freight transportation improvements will require coordinated efforts on the part of many public and private sector stakeholders. To date, this planning process has engaged stakeholders in developing a baseline of data about freight and goods movement in the region, assessing freight transportation needs, conducting an assessment of Strengths, Weaknesses, Opportunities, and Threats (SWOT), compiling information on potential alternatives for improving freight and goods movement, and selection of recommendations based on the evaluation of potential alternatives based on their effectiveness relative to the SWOT assessment. Transportation agencies along with their economic development partners and private sector stakeholders will need to continue to sustain the momentum that has been built during the development of this plan.

One of the main goals of this project was to build support for freight transportation improvements among a broad cross-section of public and private sector stakeholders so that GTC and NYSDOT could expand the available pool of resources to help implement freight improvements. With this goal in mind, this section lays out recommended implementation guidance in five areas:

- **Roles, Responsibilities, and Partnerships** describes the involvement of each stakeholder in the stages of a project's lifecycle, from concept and planning to design to implementation to operation.
- **Implementation Challenges** reviews the critical institutional, operational, or other issues that must be resolved before various freight recommendations can move forward.
- **Funding and Costs** discusses the future of funding for freight transportation and explores ways to expand participation in funding for freight improvements to involve a broader range of stakeholders.
- **Timeline and Process** lays out, in general terms, the steps needed to take an alternative from concept to implementation, including when to involve stakeholders and how projects, strategies, and policy changes may be interdependent.
- **Defining and Monitoring Success** discusses how GTC and its partners and stakeholders can determine over time how successful the implementation (or lack thereof) of freight projects, operational strategies, and policies are at addressing the region's freight transportation needs.

6.1 Roles, Responsibilities, and Partnerships

Stakeholders and participants are involved in the freight transportation planning process in different capacities depending on, for example, the type of infrastructure or policy being addressed, the scope of the project or policy change, and an alternative's stage in the planning, development, and implementation process. This section provides examples of recommendations and the roles and responsibilities of typical stakeholders in advancing projects, operational strategies, and policy changes that are considered regional priorities. This discussion is not meant to be an exhaustive list of all steps in the implementation process and all types of recommendations that may be advanced by the region's stakeholders. Instead, they provide representative examples, particularly where new institutional or financial partnerships could benefit freight and goods movement in the region.

Figure 6.1 is a simplification of the Planning, Programming, and Project Implementation Cycle that was introduced in Section 4. The major steps correspond to the sub-section headings below.

Figure 6.1 Regional Transportation Planning, Programming, and Project Implementation Cycle



To reduce repetition, the following abbreviations and stakeholder groupings are used throughout this section:

- **Business community:** Major regional employers, owners/operators of warehouses and distribution centers, representatives of other major freight generators, Rochester Business Alliance (RBA) and other Chambers of Commerce in the region, and logistics companies.
- **Economic development organizations and agencies:** Genesee-Finger Lakes Regional Planning Council (G/FLRPC)*, Finger Lakes Regional Economic Development Council

(FLREDC), local Industrial Development Agencies (IDAs), Empire State Development (ESD)*, New York Department of Agriculture and Markets (A&M), and New York State Energy Research and Development Authority (NYSERDA)

- **Elected officials and the public:** local, state, and Federal representatives and their constituents
- **Environment and community representatives:** New York State Department of Environmental Conservation (DEC)*, New York State Department of Parks, Recreation, and Historic Preservation (OPRHP), neighborhood associations, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (FWS), U.S. Army Corps of Engineers (ACE)
- **Freight transportation system owners and operators:** NYSDOT (state-owned highways, rail lines, and waterways), local government Highway Departments, Aviation Departments, and Public Works Departments (county and local roads, airports, and IDA-controlled rail rights-of-way), private rail operators (Class I and Short Line freight rail lines), trucking firms and independent owner-operators
- **GTC:** Genesee Transportation Council. The United States Department of Transportation (U.S. DOT) requires every metropolitan area with a population over 50,000 to have a designated Metropolitan Planning Organization (MPO) to qualify for receipt of Federal highway and transit funds. The Governor of New York State designated the Genesee Transportation Council (GTC) as the MPO responsible for transportation planning in the Genesee-Finger Lakes Region, which includes Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates Counties.

GTC is governed by a 27-member policy committee, the GTC Board, which is supported by the Executive Committee, Planning Committee, and various other committees (see detailed list of GTC members in Appendix A). GTC staff, in conjunction with key staff of GTC member agencies, provides professional and technical support for execution of the programs and policies established by the GTC Board, consistent with the responsibilities identified in the preceding section. Meaningful citizen participation is also incorporated at all levels of program development and decision making.

Throughout the following discussion, roles of GTC and GTC member agencies are distinct. “GTC” refers to actions taken by the GTC Board, GTC staff, and GTC member agencies as part of the Federally-required metropolitan transportation planning process. “GTC member agencies” refers to actions taken by the nine counties of the region and the City of Rochester as the primary local (i.e., non-New York State) owners and operators of transportation facilities on which freight and goods are moved. Note that entities marked with an asterisk (*) in this section are also voting or non-voting members of the GTC, but may be mentioned individually in this section if they have a major role in implementation in addition to or separate from their function as GTC members.

- **Local governments:** Cities, towns, and villages that are not GTC member agencies
- **NYSDOT:** New York State Department of Transportation (NYSDOT)*, including main office, regional offices, and the New York State Thruway Authority (NYSTA)*
- **U.S. DOT:** U.S. Department of Transportation, including Federal Highway Administration (FHWA)*, Federal Motor Carrier Safety Administration (FMCSA), U.S. Maritime Administration (MARAD), and Federal Aviation Administration (FAA)*

6.1.1 Develop Policies that Guide Freight Transportation Planning and Investment

The *Long Range Transportation Plan for the Genesee-Finger Lakes Region (LRTP 2035)*, developed by GTC and its member agencies, lays out the policy framework in which regional freight transportation investment decisions are made. GTC also evaluates and assesses freight and goods movement needs from a regional perspective. Owners and operators of the system have their own policies and procedures that affect how, when, and where freight and goods move through the region. For the portions of the system under their control, they may collect their own data and conduct their own need assessments.

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>GTC: Educate the public and transportation stakeholders about the importance of freight and goods movement to the region’s economy</p> <p>GTC: Facilitate discussions among the public and the freight stakeholders about the inherent tradeoffs between various goal areas</p> <p>GTC: Develop LRTP, including regional freight policies</p> <p>GTC: Define regional freight performance measures that stem from regional goals and objectives</p> <p>GTC: Define regional freight improvement strategies that are consistent with adopted policies</p> <p>GTC: Periodically assess and update regional freight transportation system needs and conduct SWOT analyses</p>	<p>GTC member agencies: Participate in development of LRTP and approved of freight policies</p> <p>GTC member agencies: Contribute information to and otherwise assist in evaluation of performance measures, needs assessments, and SWOT analyses</p> <p>NYSDOT and U.S. DOT: Provide input to regional policy development efforts to ensure coordination of policies across regions; provide data and tools to support policy decisions</p>	<p>Local governments</p> <p>Freight transportation system owners and operators</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>
<p>U.S. DOT and other Federal agencies (with U.S. Congress): Define national freight transportation vision and policy framework</p>	<p>GTC (with AMPO and NYSAMPO) and NYSDOT (with AASHTO): Provide input to development of national freight policies</p>	
<p>NYSDOT (with NY State Legislature): Define state freight transportation policy framework</p>	<p>GTC (with NYSAMPO) and GTC member agencies: Provide input to development of state freight policies</p> <p>U.S. DOT: Ensure consistency of state transportation policy with applicable Federal laws</p>	

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>GTC member agencies (with local legislative bodies): Ensure that benefits and impacts on freight movement are fully considered in the development and adoption of local policies and ordinances</p>	<p>GTC and NYSDOT: Provide input to help coordinate local freight policies across jurisdictional boundaries</p>	<p>Freight transportation system owners and operators</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>
<p>Freight transportation advocates and Economic development organizations and Business community: Advocate for policy changes that increase the efficiency and reliability of freight and goods movement by getting involved in the state and regional transportation planning processes</p>	<p>GTC and NYSDOT and U.S. DOT: Provide data and tools to support policy decisions</p> <p>GTC and NYSDOT and U.S. DOT: Involve business advocacy groups in development of transportation policy frameworks</p>	<p>Local governments</p> <p>Freight transportation system owners and operators</p> <p>Elected officials and the public</p>
<p>Environmental and community representatives: Advocate for policy changes that would mitigate or prevent the impacts of freight and goods movement on the region’s environment and communities by getting involved in the state and regional transportation planning process</p>	<p>GTC and NYSDOT and U.S. DOT: Provide data and tools to support policy decisions</p> <p>GTC and NYSDOT and U.S. DOT: Involve environmental and community advocacy groups in development of transportation policy frameworks</p>	<p>Local governments</p> <p>Freight transportation system owners and operators</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Elected officials and the public</p>

6.1.2 Identify and Evaluate Alternatives Against Goals and Objectives

At a regional level, GTC is responsible for facilitating discussions among its members and regional stakeholders regarding various options to address freight and goods movement needs. GTC’s member agencies provide the MPO with information about various improvement alternatives and potential policy changes, and GTC serves as the forum for making decisions that would have regional impacts. NYSDOT is in the lead for evaluating alternatives that affect state-owned facilities and for alternatives that would have statewide impacts, while GTC member agencies and other local governments often take the lead for projects on their facilities that would likely have primarily local impacts.

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>GTC: Solicit and evaluate regional freight transportation system improvement alternatives from members and freight transportation system owners and operators</p> <p>GTC: Compile information on freight transportation system improvements located outside the region that could impact the GTC region</p> <p>GTC: Conduct fatal flaw analyses</p> <p>GTC: Assemble information on individual alternatives from member agencies and other partners</p> <p>GTC: Conduct corridor- and system-level evaluations of improvement options</p>	<p>GTC member agencies and Freight transportation system owners and operators: Propose improvement alternatives to address identified needs on their respective systems</p> <p>GTC member agencies and Freight transportation system owners and operators: Assist in fatal flaw analysis</p> <p>GTC member agencies and Freight transportation system owners and operators: Evaluate project-level, corridor-level, and system-level performance for proposed alternatives and provide information to GTC for consideration</p> <p>NYSDOT and U.S. DOT: Provide input, data and tools to support identification and evaluation of regional alternatives</p>	<p>Local governments</p> <p>Federal agencies</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>NYSDOT: Identify and evaluate freight system alternatives of interregional, statewide, or multi-state significance</p>	<p>U.S. DOT: Ensure alternatives that cross state boundaries are coordinated</p> <p>GTC, GTC member agencies, and Freight transportation system owners and operators : Assist in evaluating freight system alternatives of interregional, statewide, or multi-state significance</p>	<p>Local governments</p> <p>Federal agencies</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>
<p>Local governments and freight transportation system owners and operators: Identify and evaluate freight system alternatives with local impacts or impacts that accrue primarily to the private sector</p>	<p>GTC, GTC member agencies, and NYSDOT: Ensure alternatives that cross jurisdictional boundaries or have multi-jurisdictional impacts are coordinated</p> <p>GTC and NYSDOT: Provide input, data and tools to support identification and evaluation for local alternatives</p>	<p>U.S. DOT and other Federal agencies</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>

6.1.3 Prioritize Alternatives and Select Projects for Funding

The Transportation Improvement Program (TIP), a Federally-mandated product of the regional planning process, identifies and schedules the transportation improvements in the region that will receive Federal funding within, at a minimum, four years from its adoption by GTC. Projects included in the TIP must be consistent with adopted regional transportation policies included in the *L RTP 2035*. Projects typically emerge from recommendations identified in previous stages in the planning cycle and infrastructure needs identified by member agencies. Projects that are not Federally-funded (e.g., local improvements and privately-funded improvements) are not required to appear in the TIP, although GTC makes a good-faith effort to coordinate the timing and implementation of all projects of regional significance as part of its planning process.

Development of the TIP requires a considerable amount of coordination among the agencies that build, operate, and maintain freight transportation infrastructure. At the same time, NYSDOT is responsible for coordinating among MPOs and regions of the state without MPOs as it develops the State Transportation Improvement Program (STIP), and U.S. DOT’s modal administrations play a role in allocating Federal funding to the Genesee-Finger Lakes Region for freight transportation projects of national significance.

Private sector owners and operators of freight infrastructure and services make their own prioritization and funding decisions based on their own goals and objectives.

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>GTC: Develop freight-specific investment policies for Transportation Improvement Program (TIP), including freight project evaluation criteria</p> <p>GTC: Further integrate freight considerations into prioritization of regional Transportation System Management and Operations (TSM&O) strategies, safety programs, and other programs affecting or affected by freight and goods movement</p>	<p>GTC member agencies and Freight transportation system owners and operators: Participate in development of the TIP, including review and prioritization of projects</p> <p>NYSDOT: Provide information on state-funded freight projects and availability of state funding for freight projects</p> <p>NYSDOT: Coordinate development of GTC TIP with other MPO TIPs and the STIP</p> <p>U.S. DOT: Provide information on availability of Federal funding for freight projects</p> <p>Freight transportation system owners and operators: Provide information on private-sector participation in funding for freight transportation projects</p>	<p>Local governments</p> <p>Freight transportation system owners and operators</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Elected officials and the public</p>

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>NYS DOT: Develop freight-specific investment policies for State Transportation Improvement Program (STIP), including allocation of resources to freight programs</p> <p>NYS DOT: Integrate freight considerations into prioritization of statewide Transportation System Management and Operations (TSM&O) strategies, safety programs, and other programs affecting or affected by freight and goods movement</p>	<p>GTC (with NYSAMPO), GTC member agencies, and Freight transportation system owners and operators: Provide input to development of state freight investment policies and priorities</p> <p>U.S. DOT: Coordinate investments among states and provide information on funding availability for Federally-funded projects</p> <p>Freight transportation system owners and operators: Provide input to development of state freight investment policies and priorities and information on private-sector participation in funding for freight transportation projects</p>	<p>Local governments</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Elected officials and the public</p>
<p>U.S. DOT: Develop freight-specific investment policies governing use of Federal formula funds and develop eligibility guidelines and selection criteria for discretionary grant programs (e.g., Transportation Investments Generating Economic Recovery or TIGER)</p>	<p>GTC, GTC member agencies, and Freight transportation system owners and operators: Coordinate discretionary grant program funding applications from the Genesee-Finger Lakes Region</p> <p>NYS DOT and Freight transportation system owners and operators: Coordinate discretionary grant program funding applications from New York State</p>	<p>Local governments</p> <p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Elected officials and the public</p>
<p>Local governments: Prioritize local freight transportation improvements and select projects for funding using local resources</p>	<p>GTC, GTC member agencies, and Freight transportation system owners and operators: Provide input to development of local freight investment policies, priorities, and (when requested) projects</p>	<p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Elected officials and the public</p>
<p>Freight transportation system owners and operators (private sector): Prioritize private freight transportation improvements and select projects for funding using private resources</p>	<p>U.S. DOT and NYS DOT and GTC and Local governments: Coordinate public and private sector investments in freight transportation</p>	<p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p>

6.1.4 Design and Implement Projects and Policy Initiatives

Freight transportation system owners and operators, both public and private, play lead roles in designing and implementing freight projects. Policies may be developed in part by GTC, but implementation of these policies via projects and operational strategies is a function of local, state, and Federal stakeholders, many of which are members of GTC.

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>NYSDOT (with NY State Legislature): Set and enforce regulatory framework for management and operation of the state transportation system</p> <p>NYSDOT: Set design standards for state-owned facilities in major freight and goods movement corridors</p> <p>NYSDOT: Conduct or oversee design, construction, operation, and maintenance of state-owned and Federally-funded transportation facilities</p> <p>NYSDOT: Oversee implementation of state policies affecting freight and goods movement</p> <p>NYSDOT: Fund state’s share of freight-related projects on the multimodal state transportation system</p>	<p>GTC (with NYSAMPO) and Freight transportation system operators and Local governments: Provide input to development of state regulations, facility design standards, and operating procedures affecting regional freight and goods movement.</p>	<p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>Local governments: Set and enforce regulatory framework for management and operation of locally-owned transportation facilities</p> <p>Local governments: Set design standards for locally-owned facilities in major freight and goods movement corridors</p> <p>Local governments: Conduct or oversee design, construction, operation, and maintenance of locally-owned transportation facilities</p> <p>Local governments: Oversee implementation of local policies affecting freight and goods movement</p> <p>Local governments: Fund freight-related projects on local facilities</p>	<p>NYSDOT, GTC, GTC member agencies, and Freight transportation system operators: Provide input to development of local regulations, facility design standards, and operating procedures affecting regional freight and goods movement. Facilitate discussions regarding policies that may have regional or statewide impacts with other jurisdictions and stakeholders.</p>	<p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>
<p>U.S. DOT and other Federal agencies (with U.S. Congress): Set and enforce regulatory framework for freight operations involving interstate commerce and international trade</p> <p>U.S. DOT: Oversee implementation of Federal policies affecting freight and goods movement</p> <p>U.S. DOT (with U.S. Congress): Fund Federal share of freight projects of national significance</p>	<p>NYSDOT and GTC (with AMPO) and Freight transportation system operators: Provide input to development of Federal regulations, facility design standards, and operating procedures affecting local and regional freight and goods movement</p>	

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>Freight transportation system owners and operators (private sector): Set and enforce company policies and procedures within the Federal, state, and local legal framework, as well as consistent with Federal, state, and regional policies</p> <p>Freight transportation system owners and operators (private sector): Set design standards for privately-owned facilities</p> <p>Freight transportation system owners and operators (private sector): Fund private share of freight improvements on privately-owned transportation facilities</p>	<p>GTC, GTC member agencies, NYSDOT, U.S. DOT and other Federal agencies, and Local governments: Effectively and promptly communicate policy and regulatory changes to private sector freight transportation system owners and operators</p>	<p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p>

6.1.5 Measure and Track System Performance

GTC has a lead role in measuring and tracking the performance of the regional freight transportation system and sharing this information with system owners and operators so that they can make adjustments to operating procedures or make investments in capital or operational strategies. NYSDOT, GTC member agencies, and local governments can play lead roles for the state and local freight transportation systems, respectively, while private-sector owners and operators monitor the performance of their systems as a matter of good business practice. All of these stakeholders must share information and best practices so that lessons from previous investments, strategies, and policy changes can be used to make future investments, strategies and policy changes more effective.

Lead Roles	Major Partners and Roles	Other Key Stakeholders
<p>GTC: Collect/compile and manage data used to assess regional freight transportation performance measures at a system and corridor level</p> <p>GTC: Provide updates on regional performance with appropriate levels of detail for managers, planners, designers, and users of the freight transportation system</p>	<p>NYSDOT, GTC member agencies, U.S. DOT, and Local governments and Freight transportation system owners and operators: Collect system performance data and make available to GTC</p>	<p>Freight transportation advocates</p> <p>Economic development organizations</p> <p>Business community</p> <p>Environmental and community representatives</p> <p>Elected officials and the public</p>
<p>NYSDOT: Collect/compile and manage data used to assess state freight transportation performance measures at a system and corridor level</p> <p>NYSDOT: Provide updates on state performance with appropriate levels of detail for managers, planners, designers, and users of the state freight transportation system</p>	<p>U.S. DOT and Local governments and Freight transportation system owners and operators: Collect system performance data and make available to NYSDOT</p>	
<p>Local governments and freight transportation system owners and operators: Collect/compile and manage data used to assess freight transportation performance measures relevant to each system</p>	<p>GTC and U.S. DOT and Local governments and Freight transportation system owners and operators: Collect system performance data and make available to other freight transportation system owners and operators</p>	

6.2 Implementation Challenges

The implementation roles, responsibilities, and partnership opportunities described in the previous section seem straightforward, but in practice it is difficult to implement the ideal institutional coordination framework for freight transportation. Resource constraints and institutional and regulatory obstacles are among the most common implementation challenges.

6.2.1 Resource Constraints

In New York State, revenues dedicated to transportation from all levels (local, state, and Federal) and sectors (public and private) are simply not sufficient to build, operate, and maintain a public freight transportation system that would meet the needs of all users. Therefore, difficult decisions must be made regarding allocation of resources to repair and replace deficient bridges, maintain roadways and rail tracks, provide acceptable levels of service to users of the system, and invest in system expansion to stimulate economic activity and accommodate growth in travel demand. Although more public agencies are using asset management strategies to better assess and predict maintenance and normal replacement needs, asset management is a challenge when there are inadequate funds to attain even a state of good repair in transportation infrastructure. The next section, “Funding, Financing, and Costs,” discusses mechanisms available to pay for freight transportation improvement needs and to build, operate, and maintain the system cost-effectively.

Resource constraints not only affect the performance and operation of physical infrastructure today; these constraints can impact the ability of transportation agencies to plan and manage the system to meet tomorrow’s needs. Public agencies with limited staff resources are challenged to conduct extensive outreach to stakeholders. Although performance-based planning and management is an accepted practice in the private sector, any process that requires extensive data collection and reporting or complex methodologies for evaluating multiple alternatives is a challenge for any organization, public or private. Therefore, it is difficult for public agencies to build a case for investments in freight transportation system improvements and advance even the best projects through the planning process.

Even when a project has gained momentum and moves into detailed design, delays or interruptions in funding, insufficient staff resources to conduct timely environmental permitting reviews, and changes in regulations can cause major setbacks.²⁵ Uncertainties associated with public sector funding, the environmental permitting process, rights-of-way acquisition, and political risks have been cited as the biggest impediments to obtaining private-sector financial support for many transportation projects, even those with a predictable and bondable revenue stream.²⁶

²⁵ General Accounting Office. *Highway Infrastructure: Stakeholders’ Views on Time to Conduct Environmental Reviews of Highway Projects*, GAO-03-534. Washington, D.C., May 23, 2003.

²⁶ National Cooperative Highway Research Program. *Guide for Managing NEPA-Related and Other Risks in Project Delivery*, Web-Only Document 183. National Academy of Sciences, Washington, D.C., May 2012.

6.2.2 Institutional and Regulatory Challenges

Freight transportation improvements are also constrained by existing institutional agreements and regulations. This is not to say that all regulations are problematic, but it is important to balance regulatory and institutional obstacles that may prevent one or more potential solutions from being realized.

For example, there is currently no mechanism for planning and funding interstate and interregional transportation system improvements. When one state or metropolitan area identifies a freight transportation need that may result in benefits to several other states and/or regions, it is often difficult to determine how costs, risks, and benefits should be shared among the various jurisdictions. It also is difficult to adequately describe the costs and benefits of improvement projects and how they accrue to different stakeholders (i.e., public and private). In New York, the lack of Federal freight transportation assistance programs, coupled with major needs for maintenance and preservation of the state's highway system, means it is difficult to justify allocating scarce transportation resources to non-highway modes or to pure "freight" projects that don't also have substantial passenger benefits.

Although the St. Lawrence Seaway and Great Lakes could provide the region with low-cost access to trading partners in Canada and the Midwest via waterborne transportation modes, the Merchant Marine Act of 1920 (commonly known as the "Jones Act") requires all goods transported by water between U.S. ports to be carried in ships registered in the U.S. The ships must have been constructed in the United States, they must be owned by U.S. citizens, and at least 75 percent of the crew must be U.S. citizens or U.S. permanent residents. These restrictions were intended to protect the U.S. maritime industry in the early 1900s, but today the law effectively eliminates marine transportation as a cost-effective mode for intra-U.S. shipments.

Private rail operators, unlike any other transportation service provider, must pay property taxes on their rights-of-way. Some argue that as a private industry, the rail operators should pay their fair share of property taxes; others argue that rail services are essentially utilities and should be exempt from property tax. Class I rail operators must invest substantial resources in Positive Train Control (PTC) systems to prevent collisions any time they construct a new rail siding, spur, or track. Although PTC is intended to improve rail safety, it also has made Class I operators hesitant to build new sidings and spurs to serve mainline customers. Class I and Short Line rail operators have long-standing contracts that govern their interactions with one another, and they also must abide by conflicting union work rules that can prevent the efficient interchange of rail cars between two rail operators. However, these contracts and union work rules are not set in stone and can be periodically renegotiated under existing state and Federal laws.

Truck drivers and trucking companies must comply with a bevy of state and Federal regulations intended to improve safety and reduce public-sector maintenance costs. Driver hours-of-service limitations are in place to reduce truck driver fatigue and improve safety, but they also limit the productivity of each driver. Truck size and weight limitations are in place to improve safety and reduce truck wear-and-tear on roadway pavement and bridges, but they also reduce the amount of freight that can be carried by a single driver.

There are arguments in favor of and against each of these regulations. Each regulation and institutional hurdle must be considered and weighed against the region's entire slate of economic, social, and environmental goals and objectives any time a project, strategy or policy is proposed.

6.3 Funding, Financing, and Costs

A number of financing options are available to advance the recommendations presented in Section 5. While traditional funding programs are already well known to GTC and its stakeholders, a number of new financing tools have been created or modified through recent legislation and can be used to supplement traditional finance. Projects can become eligible for non-traditional funding and financing mechanisms based on the geographic location of the improvement, the size of the project, its impact on key metrics like safety or job creation, its impacts beyond the region, the ability to produce value capture opportunities, and its attractiveness to private investors.

It is important to recognize the difference between the direct appropriation or allocation of revenues for the implementation of a project or operational strategy via funding programs and the use of financing mechanisms to advance these activities. Financing requires the repayment of the mechanism (e.g., loans, loan guarantees, lines of credit, etc.) with revenues that are raised from either an existing source (diverting funds from a current activity or raising current taxes and fees) or the introduction of altogether new sources (typically, a new tax and fee or combination thereof).

Although a two-year Federal surface transportation reauthorization bill was passed by the U.S. Congress just prior to the publication of this plan, the bill did not address the fact that revenues flowing into the Highway Trust Fund have not been sufficient to cover outlays. In recent years, Congress has transferred money from the General Fund to the Transportation Trust Fund, and such transfers will be necessary in the foreseeable future, unless a new transportation funding mechanism is identified. The tools that will be available to fund and finance freight projects in the long term are currently unknown. Several funding scenarios may come to pass:

- **Severe cuts to transportation funding:** Present estimates show that if Federal Transportation Trust Fund outlays are reduced to the amount of revenue that is currently being generated by fuel tax receipts, Federal government spending on transportation would need to be reduced by approximately 35 percent.²⁷ In this scenario, state and local funding would need to be increased dramatically to address even basic operations and maintenance needs.
- **Increases in transportation funding:** The American Reinvestment and Recovery Act provided a short-term infusion of transportation funding that allowed NYSDOT and local agencies to reduce their backlog of transportation investment needs. However, it is highly unlikely that the current Congress would pass a bill that identifies a new revenue source and thus increases transportation funding. There is, however, a possibility that a new freight transportation funding program could be identified in the next surface transportation reauthorization bill, with resources redirected from other existing surface transportation programs. This would effectively increase the amount of funding available for freight transportation, albeit at the expense of other modes.

²⁷ <http://www.businesswire.com/news/home/20120306006944/en/Fitch-Affirms-Ratings-Standalone-GARVEES-Outlook-Remains>

- **Preservation of the status quo:** The last surface transportation reauthorization bill expired more than two years ago in September 2009 and Congress has extended the funding levels in that bill through continuing resolutions and transfers from the General Fund. In the current Congress, there is neither sufficient support for increasing transportation revenues to pay for needed improvements, nor are there enough votes to pass a severely austere transportation budget. It is possible that Congress will continue to fund transportation through short-term infusions of cash and occasional transfers from the General Fund to cover Highway Trust Fund deficits. In this scenario, assuming no increase in state or local revenues, it would be difficult or impossible for state and local transportation agencies to conduct long-term planning for investments in asset management, state of good repair and normal replacement, and system expansion with any degree of certainty.

The viability of motor fuel taxes as the sole or even principal source of transportation funding has been consistently diminished by inflation, improved fuel economy of the vehicle fleet, and lower absolute levels of travel demand as measured by vehicle miles of travel (VMT). Strategies such as use of one-time discretionary grant programs and financing mechanisms that have been viewed as supplemental in the SAFETEA-LU era could grow to be the primary sources of Federal funding in the near future.

There is a distinction between transportation funding sources and project financing instruments. The primary sources of revenues for public-sector transportation investments in New York State are motor fuel taxes, truck ton-mile fees, user fees (e.g., tolls, vehicle registration and drivers license fees, charges assessed by public freight transportation service providers, etc.), property taxes, real estate transfer taxes, and general tax revenues (primarily income, sales, and business taxes). The private sector raises revenue by charging fees for services and use of privately-controlled elements of the freight transportation system (vehicles, rail tracks, warehouses, etc.).

“Public-private partnerships” (or PPPs) are often cited as a solution to funding shortfalls. In theory, every project requires coordination and collaboration between the public sector and private sector. However, unless the private sector contributes additional funding, these partnerships often simply provide access to some form of financing (typically bonds and other forms of loans) that must be paid back over time, with interest, using traditional freight transportation funding sources. Currently, under New York State law, it is not feasible to use private-sector financing for public transportation projects.

The following are examples of tools and grant programs available for freight transportation system improvements. These tools and programs rely on the revenue sources listed above and are not in and of themselves revenue sources:

- **Private Activity Bonds** – These programs are still not widespread yet. For privately-owned transportation facilities that have been granted tax exemptions, a governmental entity issues a Private Activity Bond to capture the value of the tax exemption as opposed to the

private investor trying to obtain credit directly. The MAP-21 bill proposes to loosen some restrictions on the use of private activity bonds.²⁸

- **Transportation Infrastructure Finance and Innovation Act (TIFIA)** – One key provision of the MAP-21 bill would maintain and expand the TIFIA program. The TIFIA program is currently funded at \$122 million. MAP-21 increased authorized funding for the TIFIA program to \$750 million in 2013 and \$1 billion in 2014. The TIFIA program provides Federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. As of September 2011, the U.S. DOT has approved in excess of \$8.4 billion of funding under the TIFIA program since its creation. The popularity of TIFIA will make it very likely to continue as a permanent component of transportation funding.

The MAP-21 bill envisions an almost ten-fold increase in TIFIA funding and would also drop certain eligibility provisions that gave preference to projects that could be demonstrated to be environmentally sustainable. The goal is to bring the program's financing level closer to the evident demand and also to remove impediments that would prevent otherwise eligible projects from moving forward. In 2010, there were 14 times more in requests for TIFIA funding than could be provided.²⁹ The State of New York was a key beneficiary in the 2010 TIFIA program when a large grant was issued for the raising of the Goethals Bridge supporting the Port of New York/New Jersey. Should the Senate bill become law, the new larger pool of funding should make TIFIA funding a more widespread tool for all areas of New York State, including freight projects.

- **TIGER Grants Program** – The U.S. DOT has now sponsored four rounds of TIGER discretionary grants. The future of this funding program is highly uncertain given the resistance of the US Congress of giving continued discretionary authority to the executive branch for transportation funding.³⁰ Nevertheless, there is a possibility that this system will largely replace earmarking as a more equitable way of ensuring that freight projects receive adequate Federal assistance. It is not clear whether the TIGER grant program will be expanded to meet the demand for funding, as exhibited by the \$10.2 Billion in applications that U.S. DOT received for \$500 million in funding in the most recent (fourth) round.³¹ While the first two rounds of TIGER allowed for planning grants, rounds three and four have required that projects be ready for construction with the National Environmental Protection Act process either completed or underway. New York State, Norfolk Southern Railroad, and Canadian Pacific Railroad have jointly applied for TIGER grants for the Portage Bridge Replacement Project, one of this study's major

²⁸ <http://www.ncsha.org/blog/senate-transportation-bill-eases-private-activity-bond-restrictions>

²⁹ Infrastructure Investor. "TIFIA oversubscribed again", March 25, 2011.
<http://www.infrastructureinvestor.com/Article.aspx?article=60219>

³⁰ U.S. Department of Transportation. TIGER guidance webinar, March 1, 2012

³¹ U.S. Department of Transportation. "Overwhelming Demand for TIGER Grants Highlights Need for More Investment in an America Built to Last", Press Release, April 5, 2012.

recommendations. The consortium was not awarded funding in the first three rounds of TIGER grants.

- **Rail Rehabilitation and Finance (RRIF)** – RRIF Program provides direct Federal loans and loan guarantees to finance development of railroad infrastructure. Under this program the FRA Administrator is authorized to provide direct loans and loan guarantees up to \$35.0 billion. Up to \$7.0 billion is reserved for projects benefiting freight railroads other than Class I carriers. The funding may be used to acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops; refinance outstanding debt incurred for the purposes listed above; and develop or establish new intermodal or railroad facilities. Direct loans can fund up to 100% of a railroad project with repayment periods of up to 35 years and interest rates equal to the cost of borrowing to the government. Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, joint ventures that include at least one railroad, and limited option freight shippers who intend to construct a new rail connection.³²

Existing and proposed **New York State** funding and financing programs including the following:

- **NYS Consolidated Local Street & Highway Improvement Program** – The CHIPS program assists localities in financing the construction, reconstruction, or improvement of local highways, bridges, highway-railroad crossings, and/or other local facilities.
- **New York State Industrial Access Program (IAP)** – The IAP is a combination 60 percent grant and 40 percent loan program, up to a maximum of \$1 million, with a five-year repayment period; a ten-year repayment period is permitted if the total IAP project costs are over \$1 million. If the total award is in excess of \$2 million, there are provisions to make the entire award a grant with no repayment required.
- **Regional Economic Development Council Grant Programs** – New York’s new Regional Economic Development Councils (REDCs) are taking a more active role in funding transportation projects, particularly when there is clear and direct increase in jobs and investment resulting from improvements to the transportation system. These are typically small targeted grants but can be useful for filling in the gaps in financial plans for projects that cannot be funded through traditional means. Although funding from REDCs may be “new” to transportation, this funding has been assembled from a variety of existing programs.

State Infrastructure Banks (SIB) – SIBs, which are revolving loan funds for transportation projects, will likely still be available at the discretion of states. Governor Andrew Cuomo recently proposed the creation of a “Rebuild New York” State Infrastructure Bank as part of his New York Works initiative.³³ Projects funded through the State Infrastructure Bank would be eligible to be

³² U.S. Department of Transportation, Federal Railroad Administration. “Railroad Rehabilitation & Improvement Financing (RRIF) Program” website. Accessed May 27, 2012.
<http://www.fra.dot.gov/rpd/freight/1770.shtml>

³³ <http://www.andrewcuomo.com/nyworks>

implemented via Design-Build contracts. The following financing tools are used elsewhere, but are not permitted and/or are not widely used in New York State:

- **Grant Anticipation Revenue Vehicles (GARVEE) Bonds** – GARVEE bonds are tax-exempt debt instrument financing mechanisms that are backed by annual Federal appropriations and are another innovative financing tool that has been threatened by the lack of progress in transportation authorization. As reported by Fitch, “The most significant near-term pressure on GARVEE bonds continues to be the lack of a long-term Federal transportation funding solution.” Furthermore, the relative short duration of the MAP-21 legislation when compared with SAFETEA-LU may mean that, even following passage, the relative attractiveness of GARVEE bonds may be lessened when compared with past experience. New York State law currently does not permit the issuance of GARVEE bonds.
- **Value Capture** – If the freight improvement will create growth in the property tax base or creates other tangible benefits, there are various opportunities to capture these benefits in the form of property taxes, leases, and outright sale of publicly-owned rights of way and use the proceeds to pay off bonds or fund ongoing maintenance and operations of the freight transportation system. Tax Increment Financing is not permitted in New York State, but other value capture mechanisms exist. For example, Development Facilitation Improvement Districts are special districts in which the municipal government has authority to assess and collect a fee from property owners (within the district) which is specifically allocated to finance or repay the financing for transportation-related capital improvements and/or construction of a road or roads.

Finding revenue to pay for freight transportation system improvements is one part of the problem. Another approach to sustainable transportation funding is to reduce capital and operating costs so that over a project’s lifecycle, the project can utilize funding that can reasonably be expected to be available. Capital cost reduction most often happens during a project’s value engineering phase, when plans and specifications are analyzed to determine if more cost-effective solutions exist. For example, a bridge could be redesigned to use less steel and more concrete when steel prices are high, or the design could be re-worked to require less labor and a shorter construction schedule by using pre-manufactured or easy-to-assemble components.

The costs of operating freight transportation infrastructure could be reduced by increasing productivity and lowering fuel costs associated with transporting freight. Many of the institutional coordination issues mentioned previously in this report involve productivity constraints. For example, allowing a single rail crew to haul a set of rail cars from their origins to their destinations would reduce costs and time associated with transferring cars between operators and between union and non-union workforces. Improving the fuel efficiency of trucks and locomotives can substantially reduce fuel costs.

Maintenance costs can also be reduced by designing and building projects from the start to reduce life-cycle costs and by sharing best practices in project design, construction, operations, and maintenance. Deferred maintenance is often adopted by budgeters as a way to “save money,” but in the long run, failing to devote adequate resources to maintenance can lead to system failures and total replacement projects that can be much more costly than the ongoing maintenance would have been.

6.4 Timeline and Process

With constraints on funding and a combination of institutional and regulatory obstacles, it is a challenge to take any alternative from the concept phase to implementation. The list of near-term recommendations in Section 5 is intended to highlight those projects, operational strategies, and policies that can be implemented relatively quickly by regional stakeholders. Medium-term and longer-term recommendations may require additional study and, potentially, an increase in funding to be implemented.

A great deal of attention has been given to the environmental review and permitting process at the state and Federal levels. Many policies and procedures are in place to ensure that transportation investments do not cause preventable social and environmental impacts, and that any unavoidable impacts are mitigated to the extent that strategies to achieve this mitigation are practical, feasible, and do not negate economic benefits to the point that initiatives are no longer cost effective. These policies and procedures ensure that the public and private sector has adequate opportunities to provide input at every stage in the planning and implementation process. The downside of this level of review is that it can take years or even decades for projects to evolve from concept to implementation. An upside is that lawsuits that can delay projects even more can be avoided if all stakeholders feel they are part of the process of planning and designing improvements and policy changes.

GTC, NYSDOT, and other regional stakeholders would be well-served by integrating the recommendations of this study into the existing regional transportation planning process, ensuring that prerequisite project and policy changes are in place before new recommendations are advanced. Although there is no single freight project or policy change that can be classified as “urgent”, GTC and its partners should ensure that the flexibility exists to quickly implement projects (e.g., access improvements) should an economic development opportunity arise.

6.5 Defining and Monitoring Success

Section 4 laid out a list of project-level and system-level measures that can be integrated into GTC’s planning process to help monitor how well investments and policy changes are performing, relative to the region’s goals and objectives. One of the biggest challenges in performance-based planning is defining “success” and then collecting, managing, and reporting on the data necessary to monitor “success.”

The National Cooperative Freight Research Program (NCFRP) of the National Academy of Sciences is an invaluable resource for those responsible for managing the performance of the freight transportation system. *NCFRP Report 10: Performance Measures for Freight Transportation* presents a comprehensive set of freight performance measures based on research into best practices nationally and internationally. *NCFRP Report 12: Framework and Tools for Estimating Benefits of Specific Freight Network Investments* attempts to provide analytical tools that can help answer challenging questions about how and where the benefits of freight system investments accrue.

The initial system level measures that GTC will develop benchmarks, desired changes, and likely changes for will be those that are consistent with the existing performance measures of the current LRTP. These include the following on the Highway Component of the Regional Freight Network (see Table 6.1).

Table 6.1 System Level Performance Measures for the GTC Region

LRTP Key Area	Performance Measure
Safety	Number of Fatalities
System Preservation	Pavement Fair or Better
System Preservation	Non-Deficient Bridges
Mobility	Travel Time Index
Environment	Emissions of Nitrogen Oxides
Environment	Emissions of Volatile Organic Compounds
Environment	Emissions of Carbon Dioxide
Environment	Direct Energy Usage

Going forward, GTC anticipates developing additional freight performance measures consistent with the approach used to develop those for the LRTP. Accordingly, selected performance measures must be both meaningful (having significance) and comprehensible (able to be understood) to both policymakers and transportation professionals. These additional performance measures will be developed as resources available allow for the collection, archiving, and analysis of the required data permit.

Appendix A: GTC Members

COUNTY LEGISLATURE OR BOARDS OF SUPERVISORS (9)

Genesee County Legislature
Livingston County Board of Supervisors
Monroe County Legislature
Ontario County Board of Supervisors
Orleans County Legislature
Seneca County Board of Supervisors
Wayne County Board of Supervisors
Wyoming County Board of Supervisors
Yates County Legislature

OTHER LOCAL MEMBERS (9)

Monroe County Executive
Monroe County Planning Board
Monroe County Supervisors' Association
Monroe County – At Large (2 members)
Mayor – City of Rochester
Rochester City Council
Rochester City Planning Commission
Rochester – At Large

STATE AGENCIES (4)

Empire State Development Corporation
NYS Department of Environmental Conservation
NYS Department of Transportation
NYS Thruway Authority

REGIONAL AGENCIES (2)

Genesee/Finger Lakes Regional Planning Council
Rochester Genesee Regional Transportation Authority

FEDERAL AGENCIES (3—non-voting)

Federal Aviation Administration
Federal Highway Administration
Federal Transit Administration

Appendix B: Stakeholder Outreach Plan

B.1 Introduction & Purpose

The purpose of the GTC Regional Freight Study is to develop goods movement strategies that will position the transportation system of the Genesee-Finger Lakes Region as a distinguishing factor in retaining and attracting both traditional and emerging technology industries as well as enhancing the viability of agriculture. The study area will encompass the counties of Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates (the “Genesee-Finger Lakes Region”).

The Genesee Transportation Council (GTC) Stakeholder Participation Plan for the Regional Goods Movement Study is intended to provide GTC staff, member agencies, sponsors of projects funded through GTC, the consultant team and project stakeholders with readily accessible and easily understandable guidelines for ensuring that the public has meaningful opportunities to participate in the development and execution of the project planning process of GTC, in its role as the designated Metropolitan Planning Organization (MPO) for the Genesee-Finger Lakes Region.

Some elements of the plan may change as the planning process unfolds. Other opportunities for public engagement, not identified in this plan, may be identified. The objectives for stakeholder input regarding goods movement are to:

1. Establish relationships between GTC and the business community that will endure beyond the completion of this project.
2. Help create a dialogue with the public and key stakeholders in the Genesee-Finger Lakes Region about the importance of freight transportation.
3. Solicit input and feedback about the specific improvements alternatives and strategies that are developed as part of this project.

GTC Policy Statement regarding Stakeholder Participation Plan

In order to ensure the public has meaningful opportunities to participate in the development and execution of programs and activities undertaken by or on behalf of GTC, all GTC UPWP-funded projects that are classified as Planning/Policy require a public input component as part of an approved Scope of Work. Project sponsors are expected to:

1. Convene a steering/advisory committee of stakeholders. All affected GTC member agencies should be given the opportunity to participate. The project sponsor, in consultation with other member agencies and GTC staff, should decide who to include on a steering/advisory committee.
2. Conduct one public meeting early in the process to seek public input on the identification of goals and objectives, issues, concerns, opportunities, etc.
3. Conduct one public meeting to review draft findings and recommendations and give the public the opportunity to provide input before finalizing the study.
4. Efforts should be made to identify interested parties prior to conducting the public meetings. Project sponsors should try to engage groups that have not traditionally been involved in transportation projects but have a vested interest in the outcome of the project. Project sponsors should be cognizant of the impact the project has on minority and low-income populations.
5. Efforts should be made to identify effective outlets for advertising public meetings in the project area, such as community newsletters, weekly newspapers, etc.
6. Advertising for the public meetings must be in compliance with the New York State Open Meetings Law.
7. Efforts should be made to provide project-related information via the project sponsor's website.

B.2 Partners

This section of the Stakeholder Participation Plan describes the specific roles for each partner. There are several categories of partners who are necessary to make this project successful. Each partner will have different roles and responsibilities, depending on a variety of factors, including transportation mode, geographic service area, and industry focus. The focus of this section is to understand relationships and how each group will be involved.

- The **Genesee Transportation Council** and the **New York State Department of Transportation** are the project funders. GTC will manage this study and have the contractual relationship with the consultant team. Both GTC and NYSDOT will be heavily involved in each step of the study development. Public meetings will be advertised on the GTC website and the final product will be posted there as well.
- The **Project Steering Committee** is charged with directing the overall vision of the plan and its recommendations. During each of five meetings, the Steering Committee will review and provide feedback on draft products and provide guidance to the consultant team regarding upcoming tasks. Steering Committee members represent each of the nine counties in the GTC planning area, the New York State Department of Transportation, the New York Thruway Authority, Empire State Development, the City of Rochester, a private industry association representative, and regional rail providers.
- **Industry representatives** will be included in in-person interviews, focus groups and electronic surveys. They will also be provided an opportunity to review the draft document before it is finalized. This group will consist of County IDAs, Greater Rochester Enterprise, members of the Rochester Business Alliance Transportation Council, Class III rail lines, Railroads of New York (RONY), the Council of Supply Chain Management Professionals Western NY Chapter, and local representatives of the Genesee, Livingston, Orleans, Wyoming Counties or GLOW subregion and the Wayne-Finger Lakes subregion.
- The **public** will have an opportunity to provide valuable input into the development of the transportation strategies for freight and goods movement in the region and learn about the value of freight transportation to the region's economy. The goal of this study is to seek public input from geographically diverse locations around the region. Two public meetings are planned, as detailed in the next section.

B.3 Stakeholder Participation Methods

The methods used throughout the study development will be aimed at developing and maintaining a key contact list for project communication, identifying participants through an analysis of their geographic location in the region, maximizing participant exchange by asking meaningful questions and keeping an accurate and timely record of participant input.

- a. The purpose of **Steering Committee Meetings** will be to present, discuss, and receive direction on upcoming project tasks, as well as to discuss and resolve comments resulting from review of project documents and coordination with other agencies. The Steering Committee is the primary group guiding the preparation of the study, functioning as the lead in its detailed development.

Participants will include Steering Committee members, or their designees. Steering Committee meetings can be open to the public, however, in the interest of ensuring productive meetings, comments or participation from the public in meeting proceedings are at the discretion of the Steering Committee.

Email notification of Steering Committee meetings will be sent by Rich Perrin, or a Cambridge Systematics staff member. Meetings are to be held five times over the course of the study development. The meetings are proposed to take place at the Genesee Transportation Council or Bergmann Associates offices in downtown Rochester.

Meeting materials will be distributed prior to the meeting by Cambridge Systematics. Meeting attendance will be recorded for each meeting. The format of the meetings will be:

- 1) Review project progress to date
- 2) Discuss product and provide comments
- 3) Discuss next steps and gather input
- 4) Questions/Discussion

A meeting summary will document discussion and major decisions of each Steering Committee meeting.

- b. The consultant team will conduct up to 15 **stakeholder interviews** with a diverse group of stakeholders, including the region's major shippers and receivers of freight. The list of interviewees will be developed to include participants across different industries, from throughout the region, representative of different modes of transportation, small and large businesses, and association representatives. These meetings will occur between November 2010 and January 2011, with later meetings scheduled with retail and other consumer-oriented firms so as to avoid the peak of the holiday season.
- c. There will be four **focus group meetings** with industry and community groups. Focus groups ideally would be scheduled to coincide with annual meetings, luncheons, brown bag sessions, or piggybacked on continuing education opportunities held by trade associations

and professional organizations, rather than being scheduled as standalone events. Potential focus group participants can be categorized into four groups:

- Economic development agencies and industry representatives from the Rochester area, including but not limited to the Greater Rochester Enterprise, RBA Transportation Council, and International Business Council. A meeting with this group would take place in Rochester.
- Economic development agencies and industry representatives from the GLOW subregion.
- Economic development agencies and industry representatives from the Wayne-Finger Lakes subregion.
- Class III Railroads.

The consultant will invite transportation service providers and their representatives, such as the Council of Supply Chain Management Professional Western NY Chapter, to participate in one of the four focus groups depending on their area of focus related to the study process.

Consistent with the project's goal of getting the private sector involved in freight transportation planning early in the project and on a continuous basis, all four focus group meeting could happen in January through March 2011, after completion of the draft Freight and Economic Profile (Task 3) and during the development of the Needs Assessment/SWOT analysis (Task 4). However, if a better opportunity exists to meet with a group during the development and evaluation of alternatives (Tasks 5 and 6) after February 2011, the input of a focus group could be useful during those tasks as well. Specific dates and locations for each meeting will be selected in consultation with the Steering Committee. The proposed outcome will be in depth feedback and insights regarding existing needs related to goods movements in the Genesee-Finger Lakes Region today, as well as proposed solutions to these issues.

- d. The consultant will develop an **electronic survey** to solicit input from a broader group of private-sector stakeholders. The consultant team will enlist the Steering Committee, the Rochester Business Alliance, Railroads of New York, local economic development officials, and other umbrella organizations to send a link to the survey to their members and associates. Similar to the focus groups, the goal of the electronic survey is to gain insights and input from a larger group of stakeholders regarding current issues and potential solutions to goods movements. The results of this survey will help to validate the information gathered during the focus groups. The survey should occur during the development of the Regional Freight and Economic Profile (Task 3) during the November 2010 through January 2011 timeframe.
- e. There will be two **public meetings** scheduled for this project. The first meeting will occur after the development of the existing and future conditions inventory and the needs assessment (Tasks 3 and 4). The second meeting will be held after the release of the Draft Implementation Plan (Task 7). Meetings will be held at wheelchair accessible locations.

The first meeting is proposed to be held in the center of the region (Rochester). The purpose of the first public meeting will be to introduce participants to the freight planning process in

the Genesee-Finger Lakes Region, solicit input and feedback communicate the value of goods movement to the region's economy, and solicit input and feedback on the initial findings of the Regional Freight and Economic Profile compiled as part of Task 3, solicit input and feedback on concerns about truck routes and freight movements in local communities, and communicate the value of goods movement to the region's economy,. In short, the first meeting is intended to start a dialogue between freight and non-freight neighbors to build a better understanding of freight and community needs. The format of the meeting will break the group into small groups organized by subregion, with private sector stakeholders and community leaders. The consultant team will conduct small group exercises to solicit targeted input from each group, including handouts depicting the benefits of freight and a map or graphic representing how everyday products get to places in the Genesee-Finger Lakes Region.

The second public meeting will be conducted after the release of the Draft Implementation Plan to solicit input on recommendations and strategies contained in the Plan.

The consultant team will be responsible for obtaining an appropriate meeting venue and providing the required media technology. Meeting refreshments will be provided and coordinated by GTC staff. Visual aids, including a brochure and foam core mounted figures, will be provided by the consultant team.

Information gathered from these events will be summarized and distributed to the Steering Committee within two weeks of the meeting date.

The two public meetings are tentatively scheduled for March and September 2011, respectively. However, the specific date, time, and location for the meeting will be determined as the project progresses, in consultation with the Steering Committee.

B.4 Stakeholder Outreach Tools

Several different tools will be employed to organize information, document input and evaluate the stakeholder participation process.

- a. The consultant team will develop a **stakeholder database** with the name, title, agency, address, phone number, email address of each person involved in the development of the freight study. The database will track the involvement of each member and categorize stakeholders by their participation level (i.e., Steering Committee member, survey respondent, focus group participant, public meeting attendee). Some stakeholders will be involved in multiple activities.
- b. **Outreach Materials** will consist of email invitation for Steering Committee meetings, agendas for each project meeting, and meeting summaries of each project meeting. The consultant will provide all of these materials to GTC in a timely manner for posting on the MPO website.
- c. Public meetings will be announced by **media release** to television stations, radio station and weekly/daily general circulation newspapers. Steering Committee members will also be encouraged to forward the public meeting notifications to respective network of stakeholders and known interested parties.
- d. All meeting notices will provide the **GTC's website** address as well as contact information to enable access to more project information upon request.
- e. Due to the short duration of the project and the desire to maintain the project schedule, the consultant team will collect **written public comments** at each public meeting.
- f. There will be a deadline of two weeks after each public meeting for receipt and consideration of **mail-back comment forms**.
- g. Throughout the study process, a **stakeholder outreach evaluation** will include opportunities to solicit feedback on the effectiveness of public outreach from GTC, the Steering Committee, focus group participants and public meeting attendees.

Appendix C: List of Stakeholders

The following organizations participated in the development of this plan by attending a focus group meeting, participating in an in-person interview, completing an online survey, and/or providing feedback on various interim products of the study. Their input and assistance was invaluable.

- Batavia Chamber of Commerce
- Canandaigua Chamber of Commerce
- Center for Emerging & Innovative Sciences, University of Rochester
- City of Rochester Department of Planning and Zoning
- City of Rochester Department of Transportation
- Council of Supply Chain Management Professionals
- CSX Transportation
- Depew, Lancaster and Western Railroad
- Empire State Development
- Finger Lakes Economic Development Center
- Finger Lakes Railway
- Genesee County Chamber of Commerce
- Genesee County Economic Development Center
- Genesee County Highway Department
- Genesee County Planning Department
- Genesee/Finger Lakes Regional Planning Council
- Genesee Transportation Council
- Geneva Chamber of Commerce
- Greater Rochester Enterprise
- Livingston County Board of Supervisors
- Livingston County Chamber of Commerce
- Livingston County Economic Development Department
- Livingston County Highway Department
- Livingston County Planning Department
- Livonia, Avon and Lakeville Railroad

- Mizkan America's, Inc.
- Monroe County Aviation Department
- Monroe County Department of Planning and Development
- Monroe County Department of Transportation
- Monroe County Legislature
- Norfolk Southern Corporation
- New York State Department of Agriculture & Markets
- New York State Department of Transportation Region 3, Region 4 and Main Office
- New York State Motor Trucking Association
- New York State Thruway Authority
- Ontario County Board of Supervisors
- Ontario County Industrial Development Agency
- Ontario County Planning Department
- Ontario County Public Works Department
- Ontario Midland Railroad
- Orleans County Chamber of Commerce
- Orleans County Highway Department
- Orleans County Industrial Development Agency
- Orleans County Planning & Development Department
- Reconnect Rochester
- Rochester and Southern Railroad
- Rochester Business Alliance Transportation Council
- Rochester Institute of Technology
- Railroads of New York
- Seneca County Chamber of Commerce
- Seneca County Highway Department
- Seneca County Industrial Development Agency
- Seneca County Planning Department
- Village and Town of Lyons Planning Board/Port of Lyons
- Wayne County Business Council
- Wayne County Highway Department
- Wayne County Industrial Development Agency

- Wayne County Planning Department
- Wyoming County Chamber of Commerce
- Wyoming County Highway Department
- Wyoming County Industrial Development Agency
- Wyoming County Planning Department
- Yates County Chamber of Commerce
- Yates County Department of Planning
- Yates County Department of Public Works
- Yates County Industrial Development Agency

Appendix D: Summaries of Stakeholder Meetings

The following Stakeholder Meetings were held during the course of the study:

Five **Steering Committee Meetings**, all held in Rochester:

- April 26, 2011
- June 15, 2011
- November 17, 2011
- April 5, 2012
- June 19, 2012

Four **focus group meetings**:

- Representatives from agencies in **Genesee, Livingston, Orleans, and Wyoming Counties** met Monday, June 13, 2011 9:30PM-11:30AM in the Genesee County Office Building, 3837 West Main Street, Batavia, NY 14020;
- Representatives from agencies in **Monroe County**, including the City of Rochester, met Monday, June 13, 2011 2:00PM-4:00PM in the offices of Bergmann Associates 200 First Federal Plaza, 28 East Main Street, Rochester, NY 14614;
- Representatives of **Short Line and Class I freight rail operators** met Wednesday, June 15, 2011 1:30PM-3:30PM in the offices of Bergmann Associates 200 First Federal Plaza, 28 East Main Street, Rochester, NY 14614; and
- Representatives of **Wayne, Seneca, Yates, and Ontario Counties** met Thursday, June 16, 2011 10:00AM-12:00PM in the Wayne County Courthouse, 26 Church Street, Lyons, NY 14489.

Two **public meetings**, both held in Rochester:

- September 26, 2011
- May 16, 2012

Summaries of each meeting follow.

Genesee Transportation Council
Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region
4/26/2011 Steering Committee Meeting Summary

1. Welcome and Introductions

2. Project Overview

Rich Perrin and Brian ten Siethoff provided an overview of the project scope of work and schedule, and reviewed progress to date.

3. Regional Freight and Economic Profile

Brian ten Siethoff and Chris Lamm reviewed the Regional Freight and Economic Profile, which included an analysis of the region's economic structure, an industry logistics profile, a discussion of existing freight infrastructure, current and future freight flows, and organizational and public policy. In response to the presentation, the Steering Committee had the following comments:

- The Regional Freight and Economic Profile should show reserve capacities on the truck routes.
- Identify corridors where there is available rail ROW and how it links with the agricultural and industrial development happening and the existing road infrastructure.
- A key recommendation should be maintain the rail ROW. Wayne County has retained its rail ROW for two decades. Short lines have trouble maintaining their infrastructure due to costs.
- Trucking companies and railroads needs to do a better job cooperating and not competing. This is made difficult because much of the actual planning for goods movement is done by third-party logistics providers, not the actual freight consumers or shippers. Cooperation between truck and rail is critical to increase efficiencies and the overall economic development, and the group agreed there is room for further discussion.
- There may be opportunities for air at the Seneca Army Depot and Canandaigua airport for freight movement. Seneca Army Depot has a runway that can handle a C-130 military aircraft. However, the pavement is in disrepair and the tower and other airport infrastructure are likely not up to current FAA standards.
- Many companies looking to locate in the region want modal choice in how they move their products.
- Over the next decade, as gas prices increase, we may see a re-emergence of new node centers, with a strong emphasis on hamlets and villages.
- The Genesee County 1999 Smart Growth Plan is guiding where development occurs.
- The project team should evaluate whether emerging industries have similar logistics patterns.
- The development of a "local knowledge database" of bridge height/clearances and weight restrictions would be useful for out of town drivers and would possibly prevent crashes at common safety hot spots (low bridge clearance locations in Canandaigua and Rochester were cited as examples).

4. Needs Assessment/SWOT Analysis

The group conducted a SWOT analysis for four key topic area related to freight movement:

- Land Use
- Safety and Security
- Community and Environment
- Operations and Efficiency

5. Looking Ahead: Next Steps

Brian ten Siethoff requested that the Steering Committee provide comments on the Regional Freight and Economic Profile within two weeks, and that they encourage people to take the on-line survey. The project team will incorporate Steering Committee comments into Regional Freight and Economic Profile and publish a final report.

In the coming weeks, the project team will conduct focus groups and additional in-person interviews, schedule the first public meeting and compile survey results.

Task 4 will document the SWOT Analysis and Needs Assessment. The team will develop this document and circulate for review prior to the next Steering Committee meeting, which will take place at the end of June.

Genesee Transportation Council
Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region
6/15/2011 Steering Committee Meeting Summary

1. Welcome and Introductions

The Regional and Economic Profile is being finalized. The next part of this study will be the development of alternatives and recommended improvements to improve regional freight movement.

2. Focus Group Meeting Update

The GLOW and Rochester Focus Group Meetings took place on Monday. Additional focus groups will take place on the afternoon of June 15th and the morning of June 16th.

Highlights from the GLOW focus group:

- a. Access to three Class I railroads in Livingston County is important to the region.
- b. Development is being directed and transportation to Alabama's STAMP project and the Batavia agribusiness park.

Highlights from the Rochester focus group include :

- a. There is a need to figure out how to better connect to the global market
- b. How to use rail, air and water more effectively
- c. Alleviate barriers to development/redevelopment sites, such as the 10-acre site on Driving Park Boulevard that has a low clearance bridge
- d. Existing rail spurs need to be preserved

3. Gather Input on SWOT Analysis Worksheets

Brian ten Siethoff solicited input on the strengths, weaknesses, opportunities, and threats (SWOT) analysis. The emphasis areas overlap and complement the GTC Transportation goal areas:

- a. Efficiency and Operational
- b. Safety and Security
- c. Environment and Community
- d. Land Use

This SWOT will be used to develop a needs assessment. The needs assessment will be evaluated and used to develop project alternatives and policies that will constitute the freight plan recommendations. Beyond the document, GTC intends to integrate freight into GTC's planning process.

The group discussed the need to integrate the regional freight planning process into the regional economic development councils and the regional planning council projects, so our projects can overlap and support one another.

4. Discussion of Regional and Sub-regional Freight Transportation Needs

- a. New York Marcellus Shale is going to be an impact on rail and truck.
- b. The Portageville Bridge needs to be improved/replaced. This is a project of statewide significance. If heavy loads are not using rail, they will use roads and impact pavement.
- a. Capacity on short lines should be able to handle increased weight so they can act as a by-pass for emergencies.
- b. Identification of strategic rail crossings on the canal is needed.
- c. A section of the NS line has been leased by Finger Lakes rail. NS and CSX compete with one another and didn't want to allow crossing tracks in Lyons. This is a threat.
- d. The old Conrail line from Brockport to Lockport lost tracks from Lee Road to Owens Road in Brockport. The section is 13.7 miles and should be preserved, because it's an important corridor to Chicago over Ontario Peninsula.
- e. There is a capacity issue with the CSX line.
- f. Taxes are high for rail. Conrail paid 58% of its taxes in New York. The section of rail constituted 12% of its track.
- g. Creating a maintenance obligation with tax structure is a good idea.
- h. New York needs enabling legislation to provide tax increment financing to rail.
- i. Foster Wheeler in Dansville bring deep water shipments from Oswego to Dansville. The welded rail is there but not being used. It probably needs 10,000-20,000 ties.
- j. Under the infrastructure section of "efficiency and operations" on the SWOT, the definition should be revised. Most state highways and county highways are designed for truck traffic. The issue is more of the community accepting the truck traffic. The threat is funding to keep roads maintained. Many state routes are main roads in villages which create local impacts.
- k. Town roads will be threatened by Marcellus shale. NYSDOT is limited by jurisdiction, with the exception of safety. Pavement and condition of pavement isn't in the authority of NYSDOT. For these regional large impacts, there may be cause to have an exemption.
- l. There is not one local agency that has power, authority, control or funding. But working together, we can start using capital funds for infrastructure that gain synergy and provide a comprehensive approach. Freight advisory council or committee can continue working on this in the future.
- m. The western end of the Thruway services many businesses. Open road tolling is planned for the near future.
- n. Weather on the Thruway impact double tandem trucks. NYSTA restricts tandems related to weather, wind primarily.
- o. With increasing congestion in NJ/NYC, freight will be delayed downstate. There has been talk about establishing a multimodal facility at the airport. Falls Road railroad would be a good location for the smaller intermodal facility.
- p. Region is well positioned and has strong access to major air cargo hubs. We have 24 hours access to the world.
- q. There is a need for additional transfer locations. Look at Batavia transfer warehouse as a model. This site received a \$1.2 million grant.

Regarding safety,

- a. Weather maintenance and interactions between auto and trucks.
- b. There is not a lot of redundancy in the Class I rail in this region.

- c. Border crossings are big constraint. Ontario is a major trading opportunity. This is an operational issue, not an infrastructure issue.
- d. Regarding policy, the Federal Rail Administration requires employees who work 5 days in a row to have 10 hours off duty. This creates an encumbrance.

Regarding land use,

- a. Priority growth areas identified in the GTC LRTP.
- b. Falls Road and Brockport could be developed if there was rail.
- a. The abandoned rail corridor between Victor and Fairport could become a dedicated truck road.
- b. There are several smaller sites that will have major capacity and transportation needs. The consultant team should consider a few case studies, such as STAMP and one of the agricultural processors.
- c. G/FLRPC has some information about utilities re: sewer and water. Some counties have inventories. A possible recommendation is to coordinate who has this information for the region.

5. Next Steps

After the four focus groups have taken place this week, the consultant team will compile a list of needs from these meetings. We will come back to Steering Committee about priorities for the region in September/October. Before that, we'll be posting and distributing minutes from these meetings and continue this discussion. Once the plan is finalized, the goal is to keep the connections between the business community and the planning process and inform changes to the long range plan and freight planning. We will be identifying people who want to be part of that conversation.

**Genesee Transportation Council
Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region
11/17/2011 Steering Committee Meeting Summary**

1. Welcome and Introductions

Brian ten Siethoff welcomed the group and asked steering committee members to introduce themselves.

2. Meeting Objectives

Brian reviewed the meeting objectives:

- a. Review process used to compile the list of projects, strategies and policies;
- b. Discuss roles of the Steering Committee and other stakeholders in vetting and screening the compilation of projects, strategies and policies;
- c. Review and obtain feedback on proposed criteria and process for screening projects and conducting a fatal flaw analysis; and
- d. Review and obtain feedback on process and criteria that will be used to evaluate and prioritize projects, strategies and policies.

The Steering Committee was asked to review Section 4: SWOT Analysis and Needs Assessment by 12/8/11. He noted the addition of a new section related to performance based planning, beginning on page 4-32.

A Steering Committee member mentioned the Mohawk Erie Multimodal Transportation Corridor Study, which will include an analytical project ranking, and asked if the GTC analysis will be tied to that set of analytics. Rich Perrin answered that the Mohawk Erie Multimodal Transportation Corridor Study is a separate effort and that projects to be advanced in the GTC region will be made based on the MPO's project selection process. The freight plan will influence how projects are selected, but they will not be ranked as improving the safety, efficiency, and reliability of goods movement will be one of several factors considered.

3. Project List

Brian discussed the Compilation of Regional Freight Capital Projects, Operational Strategies and Policies, which was developed using three sources:

- a. Review of previous studies completed in the region;
- b. Review of best practices and innovations in freight and goods movement from other parts of the country; and
- c. Input received from stakeholders.

The compilation is unfiltered and unconstrained. Inclusion on the list does not necessarily mean the project has been endorsed by GTC, NYSDOT or other agencies. He asked the Steering Committee to review the list, forward it to other people within their agency/organization, and provide additions, deletions and comments by 12/8/11.

4. Screening Evaluation and Prioritization

Brian introduced the process for screening, evaluating and prioritizing projects, strategies and policies. The Steering Committee split into two breakout groups to discuss (1) what constitutes a fatal flaw, (2) how projects should be evaluated, and (3) the most important criteria for prioritization. Brian provided examples of fatal flaws, screening criteria, evaluation criteria and prioritization criteria from Section 4. The comments below summarize additional ideas from the Steering Committee.

a. Projects with Fatal Flaws:

- i. Would decrease safety
- ii. Were scaled down or altered because of lack of funding, such that the benefits would not meet the original intent of the project
- iii. May be detrimental to the economic vitality of the community because they prohibit access to a location or adversely affect the continuing viability of business. For example, a bypass around a village that is trying to develop historic main street program.
- iv. Have benefits to private entities that are disproportionate to the amount of private funding contributed to project costs.
- v. Are incompatible with other non-transportation related projects, such as those being advanced by the region economic development councils.
- vi. Create at-grade crossings
- vii. Have significant environmental impacts
- viii. Large scale design, large scale cost, large scale impacts

b. Freight projects should be evaluated for

- i. Quantifiable benefits, where possible
- ii. Jobs created or retained
- iii. Ability to leverage other resources
- iv. Return on investment
- v. Improvement of the reliability and consistency of rail
- vi. Reduction in the number of rail incidents
- vii. Connection to comprehensive plans
- viii. Advancement of alternative fuels

c. Freight projects should be prioritized based upon:

- i. Cost benefit ratio for the system-wide impacts of the project.
- ii. A hierarchy of best projects. If one project is advanced, then another may not need to be. (e.g. Alternative route around Route 21 in Palmyra may negate the need for an additional bump out on Route 21 to slow traffic.)
- iii. Timing. Some projects need to be implemented sequentially in order to be successful; others can be implemented at the same time more cost effectively than if they were to be constructed independently.
- iv. Project readiness
- v. Impacts on reliability
- vi. Safety benefits
- vii. Use of adaptive planning practices and context-sensitive design

**Genesee Transportation Council
Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region
4/5/2012 Steering Committee Meeting Summary**

1. Introduction

Rich Perrin welcomed the Steering Committee. Brian ten Siethoff explained that the purpose of the meeting is to (1) review and obtain feedback on the evaluation and categorization of projects, strategies, and policies, (2) to discuss the implementation of these recommendations, and (3) discuss the next steps for the project and stakeholder outreach.

2. Project Update

The process, to date, has included (1) measuring and tracking the system performance, (2) developing policies that guide planning and investment, (3) identifying and evaluating alternatives against goals and objectives, (4) prioritizing alternatives and, (5) designing and implementing projects. We are at step 4. Section Five 5 of GTC's *Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region Project* includes a prioritization of alternatives.

3. Evaluation of Freight Alternatives

Brian discussed the project screening process, which took the compilation of alternatives, and screened them for fatal flaws. Next, the project team evaluated each project and developed a list of alternatives that includes near-term recommendations, medium-term recommendations, and long-term recommendations. Brian presented the evaluation and scoring scale, and explained that each project was scaled based according to five categories: efficiency, access, mitigation, jobs and cost. The evaluation measures for efficiency, access, mitigation and jobs included a scale based on the projects' impact, ranging from a small/local impact to a large/national impact. The evaluation measures for cost considered the amount of capital costs and ongoing operating/maintenance cost. The range was from large to a net reduction in total costs.

After a collaborative discussion between GTC, NYSDOT, and the consultant team, the resulting recommendations include 7 near-term alternatives, 25 medium-term alternatives, and 3 long-term alternatives. Rich Perrin noted that the near-term recommendations are ready to be programmed, but a lot of things can happen to impact the cost effectiveness of what we do and the benefits.

Steering Committee were asked to share the draft technical memorandum for Tasks 5 and 6 with agency staff and sent comments to the consultant team by April 20, 2012. Preliminary comments included:

- a. Orphaned lines and pagination issues were noted. These will be resolved in the final production process.

- b. Incorporate the reality that freight movement in New York State currently is accommodating Marcellus Shale drilling in Pennsylvania. Word the discussion of drilling in New York State so that no one sentence can be taken out of context.
- c. Regarding Alternative NT-5 (Rail Access to Landfills in the Region), the discussion of inbound trash by rail should be reworded to acknowledge that new rail sidings to facilitate inbound trash would shift delivery from highways.
- d. Extending Route 286 to Route 21 in Wayne County is not included as an alternative but it is desired. Rich Perrin stated that all capital projects are focused on maintenance and preservation of the existing system, as opposed to new roads or even widening, but that project could happen in the future, when funding priorities change.
- e. Regarding Alternative MT-2 (Increasing Allowable Truck Weights and Lengths on Area Roadways), Michael Fesen suggested that heavy freight should stay on rail to reduce taxpayer costs for road maintenance. The rail industry has plenty of space for heavy freight. The group discussed cases where rail would not be competitive, such as distribution 3-5 miles off the Thruway, and tandem trucks should not have an incremental impact on pavement or bridges, because the axel loading is the same. Deb Najarro suggested this be a long-term project or that the cost of the project be increased to include long-term maintenance costs, and that, in the implementation section of the plan, the private sector contributes funding for maintenance costs associated with road maintenance. Rich Perrin suggested limiting this alternative to I-390 and including a statement regarding the need for a feasibility assessment.
- f. Brian ten Siethoff encouraged the Steering Committee to provide comments on the alternative evaluation process and grouping of recommendations, including any economic development sites that should be added to the list, such as Livonia Gateway Park Road.

4. Outline of Alternatives

Brian ten Siethoff discussed the five proposed sections of the implementation section of the report.

a. Roles and Responsibilities

This section will discuss who will lead planning, design, implementation, operation for each alternative. Associated with each recommendation, there may be a matrix that shows NYSDOT, GTC, local municipality, private sector, and who is responsible for each phase.

b. Barriers and Obstacles to Implementation

Aside from funding, this section of the plan will explore institutional issues that could create obstacles to implementation. For example, problems with coordination that we need to resolve or policies that need to be changed. Deb Najarro stated that MT-6

(Norfolk Southern Corning Secondary Line between Geneva and Lyons) lists Corning Secondary but there are other rail lines that should be preserved. The state has the right of first refusal on rail abandonments, but there is a limitation for the use of those lines for public use and not for maintaining the lines for rail use. This should be changed and better coordination between Class 1 and smaller lines is needed. Another program suggestion is to develop multi-faceted agreements that help short line railroads cover costs for abandoning and changing service at an interchange.

c. Funding

The future of federal transportation funding will not be the same. Congress is extending the reauthorization bill. There is currently no political will to funding program or come up with new revenue sources for what used to be considered projects of national significance. That impacts NYSDOT. We need to expand participation to involve a broader base of stakeholders.

Dan Hallowell commented that the state does not have dedicated fund source for freight, therefore there is no ability to fund projects that accommodate proposed growth or jobs. Projects are the result of safety and mobility, so it is likely that when a bridge is replaced, for example, we can address the height restrictions identified in this plan.

NYSDOT has been talking about public/private funding opportunities. A Steering Committee member asked NYSDOT about the New York Works Task Force and how that will effect implementation of projects. Dan Hallowell responded that the task force will coordinate capital plans across agencies and authorities, oversee investment in projects and access to funding, and facilitate the creation of jobs.

The group discussed that transportation funding limits economic development, so maybe it's time to look at economic development fund sources to fund these projects. The Consolidated Funding Application process included some transportation projects funded by Empire State Development, for example. Rich Perrin suggested that instead of matching projects to fund sources, we should figure out the best projects and then seek funding.

Transportation for America publishes a matrix of funds available for sustainable communities, USDA, etc. David Zorn suggested that, aside from the matrix of federal dollars, there are many state cooperative programs that can be used as a match. Therefore, if we had other funding committed, we could use it to leverage federal dollars.

Chris Suozzi asked if there are best practices that have successfully responded to the "new normal" funding environment. Brian ten Siethoff replied that everyone is waiting for things to go back to the way they were, so there are no best practices yet. Rich Perrin stated that we need long term investment strategy. Projects that generate a return on an investment will be considered best practices. Aside from tolling, we don't have public/private legislation in New York.

Mike Fesen suggested that reduced and/or certainty about costs associated with NEPA and prevailing wages would stimulate investment.

d. Timing (Phasing and Dependent Projects/Policies)

Lyons industrial park is an example of a project that has several alternatives dependent on one another. We will need to find customers who can use the rail and highway investment.

e. Definition of "Success"

Previous sections of the plan drive us to evaluate and assess projects. The definition of success will be economic development. The final report will be the culmination of all the work done previously, including the performance measures framework in Section Four and how it fits into state and regional planning process. Brian encouraged Steering Committee members to review that section. This section may be pulled out and placed in implementation guidance.

5. Next Steps

Steering Committee members should provide comments on the Identification, Evaluation and Prioritization of Alternatives by April 20, 2012. The next steps include revised alternatives in response to today's meeting, development of the implementation plan, the second public meeting, publishing the plan into one document, and holding the last Steering Committee meeting. Rich Perrin offered to present the alternatives to any group that is interested, board supervisors, legislatures, chamber of commerce, etc. After the plan is finalized, the Steering Committee will hopefully continue to meet as part of a freight stakeholders group.

**Genesee Transportation Council
Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region
6/19/2012 Steering Committee Meeting**

1. Introduction

Frank Dolan welcomed the Steering Committee and discussed emergency evacuation procedures. Brian ten Siethoff explained that the purpose of the meeting is to review and obtain feedback on the implementation plan and the planning process.

2. Project Recap

Chris Lamm reviewed the process to date, which has included (1) measuring and tracking the system performance, (2) assessing needs, (3) developing policies and performance measures that guide planning and investment, (4) identifying and evaluating alternatives against goals and objectives, (5) prioritizing alternatives and, (6) designing and implementing projects. Section 6 of GTC's *Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region Project* includes a discussion of implementation of the plan, including roles, responsibilities, barriers, funding and financing opportunities. The goal now is to integrate the plan into the overall MPO planning process.

The project objectives were to:

- Establish relationships between GTC and the business community
- Educate the public and key stakeholders about the importance of freight transportation
- Identify strategies that will position the transportation system of the region as a distinguishing factor in retaining and attracting both traditional and emerging-technology manufacturing firms, as well as enhancing the viability of agriculture and associated processing companies
- Identify practical implementation guidance
- Provide recommendations on how to better integrate freight into the overall regional planning process

A common thread in Genesee/Finger Lakes regional plans, including the GTC Long Range Transportation Plan, the 2011 Finger Lakes Regional Economic Development Council Strategic Plan, and the 2010-2011 G/FLRPC Genesee-Finger Lakes Economic Development District Comprehensive Economic Development Strategy Update, is that a strong transportation network is critical to economic success and that transportation investments pay off.

The Steering Committee discussed where the region wants to be and how to get there.

Deb Najarro commented that the economic development agencies have just as much interest in what happens with transportation as the transportation agencies have with economic development. Freight planning is a bigger process than where roads go and what are improvements are needed, because it's more about the economic development. Freight is not

for its own sake, it has implications on the success of economic development strategies. Economic development strategies may require transportation investments to succeed.

Kris Hughes commented that the process has been good at getting functional elements of government and regional activity, as well as the industry of freight (i.e. trucking). It would be interesting to engage the large traffic generators into this process, because individual businesses are not aware of how important they are to the public decision making process. Who are the top 15-20 industries that generate freight movement? Do they know that they have the power to connect with us? How can we draw them into the next phase?

Rich Perrin responded that a business can propose a project on a state facility. One potential solution would be a role for GTC to reach out through RBA Transportation Council, Chambers of Commerce, RONY, shippers and carriers and ask them where the issues are. GTC could compile that and give to the agency, so that they could be included and considered into the TIP process. We can only select projects that are proposed. Is there regular feedback from shippers and carriers, and if not, there should be?

Ken Johnson stated that there needs to be a clearing house to collect that data that can be forwarded to the right decision makers.

It was also stated that there is a need to close the information gap, so there is awareness by the owner/operator about what the users need.

Kris Hughes noted that there is capacity within our different modes that people aren't aware of such as the canal. How do those get highlighted and stimulate creative entrepreneurship? Brian ten Siethoff noted that the Lyons Industrial Park is an example is this. How do we tie to economic development and what are the next steps? Paring down and turning these projects into reality with limited resources.

Brian discussed engaging business. Shippers view transportation as a given. They build business around fixed set of circumstances. They don't feel they have an influence or that things will change. Businesses don't sense that they have a say. Or, if they do, it's not worth their time. Smaller companies feel like problems like turning radii are not impacting the bottom line. They'd rather be developing their business.

Kris Hughes noted that for a region that is trying to stimulate economic growth, we need to help channel those opportunities and shine light on those opportunities, these projects may create new nodes of opportunity that we don't currently have.

Brian responded that contributing to business environment has to be seen as worthwhile from transportation agencies, economic development agencies and businesses.

Pat Rountree noted that businesses take transportation network for granted, as long as communication is strong with planning and economic development agencies, Part of our role is to look out for those things. Barilla's site selected cited the reduction of Route 5 in the Village of Avon from four lanes to two lanes as a detriment. Another example is that a manufacturer is changing internal logistics for shipping and receiving, which will make it more difficult to access

the state route. If planners and economic developers are doing their jobs, these issues should be communicated.

Rich Perrin commented that we know our capacity on highway system with volume capacity ratio. Freight can move at different times so there is some flexibility. Going forward, if we have existing capacity for roads/sewer/power, we can prioritize sites. We can cluster sites that will take the least amount of public investment. That's longer term and would require us to get a handle on infrastructure capacity first. Longer term, it would be good to put this into a bigger picture infrastructure inventory.

Charles McGarry stated that transportation planning can sometimes come into conflict with local choice. Barilla is a good example of the balance of local quality of life versus economic development. Transportation capacity is a selling point for businesses, but there is a propensity to reduce capacity. There are many other examples under consideration right now, such as filling in the inner loop or abandoning the Corning Secondary. They are acceptable because they are perceived as excess capacity. We should be careful moving forward that decision makers be aware of the need for capacity.

Brian noted that this issue might be a good point of emphasis in the Executive Summary. Lyons has great economic development potential. It is a priority for the region. The Corning Secondary could be integral to making the falls rail line active again. However, today there is no business or customer identified on that line.

Deb Najarro noted that professionals in the industry understand, but the public does not. The challenge is educating the general public who are not intimately involved with this process. It's tough to get that across when you are trying to be getting a project funded or approved for a project that would have positive economic benefit.

Ken Johnson commented on maintaining businesses versus quality of life. Making people aware that trucks are there for a reason, they are not just driving past. Businesses need to be supported. They are employing neighbors. An example of this discussion was the route restriction debate in Finger Lakes, which found that 85% of trucks had reason to be there. But how do we get the message out that trucks generate business and help businesses grow and prosper?

Public relations should include a communication strategy that involves the private sector. The government is not benefitting. The companies benefit. CSX and NS have started campaigns to educate people about the benefits of rail.

3. Implementation Guidance

Brian ten Siethoff discussed the roles, responsibilities and partnerships involved in implementing this plan. GTC, NYSDOT, operators, freight, and local municipalities will be the responsible parties. The implementation challenges will include staff resources, institutional barriers, and balancing regulation and economic competitiveness. On the cost side, from 2010-2035, transportation materials and labor costs will increase, but Highway Trust Fund outlays, receipts and transfers will be lower than spending. The highway program is underfunded. Transfers from General Fund will be needed to continue to support transportation program.

The issue is not expected to be resolved with Congressional bill. Outlays are expected to be reduced even more, which means less funding.

In terms of performance measures, you can't manage what you can't measure. Identify problems and then how well proposed solutions will impact problems. Fatalities, travel time index, non-deficient bridges, and emissions.

4. Next steps

Brian ten Siethoff asked the Steering Committee to provide comments on the implementation guidance by June 26, 2012. Rich Perrin will send a reminder email.

5. Evaluation of process

The consultant team requested feedback on the planning and public outreach process. The Steering Committee responded that the planning process was outstanding, the technical support was excellent, and public outreach was great. The consultant team will include a comprehensive list of organizations who was contacted in the appendix of the final document. The consultant team will send out an evaluation survey to the Steering Committee. After the plan is finalized, the Steering Committee will hopefully continue to meet as part of a freight stakeholders group. Pat Rountree suggested that GTC present this plan to the regional economic development council.

GLOW Focus Group Meeting Summary

Monday, June 13, 2011 9:30-11:30AM

Genesee County Office Building 3837 West Main Street, Batavia, NY 14020

Participants:

Jim Whipple, Orleans County IDA
Pat Rountree, Livingston County
Filipe Oltemari, Genesee County Planning Department
Timothy Hens, Genesee County Highway Department
Dan Hallowell, NYSDOT
Jody Pollot, Genesee Transportation Council
Brian ten Siethoff, Cambridge Systematics
Chris Lamm, Cambridge Systematics
Jason Babcock-Steiner, Bergmann Associates
Tanya Zwahlen, Bergmann Associates

1. Project Update and Freight & Economic Profile

Brian ten Siethoff reviewed the meeting agenda and provided a project update to the participants. The group reviewed the study goals and objectives, the scope of work and schedule, the public outreach and interview process, and provided an overview of the regional freight and economic profile.

While we have a strong understanding of how the regional transportation system works, the purpose of the focus group is to gain local knowledge regarding whether or not we have identified the right freight network? Are there specific problems that prevent and inhibit truck or rail movement? What are the emerging industries? What is the region focusing on in terms of economic development?

2. Needs Assessment and Project Identification

Issues in Orleans County include:

- a. Some of the rail lines are not active and are being used as trails.
- b. In Orleans County, the Canal cuts us in half because of weight restrictions on old bridges. Our industrial development is below the canal. Route 63, 98 and 31 are major corridors. We need better north/south routes over the canal.
- c. The short line rail line ends in Monroe County. Everything goes in and back to Buffalo.
- d. Restrictions on truck movement; there are agricultural products coming out of the north.
- e. Rail is becoming more important, but we are having trouble siting people on rail. There are zoning issues to address.
- f. The rail corridor is in good condition, but many of the industrial sidings are in poor condition. We are trying to improve sites and rebuild sidings. Three fertilizer businesses in Medina are putting in their own siding.
- g. In the future, growth will be concentrated along the Route 31 corridor and rail corridor.

- h. The economy of Orleans County will continue to be agriculturally-based (ethanol, powdered food, etc.).

Issues in Genesee County include:

- a. Route 77 has a lot of traffic. Genesee County is a funnel for oversize hauling. Windmill turbines come through to avoid clearance issues and weight restrictions between Canada and I-390. Route 20 has an R posted bridge east of Route 98, which requires them to snake through Batavia and head south.
- b. The Route 63 study identified improvements that need to be made. Darien Lake has a choke point on Route 77. The rail overpass creates issues and turning radiuses in village. From an economic development standpoint, our plan is tied to the Thruway and Route 63.
- c. The Science Technology and Manufacturing Park (STAMP) project at Routes 63/77 will have an impact on transportation. It is planned to create 9,000 jobs. The Draft EIS has been published and the consultant team should review it.
- d. Issues with rail on Route 77. There are 5-6 at grade rail crossings west of Batavia and 4-5 east of Batavia. The main CSX line from Burgeon is an area for the high speed rail corridor.
- e. There is an agribusiness park on Route 63.
- f. The group discussed traffic projections on 2035 map shows traffic on Route 20. The consultant team should adjust traffic on Routes 63/33/5. There are over 40,000 cars/day.
- g. Routes 63 & 77 into Niagara County will see increased traffic in 2035 if STAMP comes to fruition.

Issues in Livingston County include:

- a. Rail freight is the most important issue now.
- b. When sale of Conrail took place, two of the short lines obtained to Class 1 rates. That has been a tremendous asset. Consequently we've seen grown along LA&L and the Genesee Wyoming line. There is a lot more rail traffic on those two lines than is showing up. The source year is 2007.
 - a. Kraft in Avon has added more product lines and that's impacted their rail traffic. There is a good opportunity for future growth in Avon. We have two sweetener facilities that produce 2,800 and 1,200 car movements per year.
 - b. The Genesee and Wyoming and Southern rail corridor has American Rock Salt. The on-site rail yard is expanding and will increase capacity by 40%.
 - c. There is an agricultural industrial park in Caledonia. Products come by rail for highly mechanized blending. Farmers can directly access it the feed and fertilizer. Subleased by Land o Lakes.
 - d. Perdue foods is major food and fertilizer. Grain elevator projects. It's expanded twice and will expand again to provide feed and fertilizer. This impacts LA&L lines.
- c. Product comes inbound by rail and outbound by truck. Route 15 to Route 390 at Exit 9. NYSDOT had \$7 million in funding to put in access road, but the project has not advanced. Route 15 between Lakeville and I-390 should be included in the freight network.
- d. There are issues with impacts to local roads as a result of increased hauling.

- e. Genesee and Wyoming Railroad continues to Dansville. That line is built at 40MPH continued welded rail, but is now subject to 5MPH slow orders. We have continually fought for funds for emergency repair to no avail.
- f. There is a potential for rail access from this area to port of Oswego. Bring things in by water through canal if we can get to Dansville is we can repair this one area of rail. Pat can provide more information on this connection.
- g. Portageville bridge is a catastrophe waiting to happen. Help Norfolk Southern corridor become an east west route. It's a constraint currently. NYSDOT Is aware of it. It will be a big emphasis in this report. Can't be overstated. You'd lose Canadian Pacific, as well as NS.

Policy issues include the serious lack of funds available for maintenance and expansion projects, and the need to reduce tax burden to a minimum for rail.

3. Next Steps

The four focus group meetings provided opportunities to talk with a lot of people. The consultant team will compile a list of needs from these meetings. We will come back to Steering Committee about priorities for the region in September/October. Before that, we'll be posting and distributing minutes from these meetings and continue this discussion.

Once the plan is finalized, the goal is to keep the connections between the business community and the planning process and inform changes to the long range plan and freight planning. We will be identifying people who want to be part of that conversation.

Rochester Focus Group Meeting Summary

Monday, June 13, 2011 2:00PM-4:00PM

Bergmann Associates 200 First Federal Plaza, 28 East Main Street, Rochester, NY 14614

Participants:

Greg Albert, GFLRPC
Brett Walsh, Monroe County Legislature
Dan Hallowell, NYSDOT
Matt Hurlbutt, Greater Rochester Enterprise
Ken Johnson, Leonard Express
Carrie Baker Scott, City of Rochester
Tom Goodwin, Monroe County Planning
Erik Frisch, City of Rochester DES
Jody Pollot, Genesee Transportation Council
Tanya Zwahlen, Bergmann Associates
Brian ten Siethoff, Cambridge Systematics
Chris Lamm, Cambridge Systematics

1. Project Update and Freight & Economic Profile

Brian ten Siethoff reviewed the meeting agenda and provided a project update to the participants. The group reviewed the study goals and objectives, the scope of work and schedule, the public outreach and interview process, and provided an overview of the regional freight and economic profile. The purpose of the focus group is to gain local knowledge regarding whether or not we have identified the right freight network and to identify specific problems that prevent and inhibit truck or rail movement.

2. Needs Assessment and Project Identification

The following are issues/needs related to the City of Rochester & Monroe County:

- a. The City of Rochester has an industrial cluster on Lee Road and Mount Read Boulevard. We'd like to see more rail access on the west side of the city. Most of the rail spurs are not active.
- b. Air freight is served by Newark and JFK currently. Getting trucks in and out is problematic due to congestion. In terms of the competitiveness of the region, the lack of an air cargo facility may detract from a company locating here. The region could leverage our capacity in our interest.
- c. Although we are an international port of entry, freight forwarders bring freight to New York City. This is a marketing or communication limitation. It's not an infrastructure limitation. Is there an opportunity to expand air cargo in Rochester?
- d. The same issue applies to the Port of Rochester. With the exception of bulky cargo, few things use that access point. Making better connections to Port of Oswego, since they have plans for expansion, is something we should look at.
- e. Regarding safety, bridge clearance and rail crossings are the biggest issues in Monroe County. Overhead clearance on the main roads is a recurring issue. The Erie Canal

bridges creates problems with weight. Fairport has railroad and canal crossing that continue to create problems.

- f. Regarding land use, the industry mix has changed, but locations are being redeveloped. LiDestri bought a former film processing facility and using rail to bring tomatoes in. Other projects can use rail for renewable energy. City sites would be more saleable if access was better.
- g. Designating Route 390 an interstate north of the 390/490 interchange would make redevelopment sites on the west side of the City more marketable.
- h. There is a 10 acre site on Driving Park. The bridge is too low. This location is identified in the industrial access study. A bridge replacement is capital intensive. It is hard to justify for one business. At the federal level, there is an acknowledgement that the current funding is not enough.
- i. Brooks Avenue by the airport. Under switching station for the trains. This area also floods.
- j. The City does not have a designated truck route network, but there are weight restrictions. Erik can get us a list or a map of those streets.
- k. A tri-modal (air, rail, truck) facility could be a regional priority.
- l. The lack of facilities to park trucks is an issue.
- m. Border crossing is an issue. Time involved with security.

3. Next Steps

After the four focus groups have taken place this week, the consultant team will compile a list of needs from these meetings. We will come back to Steering Committee about priorities for the region in September/October. Before that, we'll be posting and distributing minutes from these meetings and continue this discussion. Once the plan is finalized, the goal is to keep the connections between the business community and the planning process and inform changes to the long range plan and freight planning. We will be identifying people who want to be part of that conversation.

Rail Focus Group Meeting Summary
Wednesday, June 15, 2011 1:30PM-3:30PM
Bergmann Associates 200 First Federal Plaza Rochester, NY 14614

Participants:

Bob Rohauer, CSX
Mike Fesen, Norfolk Southern
Deb Najarro, Finger Lakes Railway
David Monte Verde, Genesee Valley Transportation
Phil Monte Verde, Genesee Valley Transportation
Carl Belke, LL&A
Ray Martel, LL&A
Charles McGarry, NYSDOT
Mark Christian, NYSDOT
Jody Pollot, Genesee Transportation Council
Carmen Garozzo, Bergmann Associates
Chris Lamm, Cambridge Systematics
Brian ten Siethoff, Cambridge Systematics
Brian Sans, Bergmann Associates
Tanya Zwahlen, Bergmann Associates

1. Project Update

Chris Lamm reviewed the meeting agenda and provided a project update to the participants. The group reviewed the study goals and objectives, the scope of work and schedule, the public outreach and interview process, and provided an overview of the regional freight and economic profile.

2. Freight and Economic Profile

The group discussed which industries are growing in the region, such as agriculture, Marcellus Shale, alternative energy and transportation/distribution. Freight movement by truck is expected to grow by 55% over the next 25 years. What does this mean in terms of transportation and rail access? Overall, 11-12% market share is rail. The projected increase for rail is 25%. When does that happen and how do we build capacity for that demand now? The 2009 New York State Rail Plan has a list of anticipated needs.

3. Freight and Economic Profile

Chris Lamm provided an overview of the regional freight and economic profile. The purpose of the project is to analyze, study, measure and quantify how projects and policies can advance economic development with transportation investments. Beyond a freight plan, the goal is to incorporate a process for freight into the existing MPO planning process.

4. Needs Assessment and Project Identification

In order to accommodate growth in rail freight, the region's issues and needs include the following:

- a. We need better coordination with NYS Office of Real Property Tax Services (ORPTS), so rail can take advantage of these tax incentives. The background is that, in 2005, New York passed their version of the railroad real property tax. Each railroad has to apply for

- an abatement of taxes if they advance an improvement project that is considered above and beyond regular maintenance, such as signal improvements.
- b. There is hostility about turning trails on rail ROW back to active rail lines. In Pennsylvania, there has been a huge public outcry. There are several low bridges on the NS line out to Spencerport and Brockport. Four wheelers are using the line illegally. Spencerport is pushing hard to get the bridge out. Trying to put a bridge back in later will be very difficult. Shippers and community members have a different perspective. Freight doesn't vote and this creates conflicts about municipal decisions.
 - c. David Monte Verde can connect the consultant team with companies that rely on both rail and truck, such as Barilla and Western NY Energy. Meeting the needs of future growth will be about anticipating their needs.
 - d. There is a need for increased and improved sidings for industrial development.
 - e. There is a need to reduce border crossing time into/out of Canada to an hour.
 - f. Portageville bridge replacement is imperative. This project is supported by GBNRTC, BMTS, NYSDOT, and GTC.
 - g. The consultant team should add the DL&V line in Batavia, per David Monte Verde. It's about 10 miles.
 - h. Regarding passenger rail, there is a plan to revitalize or replace passenger station on the CSX line in Rochester. The main line trackage could be shifted 100-200 feet north near Rochester's Amtrak station, and a siding could be routed to the station platform to minimize the impact of dwelling passenger trains on the Main Line.
 - i. Related to policy, Positive Train Control (PTC) & unfunded mandates create disconnects. When the 2008 Passenger Rail Act was signed, it triggered the New York State Rail Plan. Established Amtrak service (existing or proposed) would have to absorb any difference in the fare box. New York taxpayers had to make up the difference in fares, but they had no say in marketing, train schedules, etc.
 - j. There is a need to educate passengers about freight while they are on the rail, and to improve the perception that rail isn't efficient.
 - k. Interchange agreements with Class I railroads are not enforced. The cars coming to short lines aren't there when they are supposed to be. There are never any fines to Class I railroads. The mileage of US tracks has gone down and density has gone up. This creates a problem for the short line operators. CSX and NS want to get 135 cars in CA and take them to NY; they don't care about a few cars. Single car markets are falling away in the minds of Class I. They don't want to have switch yards, they don't want to stop and set off 10 cars to the short lines. "But it's a partnership. Hub and spoke."
 - l. We should not encourage industrial development on the main line. From infrastructure point of view, the short line development makes sense. The freight plan should determine where strategically placed sidings can be located to better serve the main line. Each short line would grow as well because of economic development. Potential interchange locations:
 - i. Geneva with Norfolk Southern
 - ii. Newark/Arcadia

- iii. Rochester
- iv. Batavia
- m. Improve existing interchanges physical improvements and/or proposing new or relocating sidings so both Class I and short line can benefit. Develop an interchange access program to benefit freight movement. Look at Silver Springs with Rochester Southern and NS as a model.
- n. Short Line railroads keep in touch with IDAs to discuss prospective companies. This is something we do well. Regional economic development agencies, such as GRE and city of Rochester, have a database where anyone can put information in them. Coordination from regional people to get the data right regarding rail is important.
- o. If the goal is to develop a localized strategy to improve freight movement by rail, the 2009 rail plan can be a starting point, but for the short line rail companies, a call for project related to interchange, localized bulk transfer, cross docks, and intermodal terminals would be a good idea.
- p. The Panama Canal opening in 2014 will have an impact on local freight movement.

5. Next Steps

Chris Lamm discussed next steps. The consultant team will compile notes and develop list of projects and policies. The Steering Committee will meet again in September to set priorities. One recommendation will be closer focus between economic development & transportation. We would like to figure out how this group can become more incorporated into the MPO process related to transportation needs. GTC or New York State MPOs should schedule a meeting with RONY for a presentation.

Wayne-Finger Lakes Focus Group Meeting Summary
Thursday, June 16, 2011 10:00AM-12:00PM
Wayne County Courthouse, 26 Church Street, Lyons, NY 14489

Participants:

Roy Gates, Seneca County Highway Department
Dan LeGasse, Town of Lyons & Port of Lyons
Bret DeRoo, Wayne County Planning Department
Jack McCrane, Village and Town of Lyons Planning Board
Corrine Kleisle, Mayor of the Village of Lyons
Sharon Lilla, Wayne County Planning
Peg Churchill, Wayne County IDA & EDC
Barbara Leisten, Wayne County Business Council
Bonnie McMullin, Canaltown B&B
Deb Najarro, Backbone Business Support & Finger Lakes Rail & Ontario County IDA
Jon Fontaine, Backbone Business Support & Finger Lakes Rail & Ontario County IDA
Jody Pollot, Genesee Transportation Council
Brian ten Siethoff, Cambridge Systematics
Tanya Zwahlen, Bergmann Associates

1. Project Update and Review of the Regional Freight & Economic Profile

The project consultant, Brian ten Siethoff, reviewed the meeting agenda. He provided an update on the project to focus group participants. The group reviewed the study goals and objectives, the scope of work and schedule, the public outreach and interview process, and received an overview of the regional freight and economic profile. The purpose of the project is to analyze, study, measure and quantify how projects and policies can advance economic development with transportation investments. Beyond a freight plan, the goal is to incorporate a process for freight into the existing MPO planning process.

2. Needs Assessment and Project Identification

- a. There is a great deal of truck traffic into the Ontario County landfill, operated by Cassella Waste Management, and Perinton High Acres Landfill, owned by Waste Management, on Route 20. The Route 21 corridor off the Thruway includes lots of truck traffic, one third of which appears to be landfill oriented. There has been significant discussion with Waste Management about altering their routes, but none have occurred. The State has pushed this traffic into the region because of their policy related to permitting processes, and it is a huge problem. Some waste is moving by train from the New York Metro region to Midwest and Virginia. National rail operators prefer longer hauls.
- b. The Lyons Industrial Park is seeing greater activity because it is located near the intersection of Norfolk Southern, CSX, Route 14, and I-90 and because there is extensive agriculture on Route 104 in northern and eastern Wayne County. Both routes 14 and 414 see a significant amount of traffic. This traffic comes through the village, and there has been a lot of wear and tear on the roadway.

- c. There have been several projects related to the movement of the region's apples in the last 6 months. There is also an uptick occurring with food processing. The Greater Rochester Enterprise has told IDAs that site selectors are looking for rail.
- d. The group discussed the Port of Lyons project. A geographic study has been completed and a feasibility study, which will include proposed costs, is underway. Companies see considerable energy savings by moving product by barge or rail. The canal may need to be dredged deeper to receive barges from the Port of Oswego. Another issue is the height of existing bridges over the canal. Both of these projects should be mentioned in the freight study.
- e. Wayne County has been trying to establish an Amtrak station in Lyons for several decades. CSX has an interest in keeping the class one rail line moving through the region and not slowing down freight.
- f. The CSX Corning secondary line is embargoed by Norfolk Southern. The freight plan should include the need to reestablish that north/south rail connection and put that line back in service. The preservation of existing rail corridors should be a central recommendation of this GTC freight study. In terms of a project, a logistics center that connects the Port of Lyons, CSX, Finger Lakes rail, and I-90 is needed.
- g. Wayne County is currently updating its strategic plan for economic development. The optics industry has a presence in Wayne County. There is also an alternative energy park and a growing sustainability park. The OMID line is used to move biodiesel.
- h. Congestion downstate is creating delays for Upstate New York. The Canadian border crossing is also an issue.
- i. Canal bridges with weight restrictions that impact freight movement are Canandaigua Road, East Avenue and the Quaker Road Bridge near Plyon in Macedon.
- j. Leech Road in Lyons sees a lot of traffic because it's the county seat. Trucks making left turns have problems.
- k. When NYS Route 104 was increased to four lanes from Monroe to Williamson, an extraordinary number of traffic lights were put up in Ontario. If you go through accident reports, there are numerous accidents between tractor trailers and cars related to left hand turns. This area is known as "death alley" by local papers.
- l. A good educational approach related to freight would be to show how milk or fruit moves from farm to market.
- m. Related to environment and community, landfills are a hot spot. Also the Route 21 truck impact the businesses in the downtown area and the area schools.
- n. Trucks aren't using Commercial GPS, which don't include height restrictions or truck routes. But regular GPS for cars and people.
- o. In Seneca County, there is a need to reroute 96 or 96A to bypass Waterloo/Seneca Falls.
- p. The rail line on the Seneca Depot has been used for storage. The combination of Route 96 on the east and rail on the west support the site redevelopment, but a tenant and

plan for redevelopment is needed before the infrastructure improvements are made.

The Depot is being used as a staging facility for chemicals and sand for Marcellus Shale.

- q. Priorities for federal funding related to freight movement in Wayne County and the Finger Lakes are:
- i. Reestablishing the north/south rail connection is the highest priority, because it lowers cost and creates economic potential.
 - ii. Increase mode share for rail and barge. Resolve truck traffic impacts related to landfills by switching to another mode.
 - iii. Logistics park/transload facility in Lyons to connect rail, road, farms
 - iv. Amtrak station in Lyons
 - v. Seneca Depot redevelopment
 - vi. A program that improves interchange opportunities with CSX would be helpful.

3. Next Steps

The four focus group meetings provided opportunities to talk with a lot of people. The consultant team will compile a list of needs from these meetings. We will come back to Steering Committee about priorities for the region in September/October. Before that, we'll be posting and distributing minutes from these meetings and continue this discussion.

Once the plan is finalized, the goal is to keep the connections between the business community and the planning process and inform changes to the long range plan and freight planning. We will be identifying people who want to be part of that conversation.

Transportation Strategies for the Freight and Goods Movement in the Genesee-Finger Lakes Region Public Meeting Summary

September 26, 2011

Rochester Public Library

Attendees: Tom Goodwin (Monroe County Planning), Erik Frisch (City of Rochester), Thomas Gregory Senior (resident of Monroe County), Deb Najarro (Ontario IDA), Dan O’Connell (Rochester Transportation Council), Patrick Herron (Rochester Transportation Council), John Lam (Reconnect Rochester), Andy Sterinton (resident)

Project Team: Mark Christian (NYSDOT), Rich Perrin (GTC), Jason Babcock-Stiner (Bergmann Associates), Tanya Zwahlen (Bergmann Associates), Frank Dolan (Bergmann Associates), Chris Lamm (Cambridge Systematics), Brian ten Siethoff (Cambridge Systematics)

1. Project Background

Brian ten Siethoff provided an overview of the project goals and objectives, the goals of the public meeting, and how freight planning is performed in the region.

2. Work Accomplished to Date

Brian ten Siethoff provided an overview of the work accomplished to date:

- a. Profile of the region’s economy and freight transportation system (available for review on GTC’s website)
- b. Strengths, weaknesses, opportunities and threats (SWOT) facing the region
- c. Initial assessment of freight transportation improvement needs
- d. Stakeholder outreach prior to the public meeting:
 - i. Three focus group meetings held in June in Batavia, Rochester, and Lyons, with a fourth focus group geared toward freight rail operators
 - ii. In-person interviews with 20 representative businesses around the region
 - iii. Online survey of major freight shippers and receivers

3. Remaining Work

The next steps of the project will be:

- a. Identify improvement alternatives (projects and policies) to address freight transportation needs
- b. Screen alternatives for “fatal flaws” and areas that need careful consideration in project design and implementation
- c. Evaluate alternatives against performance targets and consider benefits relative to costs
- d. Prioritize alternatives and determine which combination of capital improvements, operational strategies and policy changes will most cost-effectively help move the region toward its goals
- e. Develop practical implementation guidance for GTC, NYSDOT, other state and local governments, the private sector, non-government organizations, and community leaders

4. Questions and Comments

- a. Q: Current through traffic is substantial. How does the projected growth through the region impact freight planning? A: The transportation investments we make in the region should benefit this region and make it more attractive to the types of businesses that would increase exports (i.e. manufacturing). This project will look at how we can capture some of the value of freight that moves through the region today and is projected to move through the region in the future.
- b. Q: How well have external factors from the New York metropolitan area and other nearby markets been quantified? A: Regional freight studies have recently been conducted in New York City, Binghamton, Buffalo and the North Country. This study will consider external factors that impact the Genesee-Finger Lakes Region, including for example the delays at Canada-U.S. border crossings, while taking in the specific needs of this region. NYSDOT's role in this study is to provide statewide input and ensure that the plans are all coordinated.
- c. Q: The focus of this plan should be what we should do for these 9 counties. Our primary interest is jobs and industry. A: Agreed. The economic and freight profile was a first step in the process of defining the portions of the economy that depend on freight transportation, and we are now beginning the process of defining freight transportation improvements and related policy changes that can benefit these industries and make the region more competitive.
- d. Q: Will the federal government take this study into consideration with the next federal transportation bill? How much weight does this plan have? A: Most people are in agreement that regions need to plan for freight. GTC was ahead of the curve with the 2005 coordinated plan for human service transportation and accessed the federal funding for human service transportation as soon as it became available. GTC is taking the same approach for freight. We anticipate that the next Federal transportation bill will require states and regions to have freight plans in place in order to be eligible for Federal funding for freight transportation improvements.
- e. Q: Did you interview shippers? A: Yes, and they provided new ideas we had not thought of. They also shared their plans for growth.
- f. Q: We are not growing. What type of projects are we talking about? New highway interchanges? A: No, we're talking about how to commercialize and transport our life sciences and how to support other emerging industries. Agribusiness and food processing is another emerging industry that draws on the region's traditional strength in agriculture, and that has transportation needs that are different from the legacy industries that defined the region's economy in the last century.

5. Big ideas

- a. Q: Rochester is a regional partner with Oswego and Ontario. What is the region doing about water transportation to Canada? Can we reduce security constraints to make trade easier? A: Waterborne freight is a strong option to help facilitate trade between this region and Canada. We will analyze potential options to improve movement by water.
- b. Q: Could this plan be used to solicit private dollars? A: Yes. Establishing partnerships with industry will be key not only to funding and financing freight transportation improvements, but also to leverage available state and Federal dollars in an era of austerity. The Portage Bridge replacement is a potential project that could attract private dollars because it is on a freight rail line operated by a private firm.

- c. Q: Are there opportunities to use public goods and land to increase revenue? A: Yes, and there is a conversation taking place across the country about shared rights-of-way for transportation and other utilities, use of air rights above transportation facilities for development, and other joint development opportunities that may even generate continuous revenue streams to help fund transportation system operations.
- d. Q: How much construction of new infrastructure will be allowable even if the population expands? There is a public outcry against highway expansion. Is a three lane I-90 out of the question? That's my big idea because it's a more practical solution.
- e. Q: Is there any discussion about the overlapping the needs of freight and passenger rail? A: We are looking at freight specifically. We are balancing the needs of freight versus high speed rail. Both NYSDOT and CSX, the operator of the east-west rail line between Buffalo and Albany, are concerned about making improvements that can improve passenger rail service while preserving freight rail capacity for future growth.
- f. Q: Can you use the CSX West Shore Line for passenger rail? A: That line sees about 55 freight trains a day in addition to several Amtrak passenger trains each way. It's possible, but it's also possible that increasing passenger rail service on that line might impede freight movement or absorb capacity that could have been used for expanded freight rail service in the future.
- g. Q: Is there any talk about expanding the intermodal freight centers at Wegmans or Main/Atlantic? A: It's been studied a lot in the past. There is a lot of interest in the region for intermodal freight. You have to build a case from the private sector to get Class I rail operators interested in starting intermodal freight service in this region. There are concerns about crossing times from Canada. If there was an intermodal trailer-on-flatcar (TOFC) facility in Orleans County and clearance could take place on board the train (en route) rather than at a border, perhaps it could work. Short line rail operators could do local distribution. There are a lot of proposals about various alternatives to get trucks around bottlenecks. For example, rail shuttle or barge across the border. The right group of stakeholders could take this and figure out if a business case is there. We'd also need to look at what has changed since the last freight study.
- h. Q: There is value in the analysis you are doing. What can we do with it? Can we take it further with private sector involvement? A: Hard to make the case the public sector should finance all of these improvements, but we need to figure out what role each party should play. Federal government is vocal about improving freight transportation and setting up federal funds for financing improvements.
- i. Q: How hard would it be to get bridge clearance data into Google maps? A: There are licensing agreements and concerns about making bridge data available to the public. Perhaps we could post restricted bridge heights on Google Maps.

Transportation Strategies for the Freight and Goods Movement in the Genesee-Finger Lakes Region Public Meeting Summary
May 16, 2012 2:00-4:00PM and 6:00-8:00 PM
Rochester Plaza Hotel

Attendees: John Lam (Reconnect Rochester), Charles McGarry (NYSDOT), Ora Rothfus (Wayne County Planning)

Project Team: Rich Perrin (GTC), Jody Pollot, (GTC), Jason Babcock-Stiner (Bergmann Associates), Tanya Zwahlen (Bergmann Associates), Frank Dolan (Bergmann Associates), Chris Lamm (Cambridge Systematics), Brian ten Siethoff (Cambridge Systematics)

1. Project Background

Rich Perrin welcomed the meeting attendees. Brian ten Siethoff explained that the purpose of the public meeting was to (1) provide a project update, (2) review and obtain feedback on the evaluation and categorization of projects, strategies, and policies, (3) discuss the implementation of these recommendations, and (4) discuss the next steps for the project and stakeholder outreach.

2. Work Accomplished to Date

Beginning in 2011, the process has included (1) measuring and tracking system performance, (2) developing policies that guide planning and investment, (3) identifying and evaluating alternatives against goals and objectives, (4) and prioritizing alternatives. Section 5 of GTC's *Transportation Strategies for Freight and Goods Movement in the Genesee-Finger Lakes Region*, which is posted on the GTC web site, groups alternatives into near-term, medium-term, and long-term recommendations. The alternatives were also summarized on presentation boards at the public meeting.

Stakeholder outreach has included an initial Public Meeting in September 2011 to review the *Regional Freight and Economic Profile* as well as four focus groups in June 2011 with regional stakeholders and freight rail operators in Batavia, Rochester, and Lyons. The consultant team conducted in-person interviews with 20 representative businesses around the region and conducted an on-line survey of major freight shippers and receivers.

The process to identify projects and policies that will address freight transportation needs came out of this input from stakeholders, as well as a review of previous studies completed in the region and best practices from New York State and other metropolitan areas in the United States.

GTC, NYSDOT, and the consultant team screened the alternatives for "fatal flaws" and areas that need careful consideration in project design and implementation. The next step was to evaluate alternatives against performance targets and consider benefits relative to costs. Finally, the team prioritized alternatives and determined which combination of capital improvements, operational strategies, and policy changes will most cost-effectively help move the region toward its goals.

3. Categories of Recommendations

Brian summarized the recommendations:

- There are seven near-term recommendations which meet immediate needs, have benefits on a regional, state-wide, or national scale, and rank high on cost effectiveness
- There are 25 medium-term recommendations that may not be immediately ready to be implemented, but should be priorities for further planning and development.
- Finally, there are three long-term recommendations which are dependent on global business patterns and will require further planning and study.

Rich noted that the study is not a fiscally constrained plan and doesn't represent a commitment by agencies. Brian provided an overview of three representative projects as a way of highlighting the types of issues that were considered in developing the recommendations.

Ora Rothfus mentioned that the feasibility study regarding developing a freight village at the Lyons Industrial Park is recommending that the project be completed in phases. The Port of Oswego is interested in partnering with Lyons.

4. Guidance for Moving Forward

Brian discussed several implementation challenges, including: shortage of funding; balancing daily operations and maintenance needs against state-of-good-repair, normal replacement and capacity expansion needs; expanding participation in funding for freight improvements to involve a broader range of stakeholders; and how the region measures how well it's doing relative to the goals and desired outcomes. The next and final step of the project will be to develop practical implementation guidance for GTC, NYSDOT, other state and local governments, the private sector, non-government organizations, and community leaders.

5. Comments and Discussion

Charles McGarry stated that measuring the best investments will be challenging and will require a higher level of thinking and data analysis in order to understand the impacts of the alternatives we are implementing. Additionally, true public and private partnerships are not yet taking place in New York. Education will be needed to help businesses understand that the gas tax and tolls don't cover maintenance needs or new capacity. Can we make the argument that there are alternative measurements that capture value? How will they benefit the region? We need to figure out how to allocate those benefits and who should pay.

The group discussed how India and China invest a higher percentage of GDP into transportation, compared to the US and how this could lead to a shift in competitive advantage.

The group discussed how the Genesee Finger Lakes Region has capacity and access, but it may not be in the right place today for the needs of the businesses we have today. There is a lot of distributed activity spread across the region. There is also a burgeoning food processing industry and agriculture with need for capacity and access.

The region is a victim of its own success. Our roads and bridges look great. Agencies have done their job. However, there is a risk that the formulas and criteria for allocating maintenance funds among U.S. states and also among other regions within New York State could reward those states

and regions that have deferred maintenance and now have large state of good repair and normal replacement backlogs. This is not to say that this region should stop funding maintenance activities; instead, the region should closely watch developments in Congress around the reauthorization of the Federal Surface Transportation program and advocate at the Federal and state levels for results-based funding policies that consider the cost effectiveness of past and present decisions.

John Lam requested that the plan include bicycle routes, specifically on Route 5 and 20, to show which facilities are expected to be shared. Brian noted that the consultant team would include an overlay map. Rich noted that we might include off road trails as well.

6. Next Steps

The next steps are to revise the alternatives evaluation and complete the implementation guidance, and produce the final report. GTC will accept comments through June 6th. GTC will post the presentation boards from the public meeting on their web site.

Appendix E: Responses to Stakeholder Comments

The following tables summarize comments received by stakeholders who reviewed the Draft Identification, Evaluation, and Prioritization of Alternatives. Edits in the “Proposed Responses” column appear in Section 5 of the report.

Page/Section	Section	Comment	Proposed Response
5-3 (All)	All	This report takes a very broad compilation of issues and needs affecting freight transportation and economic development and creates a methodology that strives to prioritize diverse, disparate and sometime even contradictory objectives. The sum and substances of this effort could be nit-picked ad nauseam by various stakeholders but that would not be productive. This report provides a useful tool that documents a prioritized set of recommendations to improve freight transportation and economic competitiveness in the region. This is a needed map to help guide the decision making process for initiatives effecting freight and goods movement in the future. Each of these recommendations however will need to be more thoroughly vetted on an individual basis as they are presented for possible funding and implementation. The disclaimer on page 5-3 of the report therefore needs to be highlighted for emphasis to make this point clear, <i>“Inclusion on the list of alternatives is not necessarily an endorsement of the project by the Genesee Transportation Council, New York State Department of Transportation, or others. Likewise, stakeholders that proposed projects for consideration are not obligated to implement the projects. In addition, it should be recognized that this plan identifies solely freight-related improvements that will need to be considered in the context of the overall goals and objectives of GTC.”</i>	We will edit the document to make that disclaimer more prominent.
All	All	For many of these recommendations the study’s Steering Committee member agencies alone do not alone have the resources or the authority to carry them out but can lend support for them when consistent with their agencies internal policies, goals and objectives. The NYSDOT looks forward to working with fellow stakeholders in examining in greater detail the feasibility and warrants of these alternatives as future developments bring them to the forefront.	Thank you for your comment.

Page/Section	Section	Comment	Proposed Response
All	All	Thank you again for allowing me to offer this input. In general, I see the value of continuing this stakeholder input into the future, especially for the benefit of collaborating with Economic Development officials, Transportation Officials and the private sector companies that move freight so that the conversation can truly be "on the same page." I will be reporting back to RONY, and specifically the members that are affected here, that this final report is the result of a process analysis for prioritizing transportation projects (alternatives) and for fostering a new climate in which to create partnerships with local, state, and federal stakeholders. It is not a list of <u>funding</u> priorities, necessarily, since no one is really sure where funding is coming from on a regular basis. That is another study, I suppose, and another entirely different challenge. As my notes indicate, this report is to capture a list of projects in which the value of public-sector investments could help offset capital and operating costs while improving the efficiency, etc. of freight goods movement.	Thank you for your comment.
5-11 and throughout	All	I also want to make sure I understand that the more \$\$\$\$ the better the net reduction in total cost. In other words, one \$ means there is a large cost upfront and ongoing whereas 5 \$ means the cost benefit is better in that there is less cost upfront and less ongoing costs. I think I misunderstood this at the meeting. I will reference this a few times in my comments, again asking to clarify my comments based on the correct definition of the range. Thanks for bearing with me on that one.	We will revise the legend for the Cost criterion to make it consistent with other evaluation criteria: a one-dot to five-dot scale, with one dot being the lowest score (large up front costs and ongoing operating costs) and five dots being the highest score (lower up-front cost and lower ongoing costs).
5-12	5.1 Summary of Recommendations	Are Near Term recommendations listed in order of priority?	No, the numbers "NT-1, NT-2, etc." are for reference only and do not imply priority.
5-13	5.1 Summary of Recommendations	There is a similar focus in 3 & 4, with variance to size. #4 may be better differentiated by deleting "intermodal" and adding "transload." Intermodal refers to containers and trailers, transload can be that, or other packaged material going in to a warehouse for example	Thank you for the suggestion. We will add the concept of "transload" and "cross dock" to this discussion.
5-13	5.1 Summary of Recommendations	Add to item MT-6: "Encourage ownership and operation by a third party carrier which will introduce competition to the market"	Thank you for the suggestion. We will make that edit.
5-13	5.1 Summary of Recommendations	#8 ties in with Portage bridge. Connection to NS is near there	We will edit the text of recommendation MT-8 on page 5-37 to note that the RSR interchanges with NS near the Portage Bridge.
5-13	5.1 Summary of Recommendations	Is the Regional Right of Way Preservation Study a GTC study?	GTC was the lead agency on the study.

Page/Section	Section	Comment	Proposed Response
5-14	5.1 Summary of Recommendations	Regarding MT-14, recommending better information in navigation systems to alert truck drivers of clearance and weight restrictions: "There is software on the market that does all this but is cost prohibitive. \$1300 I hear."	We will revise the text of recommendation MT-14 to note that some commercially-available navigation systems already have some clearance and weight restriction information available. It could cost extra and be cost-prohibitive to some operators.
5-14	5.1 Summary of Recommendations	Regarding MT-22, Reduce delays associated with Canada-U.S. border crossings: "This may be a way to begin discussing FTZ in the region, as a way to speed up border inspections"	We will add text to Recommendations MT-22 and LT-1 noting that Foreign-Trade Zone designations for existing and planned industrial parks in the region could attract economic development to the region and help make cross-border truck, rail, and ferry trips more economically-viable.
5-19	NT-3 Portage Bridge	As noted, the shortline industry will benefit from [the Portage Bridge Replacement project]. However, Can there be a way to negotiate a tradeoff for public \$? For example, In exchange for support, and potentially for public \$, NS should give back to the state by reversing its abandonment proceedings on other sections of track and transfer those sections to state or local authority to lease to an operator.	The state is not engaged in a quid pro quo arrangement with respect to Portage bridge and the Corning Secondary. The Portage Bridge project stands on its own merits. The partnership formed between NS and NYSDOT on the Portage Bridge project hopefully will be a good start for future partnership opportunities like the Corning Secondary.
5-22	NT-5 Rail Access to Landfills	The cost factor should be higher if fewer trucks will be on roadways causing less costly damages.	The cost score considers both up-front capital costs (which may be moderate to high) and ongoing operations and maintenance costs. The score is a combination of both factors.

Page/Section	Section	Comment	Proposed Response
5-22	NT-5 Rail Access to Landfills	Future landfill siting or expansion policy should require rail options for landfills. No new landfill development should take place without this option.	Agreed. Any major freight generator could benefit by being located near rail. Local governments in the region have encouraged landfills to locate in locations with good multimodal freight access, but there are many other considerations (including impacts on natural resources and existing communities) that also may influence the siting of a landfill.
5-22	NT-5 Rail Access to Landfills	Landfills may score low on the mitigation scale, but switching to rail should score higher in mitigation.	Mitigation is felt in a specific part of the region, rather than region-wide. Also, there is a risk in some cases that a switch from truck to rail could impact rail-adjacent properties.
5-28	MT-2 Increasing Allowable Truck Weights and Lengths on Area Roadways	Efficiency [score] should also be less since tractors will be consuming more fuel to start and haul up hills with heavier loads	Thank you for your comment. We have made edits to this section to recommend a study comparing the tradeoffs of allowing longer and/or heavier trucks against the benefits.
5-28	MT-2 Increasing Allowable Truck Weights and Lengths on Area Roadways	Again, based on the criteria this should be one \$ to emphasize the costs associated with heavier trucks on existing road structures	Thank you for your comment. We have made edits to this section to recommend a study comparing the tradeoffs of allowing longer and/or heavier trucks against the benefits.
5-28	MT-2 Increasing Allowable Truck Weights and Lengths on Area Roadways	I believe this is a fallacy of logic. It may take fewer drivers to move the same amount of product, but it really means the same amount of drivers will move twice as much product. In short, there will still be congestion; it will just be from bigger trucks.	Thank you for your comment. We have made edits to this section to recommend a study comparing the tradeoffs of allowing longer and/or heavier trucks against the benefits.
5-28	MT-2 Increasing Allowable Truck Weights and Lengths on Area Roadways	Goods that are valuable and within the weight limits should go by truck. Heavy goods and bulk items should consider rail, especially if it is going to be a regular routing.	Thank you for your comment. We have made edits to this section to recommend a study comparing the tradeoffs of allowing longer and/or heavier trucks against the benefits.

Page/Section	Section	Comment	Proposed Response
5-28	MT-2 Increasing Allowable Truck Weights and Lengths on Area Roadways	If any accommodation for this initiative is taken, expanding lots would be the least costly and would restrict movement in tandem to the thruway only. If that is where the infrastructure can handle it, and they are paying for it, then that is where they should be.	Thank you for your comment. We have made edits to this section to recommend a study comparing the tradeoffs of allowing longer and/or heavier trucks against the benefits.
5-28	MT-2 Increasing Allowable Truck Weights and Lengths on Area Roadways	This initiative also creates an unequal bias in favor of truck modes. Alternatives here are suggesting rebuilding roads and turning radius to accommodate these trucks on specific roadways, but the upfront cost and ongoing maintenance will never be recouped from the private industry that is benefitting from this marketing and delivery convenience. Meanwhile, all other modes pay heavily for their infrastructure improvements, upfront, not down the road in the form of marginal fees.	NYS DOT would expect to share any additional maintenance costs associated with heavier or longer vehicles with the businesses and local governments that benefit from the productivity gains afforded by these changes.
5-32	MT-4 Bulk and Intermodal Transfer Facilities on Short-Line Railroads	Again, interchanging the work Intermodal where you mean freight transfer from rail cars designed to transfer material via differential, dump, vacuum, etc. is misleading	Thank you for the suggestion. We will make edits to clarify that MT-4 is focused on local facilities.
5-32	MT-4 Bulk and Intermodal Transfer Facilities on Short-Line Railroads	<i>Referring to the sentence: "Smaller-scale intermodal container transfer facilities that handle irregular shipments or small numbers of containers also can be more efficiently operated by short-line railroads than by Class I rail companies."</i> This could be addresses as industry-specific, i.e. MSW could come in intermodal containers and would need special terminal facilities to handle the transfer	We will address the issue of smaller industry-specific transload and intermodal facilities in recommendation MT-5.
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	This is referred to as former NS in the previous MT-5.	Given that the line has not yet been abandoned, we will change the text in MT-5 to remove "former"
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	<i>Referring to the sentence: "The Finger Lakes Railway also has trackage rights over this line."</i> had trackage rights until 2009 when it was taken out of service	Thank you for the clarification. We will make that edit.
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	Clarify that NS has not formally filed for abandonment	Thank you for the clarification. We will clarify that NS has not yet filed for abandonment.
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	<i>Referring to the sentence "The line is in a state of good repair and double tracked for approximately 1.8 miles."</i> Part of the double track belongs to CSX at interchange	Thank you for the clarification. We will make that edit to clarify that CSX owns a portion of the double track.
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	Referring to the sentence: "The project would preserve competition and the accompanying cost advantages available to customers of short line railroads that interchange with Class I rail on the CSX main line." ...available to local and regional shippers by reducing the	Thank you for the clarification. We will make that edit to recommendation MT-6.

Page/Section	Section	Comment	Proposed Response
		amount of additional miles freight must now travel to interchange with CSX, particularly freight that travels to and from the west.	
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	This line is important to the overall freight network of NYS and for all freight rail corridors. If abandoned, the above mentioned freight village would not have a viable rail option and the cost of additional miles will eventually catch up to both freight hauler and shippers, which will increase the price of movement.	Thank you for the clarification. We will make that edit to recommendation MT-6.
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	The mitigation number should be increased to four dots to match the two projects, MT-5 and MT-7 which benefit directly from this line being in service by a third party carrier. This is supported by the fact that traffic from the region must currently travel an additional 380 miles if going to or coming from the west. These miles would be reduced if this line was active, thereby reducing fuel consumption and days in transit if the GL line was open.	Thank you for the suggestion. We will edit the Mitigation score accordingly.
5-35	MT-6 Norfolk Southern's Corning Secondary Line between Geneva and Lyons	In 2009, the last year of use of this line by FGLK, they handled 5600 carloads annually that were routed to and from the west via CSX. All those carloads have continued shipping with the additional 380 mile trek to interchange with CSX in Solvay, only to continue to Selkirk for classification before heading west to Willard OHIO for further delivery.	Thank you for the clarification. In the text of the document, we have emphasized that by preserving service on the rail line, shippers in the region may benefit from increased competition because they will have two Class I rail firms competing for customers. It is unclear that preserving service on the line would solve the operational issues mentioned.
5-36	MT-7 Seneca Army Depot Industrial Rail Facility	This project was developed to serve the west side of the depot. The Ag Park is on the east side. Another 2-4 miles of track would need upgrade to serve the Depot for 286.	Thank you for the clarification. We have limited the scope of the recommendation to the information contained in the application submitted by Seneca County IDA.
5-36	MT-7 Seneca Army Depot Industrial Rail Facility	<i>Referring to the "Jobs" score:</i> This might be more accurate at 3 dots for Jobs. 400 rail cars = one rail job	Thank you for the clarification. We have changed the Jobs score from four dots to three dots.
5-36	MT-7 Seneca Army Depot Industrial Rail Facility	<i>Referring to the sentence:</i> "The cost of the project is estimated to be \$826,416." This cost will be higher to accommodate 286 for all potential freight locations in the base	Thank you for the clarification. We have limited the scope of the recommendation to the information contained in the application submitted by Seneca County IDA.

Page/Section	Section	Comment	Proposed Response
5-39	MT-10 Regional Right of Way Preservation	<i>Referring to the "town of Macedon" referred to in this sentence: "Preserve 5.7 miles of the Lehigh Valley RR Hemlock Line right of way between the Town of Macedon ("Rochester Junction" near Plains Road) and the Livonia Town Line for future freight rail service. (Towns of Lima and Mendon; Village of Honeoye Falls)." This town reference is incorrect. Is it Honeoye Falls?</i>	The reference should be to the Town of Mendon. We will edit the text accordingly.
5-40	MT-10 Regional Right of Way Preservation	<i>Referring to this sentence: "Preserve the first 3.6 miles of somewhat intact rail right of way on the Lehigh Valley Railroad Naples Line west of the City of Geneva (North Genesee Street) for future freight rail service. (City of Geneva and Towns of Geneva and Seneca)" This line could serve two competing gravel pits.</i>	Thank you for the suggestion. We will insert that note.
5-48	MT-18 Managing the Transportation Impacts of Marcellus Shale Natural Gas Drilling.	<i>Referring to the sentence: "This strategy focuses on determining the effects that Marcellus Shale drilling operations have on local roadways and communities and exploring the creation of potential policies to mitigate these impacts." Send invite for May 8 symposiums on local traffic laws. Local towns are also actively working on understanding what their options are for controlling this type of traffic.</i>	Thank you for the suggestion. We will make that edit.
5-53	MT-21 Assist Local Shippers and Carriers in Securing Low-Interest Loans and Grants to Mitigate Emissions Impacts and Reduce Fuel Consumption	<i>Referring to Cost score: I would think this could be more \$\$\$...</i>	Thank you for your comment. These improvements are low-cost and have moderate benefits on a regional, aggregate level.
5-56	MT-24 Improve the Efficiency and Lower Costs Associated with Interchanges of Rail Cars between Rail Operators.	<i>Referring to first paragraph: A trade off if you will, cooperation and competition in exchange for better infrastructure.</i>	Thank you for your comment.
5-56	MT-24 Improve the Efficiency and Lower Costs Associated with Interchanges of Rail Cars between Rail Operators.	<i>Interfering with interstate commerce would be one sensitive item in this topic. Class 1s rule the interchanges and have a variety of ways to interface with shortlines. I like this idea of gentle pressure on the Class 1s in exchange for better infrastructure and the money to help build it.</i>	Thank you for your comment.
5-59	LT-1 To Facilitate Trade with Canada, Explore Options to Move Freight across the Border by Non-Highway Modes	<i>Referring to the sentence: "Between those two regions and the G-FL Region, about 1.6 million tons of intermodal commodities currently travel by truck and 161,000 tons travel by rail (see Table 5.2)." If there was a way to bring both trailer/container and driver on what could be a quicker rail shuttle, the trucking industry would not have to incur another logistics cost on the other side of the border by hiring another driver.</i>	Thank you for the suggestion. We will add that note.

Page/Section	Section	Comment	Proposed Response
5-37	MT-8 Rochester & Southern Railroad (RSR) Line Capacity and Operational Improvements	The Department of Aviation asks that on page 5-37 the project MT-8; second line above Table 1. Change Monroe County Airport to "Greater Rochester International Airport".	Thank you for the clarification. We will make that edit.
5-12	5.1 Summary of Recommendations	<i>Regarding project NT-1:</i> Disagree that little design work involved in increasing clearances or weight limits on structures.	Agreed. We will alter the language in the first paragraph.
5-13	5.1 Summary of Recommendations	<i>Regarding project MT-9:</i> some bridges being removed along the corridor. Does this compromise preservation of the corridor?	The project to remove the bridge in Brockport was announced after this was written. We will make the change to the recommendation.
5-14	5.1 Summary of Recommendations	<i>Regarding project MT-18:</i> There will be impacts to local roads.	Thank you for your comment. We will make the potential for impacts to town and county roads more explicit in the text.
5-14	5.1 Summary of Recommendations	<i>Regarding project MT-22:</i> How, more lanes?	A combination of capacity and operational improvements will most likely be necessary. The text of the recommendation has more detail.
5-14	5.1 Summary of Recommendations	<i>Regarding project MT-23:</i> Same could go for 590 too.	Thank you for the suggestion. The proposal to change the designation of NYS Route 390 to I-390 was made by the Greater Rochester Enterprise based on the NYS Route designation being a hindrance to having industrial and commercial properties on the west side of Monroe County fully considered by national site selection consultants. There are no developable sites within a mile of NY-590 north of I-490, so this recommendation is less applicable on the east side of Rochester.
5-16	NT-1 Low-Clearance Bridges	Referring to "Cost" score: Not the same scale as described on page 5-11. Proposed using same dot method as other categories.	We will revise the legend for the Cost criterion to make it consistent with other evaluation criteria: a one-dot to five-dot scale, with one dot being the lowest score (large upfront costs and ongoing

Page/Section	Section	Comment	Proposed Response
			operating costs) and five dots being the highest score (lower up-front cost and lower ongoing costs).
5-17	NT-1 Low-Clearance Bridges	<i>Referring to the sentence: "In addition to these specific examples, there are 62 additional height- and/or weight-restricted bridges on state-maintained roadways in the region, not including railroad bridges."</i> and local roads?	We only have complete data on state-owned roadways.
5-18	NT-1 Low-Clearance Bridges	Some reasons for these structures being hit is insufficient GPS info and drivers are not looking at or disregarding height signs	Thank you for your comment.
5-19	NT-1 Low-Clearance Bridges	Baird Rd. & Marsh Rd both have had issues with being hit. Are these included in 62? (Baird Rd - LiDestri) (Marsh Rd - various, Wegmans, car dealership, etc.)	Local bridges are not included in the 62.
5-38	MT-9 Re-instate rail service along the former Falls Road Branch rail corridor between Brockport and Rochester	[Is re-instating service] still feasible with bridge removal [at Spencerport]?	We will clarify in the text that re-instating service is now much more difficult due to the bridge removal.
5-42	MT-12 S Curve son I-490	incident management issue as well	Thank you for the suggestion. We will add incident management to the recommendation.
5-48	MT-18 Managing the Transportation Impacts of Marcellus Shale Natural Gas Drilling	<i>Referring to first two bullets under "mitigation and regulatory options to address impacts could include the following":</i> County approvals needed as well	Thank you for the suggestion. We will clarify that county approvals are needed.
5-52	MT-20 Where Suitable Alternate Routes Do Not Exist, Explore the Feasibility of Constructing New Truck Bypasses around Village Centers and Concentrations of Sensitive Receptors	<i>Referring to Cost score:</i> Maybe more like 2 or 1. Expensive option.	Thank you for the suggestion. We will change the cost score to low cost effectiveness.

Page/Section	Section	Comment	Proposed Response
5-55	MT-23 Change the Designation of "New York State Routes 390 and 590" to "Interstate Highway 390 and Interstate Highway 590" North of Their Respective I-490 Interchanges	<i>Referring to the sentence: "New York State Route 390 on the west side of Monroe County could be extended as I-390 to the north terminating at New York State Route 18 Latta Road in the Town of Greece." Why not LOSP? (Due to no commercial traffic on LOSP?)</i>	Correct. No commercial traffic is permitted on the LOSP which would not allow it to be a terminus for a roadway classified as a Principal Arterial-Interstate..
5-55	MT-23 Change the Designation of "New York State Routes 390 and 590" to "Interstate Highway 390 and Interstate Highway 590" North of Their Respective I-490 Interchanges	<i>Referring to the sentence: "New York State Route 590 on the east side of the County could be extended to New York State Route 104 in the Town of Irondequoit." Why not to Titus Ave?</i>	Thank you for the suggestion. The proposal to change the designation of NYS Route 390 to I-390 was made by the Greater Rochester Enterprise based on the NYS Route designation being a hindrance to having industrial and commercial properties on the west side of Monroe County fully considered by national site selection consultants. There are no developable sites within a mile of NY-590 north of I-490, so this recommendation is less applicable on the east side of Rochester.
5-21	NT-4 Improve Access to Regional Priority Economic Development Sites	Dansville Business Park should really be Dansville Industrial Park. The Airport Master Plan (which I believe to be the source) has the incorrect name for the site.	Thank you for the clarification. We will change "Dansville Business Park" to "Dansville Industrial Park."
5-38	MT-8 Rochester & Southern Railroad (RSR) Line Capacity and Operational Improvements	Rail improvements: I checked the State Rail Plan to see if there were any improvements identified for the G&W Railroad (RSR) between Groveland and Dansville. I didn't see anything (but that doesn't necessarily mean anything).	There are no improvements identified to that stretch of track in the NY State Rail Plan.
5-20	NT-4 Improve Access to Regional Priority Economic Development Sites	Add Caledonia Industrial Development Area	We will add the recommendation to NT-4

Appendix F: Data Sources

This appendix summarizes the two primary datasets used to analyze the Genesee-Finger Lakes Region's freight traffic: Global Insight's TRANSEARCH and the STB Waybill Carload Sample.

Global Insight TRANSEARCH

TRANSEARCH is a privately maintained comprehensive market research database for intercity freight traffic flows compiled by Global Insight, formerly Reebie Associates. The database includes information describing commodities (by Standard Transportation Commodity Classification (STCC) code), tonnage, origin and destination markets, and mode of transport. Data are obtained from Federal, state, provincial agencies, trade and industry groups, and a sample of motor carriers. Forecasts of commodity flows for up to 25 years also are available.

TRANSEARCH data are generally accepted as the best available commodity flow data and are commonly used by states, metropolitan planning organizations (MPO), and FHWA in conducting freight planning activities. However, it should be noted that there are some limitations to how these data should be used and interpreted:

- **Mode Limitations** – The Rail Waybill data used in TRANSEARCH are based on data collected by Class I railroads. The waybill data contain some information for regional and short-line railroads, but only in regards to interline service associated with a Class I railroad.
- **Use of Multiple Data Sources** – TRANSEARCH consists of a national database built from company-specific data and other available databases. To customize the dataset for a given region and project, local and regional data sources are often incorporated. This incorporation requires the development of assumptions that sometimes compromise the accuracy of the resulting database. Different data sources use different classifications; most economic forecasts are based on SIC codes while commodity data are organized by STCC codes. These conversions can sometimes lead to some data being miscategorized or left unreported.
- **Data Collection and Reporting** – The level of detail provided from some specific companies when reporting their freight shipment activities limits the accuracy of TRANSEARCH. If a shipper moves a shipment intermodally, for example, one mode must be identified as the primary method of movement. Suppose three companies make shipments from the Midwest United States to Europe using rail to New York then water to Europe. One company may report the shipment as simply a rail move from the Midwest to New York; another may report it as a water move from New York to Europe; the third may report the shipment as an intermodal move from the Midwest to Europe with rail as the primary mode. The various ways in which companies report their freight shipments can limit the accuracy of TRANSEARCH.
- **Limitations of International Movements** – TRANSEARCH does not report international air shipments through the regional gateways. Additionally, specific origin and destination information is not available for overseas waterborne traffic through marine ports. Overseas

ports are not identified and TRANSEARCH estimates the domestic distribution of maritime imports and exports. TRANSEARCH data also does not completely report international petroleum and oil imports through marine ports. Finally, TRANSEARCH assigns commodity data only to the truck, rail, air, and water modes, though a large percentage of foreign imports (by weight) consist of oil and petroleum products – commodities that are frequently shipped via pipeline to storage and distribution points.

Surface Transportation Board’s Carload Waybill Sample

The Carload Waybill Sample (Waybill Sample) is a stratified sample of carload waybills for terminated shipments by rail carriers. A waybill is a document issued by a carrier giving details and instructions relating to the shipment of a consignment of goods. Typically, it will show the names of the consignor and consignee; the point of origin of the consignment; its destination, route, and method of shipment; and the amount charged for carriage.

Railroads may file waybill sample information by using either: 1) authenticated copies of a sample of audited revenue waybills (the manual system); or 2) a computer-generated sample containing specified information (the computerized system or MRI). The waybill submissions from these two methods are combined in a 900 byte Master Record File containing a movement-specific Confidential Waybill File and a less detailed Public Use Waybill File. The content of waybill requests are described in 49 CFR 1244.9.

The Waybill Sample is a continuous sample that is released in yearly segments. For the past several years, the sample has contained information on approximately 600,000 movements. It includes waybill information from Class I, Class II, and some of the Class III railroads. The STB requires that these railroads submit waybill samples if, in any of the three preceding years, they terminated on their lines at least 4,500 revenue carloads. The Waybill Sample currently encompasses over 99 percent of all U.S. rail traffic.

Data from the Waybill Sample are used as input to many STB projects, analyses, and studies. Federal agencies (Department of Transportation, U.S. Department of Agriculture, etc.) use the Waybill Sample as part of their information base. The Waybill Sample also is used by states as a major source of information for developing state transportation plans. In addition, nongovernment groups seek access to waybill sample data for such uses as market surveys, development of verified statements in STB and state formal proceedings, forecast of rail equipment requirements, economic analysis and forecasts, academic research, etc.

Appendix G: Detailed Commodity Flow Tables

The following tables present detailed commodity flow data for the Genesee-Finger Lakes Region, extracted from the IHS/Global Insight TRANSEARCH database, under license by the New York State Department of Transportation.

Table G.1 Tons of Commodities Shipped by Mode, All Directions, 2010

STCC2 Code	Commodity Description	2010 Truck	2010 Rail	2010 Air	2010 Water	2010 Other	2010 Total Tons
1	Farm	8,176,726	2,699,486	34,178	45,893	11,879	10,968,162
8	Forest	2,551	61	38	0	20	2,670
9	Fish or Marine	13,693	25,159	548	0	3	39,404
10	Metallic Ores	2,157,549	249,554	85	3,591,392	244	5,998,824
11	Coal	302,624	2,404,975	0	855,916	98,273	3,661,787
13	Crude Petroleum or Natural Gas	230,225	429,110	175,265	0	23,099,158	23,933,758
14	Non-metallic Minerals	12,356,878	1,908,810	32,968	3,322,588	105,219	17,726,464
19	Ordinance or Accessories	9,123	12,607	341	1	15	22,086
20	Food or Kindred	26,808,416	3,876,340	20,919	227	21,022	30,726,925
21	Tobacco	3,739	889	2	0	1	4,632
22	Textile Mill	299,044	40,065	1,282	1	427	340,820
23	Apparel	479,145	191,907	3,737	1	178	674,967
24	Lumber or Wood	6,173,787	1,272,020	1,109	17,677	119,626	7,584,218
25	Furniture or Fixtures	556,897	35,676	2,579	20	285	595,456
26	Pulp, Paper or Allied	7,890,486	2,112,093	96,418	740	347,337	10,447,073
27	Printed Matter	1,424,409	36,671	12,557	3	2,075	1,475,716
28	Chemicals or Allied	18,254,173	6,340,884	81,685	566,392	279,958	25,523,093
29	Petroleum or Coal	7,904,795	1,080,409	506	7,409,031	2,702,598	19,097,339
30	Rubber or Plastics	2,543,874	24,009	9,865	52	2,313	2,580,112
31	Leather	179,944	3,325	475	0	75	183,819
32	Clay, Concrete, Glass or Stone	21,172,105	839,454	19,006	138,527	22,770	22,191,861
33	Primary Metal	7,822,464	885,058	10,927	703,058	84,307	9,505,814
34	Fabricated Metal	4,934,019	32,588	43,787	186	2,668	5,013,248
35	Machinery Excl. Electrical	3,408,158	37,375	91,161	723	2,189,170	5,726,587
36	Electrical Mach, Equip or Supp	1,762,909	55,531	63,773	120,546	47,292	2,050,051
37	Transportation Equipment	4,571,808	1,598,469	87,214	833	9,521	6,267,844
38	Instr., Optical, Watches, Clocks	973,262	2,932	40,862	8	730	1,017,794
39	Miscellaneous Manufacturing	1,100,675	35,389	55,466	26	6,256	1,197,813
40	Waste or Scrap Materials	1,685,958	1,818,389	1,669	626,042	74,198	4,206,256
41	Miscellaneous Shipping	377	18,460	44	0	1	18,883
42	Shipping Containers	0	223,254	0	0	0	223,254
43	Mail	0	21,124	40,033	0	0	61,156
44	Freight Forwarder	0	13,527	0	0	0	13,527
45	Shipper Association	0	22,732	0	0	0	22,732
46	Freight All Kind	0	2,877,415	12,064	0	0	2,889,479
47	Small Package	0	2,865	0	0	0	2,865
48	Hazardous Waste	0	65,269	0	0	0	65,269
49	Hazardous Materials	592,591	0	144	0	2,208	594,942
50	Secondary Moves	59,260,008	0	0	0	0	59,260,008

Table G.2 Tons of Commodities Shipped by Mode, All Directions, 2035

STCC2 Code	Commodity Description	2035 Truck	2035 Rail	2035 Air	2035 Water	2035 Other	Total Tons 2035
1	Farm	20,115,876	4,340,255	75,459	51,608	13,164	24,596,362
8	Forest	5,925	115	101	0	46	6,187
9	Fish or Marine	20,637	53,101	564	0	11	74,313
10	Metallic Ores	1,904,923	221,968	141	4,441,418	267	6,568,717
11	Coal	110,935	1,322,488	0	1,003,836	115,256	2,552,515
13	Crude Petroleum or Natural Gas	323,073	727,500	214,251	0	28,244,072	29,508,896
14	Non-metallic Minerals	17,320,395	2,611,576	70,540	7,400,738	140,482	27,543,730
19	Ordinance or Accessories	17,329	30,901	844	3	18	49,094
20	Food or Kindred	45,806,532	6,426,460	49,424	463	41,114	52,323,994
21	Tobacco	1,993	559	3	0	1	2,555
22	Textile Mill	430,495	80,903	1,985	2	793	514,178
23	Apparel	610,877	248,647	5,882	1	368	865,777
24	Lumber or Wood	8,391,023	1,816,870	2,082	28,312	131,534	10,369,821
25	Furniture or Fixtures	1,030,966	59,173	6,988	56	741	1,097,924
26	Pulp, Paper or Allied	13,472,632	2,384,264	240,871	1,172	817,334	16,916,273
27	Printed Matter	1,389,010	12,628	34,396	12	6,565	1,442,611
28	Chemicals or Allied	32,451,120	11,458,354	234,232	1,057,719	598,730	45,800,154
29	Petroleum or Coal	9,496,282	2,003,577	812	9,842,439	3,574,306	24,917,415
30	Rubber or Plastics	5,291,643	42,771	26,289	143	6,236	5,367,084
31	Leather	290,986	2,306	772	0	148	294,212
32	Clay, Concrete, Glass or Stone	24,648,090	1,423,561	31,618	217,206	38,018	26,358,494
33	Primary Metal	11,123,485	1,392,625	19,747	1,214,398	198,640	13,948,895
34	Fabricated Metal	6,680,319	38,790	98,620	329	5,046	6,823,105
35	Machinery Excl. Electrical	6,748,924	47,424	223,355	1,747	5,762,065	12,783,515
36	Electrical Mach, Equip or Supp	3,656,666	100,395	111,485	345,600	135,374	4,349,519
37	Transportation Equipment	7,146,395	1,895,952	133,465	1,406	19,889	9,197,107
38	Instr., Optical, Watches, Clocks	3,391,638	13,291	57,024	9	783	3,462,745
39	Miscellaneous Manufacturing	2,126,947	88,277	144,328	25	11,831	2,371,408
40	Waste or Scrap Materials	2,680,135	2,573,271	2,653	873,952	117,952	6,247,963
41	Miscellaneous Shipping	391	39,215	67	0	2	39,675
42	Shipping Containers	0	401,846	0	0	0	401,846
43	Mail	0	48,433	94,137	0	0	142,570
44	Freight Forwarder	0	27,536	0	0	0	27,536
45	Shipper Association	0	44,227	0	0	0	44,227
46	Freight All Kind	0	5,611,032	26,929	0	0	5,637,961
47	Small Package	0	4,811	0	0	0	4,811
48	Hazardous Waste	0	69,693	0	0	0	69,693
49	Hazardous Materials	1,801,753	0	406	0	6,570	1,808,729
50	Secondary Moves	115,691,347	0	0	0	0	115,691,347

Table G.3 Tons of Commodities Shipped by Mode, Inbound, 2010

STCC2 Code	Commodity Description	2010 Truck	2010 Rail	2010 Air	2010 Water	2010 Other	Total Tons 2010
1	Farm	1,016,918	185,906	163	0	0	1,202,987
8	Forest	25	0	0	0	0	25
9	Fish or Marine	1,812	0	225	0	0	2,037
10	Metallic Ores	257,537	0	0	0	0	257,537
11	Coal	242,271	1,950,865	0	0	0	2,193,135
13	Crude Petroleum or Natural Gas	21,308	11,002	0	0	2,637,577	2,669,887
14	Non-metallic Minerals	859,227	124,912	0	12,213	0	996,353
19	Ordinance or Accessories	174	0	0	0	0	174
20	Food or Kindred	4,983,954	427,628	20	0	0	5,411,602
21	Tobacco	3,332	365	0	0	0	3,697
22	Textile Mill	45,342	11	3	0	0	45,356
23	Apparel	102,326	0	547	0	0	102,873
24	Lumber or Wood	1,009,798	22,320	0	0	0	1,032,118
25	Furniture or Fixtures	115,306	19	20	0	0	115,345
26	Pulp, Paper or Allied	1,107,961	85,462	342	0	0	1,193,764
27	Printed Matter	247,138	147	769	0	0	248,054
28	Chemicals or Allied	3,657,250	474,276	2,829	0	0	4,134,355
29	Petroleum or Coal	1,305,881	97,714	2	0	49	1,403,647
30	Rubber or Plastics	443,025	25	502	0	0	443,552
31	Leather	1,873	0	9	0	0	1,882
32	Clay, Concrete, Glass or Stone	4,382,250	97,460	6	0	0	4,479,716
33	Primary Metal	1,672,306	5,599	20	1,960	0	1,679,885
34	Fabricated Metal	706,183	341	2,039	0	0	708,563
35	Machinery Excl. Electrical	336,553	4	3,634	0	0	340,191
36	Electrical Mach, Equip or Supp	268,767	0	1,343	0	0	270,110
37	Transportation Equipment	941,970	5,769	4,842	0	323	952,903
38	Instr., Optical, Watches, Clocks	46,256	203	873	0	0	47,333
39	Miscellaneous Manufacturing	88,331	65	37	0	0	88,434
40	Waste or Scrap Materials	37,890	352	0	0	0	38,242
42	Shipping Containers	0	0	0	0	0	0
43	Mail	0	0	14,060	0	0	14,060
46	Freight All Kind	0	0	8,350	0	0	8,350
49	Hazardous Materials	39	0	0	0	0	39
50	Secondary Moves	9,980,105	0	0	0	0	9,980,105

Table G.4 Tons of Commodities Shipped by Mode, Inbound, 2035

STCC2 Code	Commodity Description	2035 Truck	2035 Rail	2035 Air	2035 Water	2035 Other	Total Tons 2035
1	Farm	2,695,238	212,755	282	0	0	2,908,275
8	Forest	44	0	0	0	0	44
9	Fish or Marine	2,389	0	86	0	0	2,476
10	Metallic Ores	227,643	0	0	0	0	227,643
11	Coal	48,705	1,009,138	0	0	0	1,057,843
13	Crude Petroleum or Natural Gas	82,590	42,789	0	0	3,219,679	3,345,059
14	Non-metallic Minerals	494,494	111,387	0	24,376	0	630,256
19	Ordnance or Accessories	343	0	0	0	0	343
20	Food or Kindred	8,614,803	881,943	48	0	0	9,496,794
21	Tobacco	1,699	403	0	0	0	2,102
22	Textile Mill	48,363	16	2	0	0	48,381
23	Apparel	106,035	0	1,028	0	0	107,064
24	Lumber or Wood	1,141,759	14,159	0	0	0	1,155,919
25	Furniture or Fixtures	115,349	32	31	0	0	115,411
26	Pulp, Paper or Allied	1,688,409	133,668	1,004	0	0	1,823,081
27	Printed Matter	158,760	100	417	0	0	159,276
28	Chemicals or Allied	5,229,290	664,738	5,444	0	0	5,899,472
29	Petroleum or Coal	1,223,816	113,272	1	0	70	1,337,160
30	Rubber or Plastics	543,035	55	739	0	0	543,830
31	Leather	2,032	0	12	0	0	2,045
32	Clay, Concrete, Glass or Stone	4,076,483	136,215	11	0	0	4,212,709
33	Primary Metal	2,262,871	7,561	28	2,548	0	2,273,007
34	Fabricated Metal	679,717	730	1,376	0	0	681,823
35	Machinery Excl. Electrical	415,089	4	5,857	0	0	420,951
36	Electrical Mach, Equip or Supp	349,687	0	3,301	0	0	352,988
37	Transportation Equipment	1,216,541	4,608	4,335	0	348	1,225,832
38	Instr., Optical, Watches, Clocks	233,688	391	5,183	0	0	239,262
39	Miscellaneous Manufacturing	155,506	54	67	0	0	155,628
40	Waste or Scrap Materials	60,233	560	0	0	0	60,792
42	Shipping Containers	0	0	0	0	0	0
43	Mail	0	0	40,081	0	0	40,081
46	Freight All Kind	0	0	20,592	0	0	20,592
49	Hazardous Materials	71	0	0	0	0	71
50	Secondary Moves	18,754,143	0	0	0	0	18,754,143

Table G.5 Tons of Commodities Shipped by Mode, Outbound, 2010

STCC2 Code	Commodity Description	2010 Truck	2010 Rail	2010 Air	2010 Water	2010 Other	Total Tons 2010
1	Farm	2,292,334	37,686	4	16	564	2,330,603
8	Forest	56	0	3	0	0	58
9	Fish or Marine	85	0	0	0	0	85
10	Metallic Ores	0	14,849	0	0	0	14,849
11	Coal	126	0	0	0	0	126
13	Crude Petroleum or Natural Gas	25	0	0	0	2,740	2,764
14	Non-metallic Minerals	2,275,028	1,232,694	3,067	1,103	1,038	3,512,929
19	Ordinance or Accessories	125	0	3	0	0	129
20	Food or Kindred	5,199,214	10,077	20	0	1,357	5,210,668
21	Tobacco	0	0	0	0	0	0
22	Textile Mill	9,619	0	153	0	0	9,772
23	Apparel	40,794	1	732	0	0	41,527
24	Lumber or Wood	581,559	7,063	0	0	10,818	599,440
25	Furniture or Fixtures	18,589	0	0	0	0	18,589
26	Pulp, Paper or Allied	686,552	3,750	0	0	9,698	700,000
27	Printed Matter	355,709	0	911	0	53	356,674
28	Chemicals or Allied	2,326,767	64,878	9,810	685	8,916	2,411,056
29	Petroleum or Coal	142,049	54	2	9,400	1,755	153,259
30	Rubber or Plastics	427,701	185	802	0	45	428,733
31	Leather	63,697	0	17	0	0	63,715
32	Clay, Concrete, Glass or Stone	4,641,025	8	189	0	881	4,642,103
33	Primary Metal	428,088	710	0	0	801	429,599
34	Fabricated Metal	1,112,584	44	90	0	39	1,112,758
35	Machinery Excl. Electrical	255,704	153	2,003	0	753	258,612
36	Electrical Mach, Equip or Supp	292,062	0	2,191	0	11	294,264
37	Transportation Equipment	1,020,851	15,608	5,598	0	15	1,042,073
38	Instr., Optical, Watches, Clocks	621,593	0	498	0	0	622,091
39	Miscellaneous Manufacturing	293,153	0	16,605	0	251	310,010
40	Waste or Scrap Materials	114,490	46,136	59	4,492	9,941	175,119
42	Shipping Containers	0	0	0	0	0	0
43	Mail	0	0	6,404	0	0	6,404
46	Freight All Kind	0	0	1,846	0	0	1,846
49	Hazardous Materials	77,029	0	26	0	468	77,523
50	Secondary Moves	9,614,181	0	0	0	0	9,614,181

Table G.6 Tons of Commodities Shipped by Mode, Outbound, 2035

STCC2 Code	Commodity Description	2035 Truck	2035 Rail	2035 Air	2035 Water	2035 Other	Total Tons 2035
1	Farm	5,409,701	86,044	6	31	981	5,496,762
8	Forest	101	0	5	0	0	106
9	Fish or Marine	195	0	0	0	0	195
10	Metallic Ores	0	14,294	0	0	0	14,294
11	Coal	147	0	0	0	0	147
13	Crude Petroleum or Natural Gas	40	0	0	0	4,878	4,918
14	Non-metallic Minerals	3,357,302	1,355,013	7,232	2,343	1,582	4,723,472
19	Ordinance or Accessories	255	0	8	0	0	263
20	Food or Kindred	8,327,598	16,527	35	0	3,551	8,347,711
21	Tobacco	0	0	0	0	0	0
22	Textile Mill	9,497	0	166	0	0	9,663
23	Apparel	24,604	1	789	0	0	25,395
24	Lumber or Wood	865,659	8,513	0	0	11,770	885,942
25	Furniture or Fixtures	14,489	0	0	0	0	14,489
26	Pulp, Paper or Allied	1,235,867	6,982	0	0	29,003	1,271,852
27	Printed Matter	190,481	0	574	0	54	191,109
28	Chemicals or Allied	2,251,583	89,896	11,234	2,178	28,308	2,383,199
29	Petroleum or Coal	167,255	136	2	13,230	2,482	183,105
30	Rubber or Plastics	895,715	339	1,281	0	147	897,482
31	Leather	49,455	0	24	0	0	49,478
32	Clay, Concrete, Glass or Stone	5,230,048	11	275	0	1,212	5,231,546
33	Primary Metal	397,566	1,112	0	0	1,269	399,947
34	Fabricated Metal	1,348,439	49	115	0	77	1,348,679
35	Machinery Excl. Electrical	261,152	365	3,240	0	1,796	266,553
36	Electrical Mach, Equip or Supp	566,083	0	4,627	0	27	570,737
37	Transportation Equipment	1,658,000	17,459	11,775	0	58	1,687,292
38	Instr., Optical, Watches, Clocks	2,147,470	0	973	0	0	2,148,443
39	Miscellaneous Manufacturing	557,874	0	37,419	0	568	595,861
40	Waste or Scrap Materials	182,003	99,151	94	10,952	15,804	308,003
42	Shipping Containers	0	0	0	0	0	0
43	Mail	0	0	7,887	0	0	7,887
46	Freight All Kind	0	0	2,074	0	0	2,074
49	Hazardous Materials	242,663	0	84	0	1,486	244,234
50	Secondary Moves	14,950,433	0	0	0	0	14,950,433

Table G.7 Total Value by Commodity, All Directions, 2010 and 2035

STCC2	Description	Value 2010	Value 2035
1	Farm	\$4,645,164,485	\$9,700,934,678
8	Forest	\$6,421,533	\$12,599,213
9	Fish or Marine	\$43,786,305	\$72,792,641
10	Metallic Ores	\$298,671,664	\$288,766,238
11	Coal	\$57,090,647	\$80,541,931
13	Crude Petroleum or Natural Gas	\$15,928,879,895	\$24,274,053,526
14	Non-metallic Minerals	\$445,969,649	\$702,335,426
19	Ordnance or Accessories	\$1,051,351,472	\$2,848,421,729
20	Food or Kindred	\$27,286,215,614	\$44,137,913,670
21	Tobacco	\$101,360,721	\$70,523,339
22	Textile Mill	\$2,264,800,316	\$3,535,636,528
23	Apparel	\$9,928,197,509	\$14,987,284,262
24	Lumber or Wood	\$4,429,153,077	\$6,950,670,930
25	Furniture or Fixtures	\$3,102,283,625	\$6,343,903,963
26	Pulp, Paper or Allied	\$16,927,161,420	\$32,176,564,068
27	Printed Matter	\$11,662,374,344	\$12,390,119,441
28	Chemicals or Allied	\$47,126,262,145	\$91,877,450,605
29	Petroleum or Coal	\$8,009,893,850	\$11,465,816,426
30	Rubber or Plastics	\$11,776,883,947	\$23,588,031,036
31	Leather	\$5,136,835,775	\$7,065,065,012
32	Clay, Concrete, Glass or Stone	\$8,095,348,615	\$15,314,653,946
33	Primary Metal	\$19,735,534,758	\$33,086,336,431
34	Fabricated Metal	\$25,251,069,914	\$41,545,467,234
35	Machinery Exc Electrical	\$110,740,716,892	\$268,478,039,767
36	Electrical Mach, Equip or Supp	\$39,387,224,920	\$76,513,737,970
37	Transportation Equipment	\$66,203,358,024	\$103,411,944,522
38	Instruments, Optical, Watches or Clocks	\$50,621,478,049	\$341,577,229,383
39	Miscellaneous Manufacturing	\$14,207,184,035	\$37,234,607,000
40	Waste or Scrap Materials	\$1,249,095,250	\$1,992,744,357
41	Miscellaneous Shipping	\$18,202	\$24,629
42	Shipping Containers	\$0	\$0
43	Mail	\$80,729,843	\$165,983,614
44	Freight Forwarder	\$0	\$0
45	Shipper Association	\$0	\$0
46	Freight All Kind	\$43,936,463	\$73,101,428
47	Small Package	\$0	\$0
48	Hazardous Waste	\$0	\$0
49	Hazardous Materials	\$0	\$0
50	Secondary Moves	\$409,971,029,466	\$761,541,930,335

Table G.8 Total Value by Commodity, Inbound, 2010 and 2035

STCC2	Description	Value 2010	Value 2035
1	Farm	\$482,204,900	\$974,563,875
8	Forest	\$82,532	\$161,285
9	Fish or Marine	\$4,460,526	\$4,750,357
10	Metallic Ores	\$20,820,061	\$8,427,143
11	Coal	\$6,661,514	\$3,450,364
13	Crude Petroleum or Natural Gas	\$1,795,805,195	\$2,741,563,803
14	Non-metallic Minerals	\$55,486,526	\$30,786,762
19	Ordnance or Accessories	\$22,516,302	\$50,216,096
20	Food or Kindred	\$4,369,934,809	\$7,036,006,247
21	Tobacco	\$72,591,737	\$46,146,165
22	Textile Mill	\$222,067,479	\$229,751,775
23	Apparel	\$1,962,522,567	\$1,393,104,212
24	Lumber or Wood	\$543,161,053	\$505,867,757
25	Furniture or Fixtures	\$619,307,045	\$827,444,204
26	Pulp, Paper or Allied	\$1,764,382,204	\$2,587,612,066
27	Printed Matter	\$1,634,849,169	\$836,902,929
28	Chemicals or Allied	\$6,188,331,121	\$9,322,764,098
29	Petroleum or Coal	\$508,139,767	\$421,716,508
30	Rubber or Plastics	\$2,026,823,822	\$2,941,358,594
31	Leather	\$60,975,393	\$56,010,899
32	Clay, Concrete, Glass or Stone	\$677,187,247	\$841,963,585
33	Primary Metal	\$3,579,775,700	\$5,293,919,706
34	Fabricated Metal	\$3,289,675,611	\$3,538,917,214
35	Machinery Exc Electrical	\$4,409,281,672	\$5,369,595,477
36	Electrical Mach, Equip or Supp	\$7,048,551,485	\$6,163,907,480
37	Transportation Equipment	\$9,340,432,961	\$14,117,566,791
38	Instruments, Optical, Watches or Clocks	\$2,163,846,701	\$15,076,829,580
39	Miscellaneous Manufacturing	\$757,281,318	\$1,161,645,634
40	Waste or Scrap Materials	\$31,987,199	\$61,570,535
42	Shipping Containers	\$0	\$0
43	Mail	\$25,000,569	\$47,439,095
46	Freight All Kind	\$28,146,300	\$52,728,170
49	Hazardous Materials	\$0	\$0
50	Secondary Moves	\$68,293,486,241	\$133,831,506,155

Table G.9 Total Value by Commodity, Outbound, 2010 and 2035

STCC2	Description	Value 2010	Value 2035
1	Farm	\$1,500,929,489	\$3,277,141,012
8	Forest	\$129,501	\$336,202
9	Fish or Marine	\$190,094	\$366,575
10	Metallic Ores	\$0	\$0
11	Coal	\$22,256	\$28,464
13	Crude Petroleum or Natural Gas	\$1,743,232	\$3,661,005
14	Non-metallic Minerals	\$28,970,254	\$45,771,136
19	Ordnance or Accessories	\$29,244,051	\$74,129,585
20	Food or Kindred	\$5,276,471,033	\$6,687,177,239
21	Tobacco	\$0	\$0
22	Textile Mill	\$83,889,255	\$87,959,389
23	Apparel	\$1,039,875,754	\$1,252,439,882
24	Lumber or Wood	\$334,102,539	\$572,335,888
25	Furniture or Fixtures	\$128,598,746	\$152,351,952
26	Pulp, Paper or Allied	\$1,054,672,920	\$1,471,386,204
27	Printed Matter	\$3,567,857,178	\$1,645,754,092
28	Chemicals or Allied	\$10,648,451,137	\$16,202,352,553
29	Petroleum or Coal	\$54,719,863	\$91,344,640
30	Rubber or Plastics	\$2,048,354,193	\$2,796,135,324
31	Leather	\$1,533,332,827	\$1,533,714,927
32	Clay, Concrete, Glass or Stone	\$1,517,874,493	\$3,009,739,733
33	Primary Metal	\$1,236,693,268	\$1,323,332,882
34	Fabricated Metal	\$6,032,491,480	\$8,943,644,062
35	Machinery Exc Electrical	\$4,519,771,189	\$5,517,535,554
36	Electrical Mach, Equip or Supp	\$7,234,309,245	\$15,843,517,579
37	Transportation Equipment	\$18,931,079,129	\$30,777,788,722
38	Instruments, Optical, Watches or Clocks	\$32,187,486,156	\$238,498,305,295
39	Miscellaneous Manufacturing	\$3,649,311,039	\$9,321,630,812
40	Waste or Scrap Materials	\$25,269,636	\$47,950,584
42	Shipping Containers	\$0	\$0
43	Mail	\$13,698,642	\$20,289,221
46	Freight All Kind	\$8,919,201	\$6,292,426
49	Hazardous Materials	\$0	\$0
50	Secondary Moves	\$68,304,943,330	\$116,729,199,973