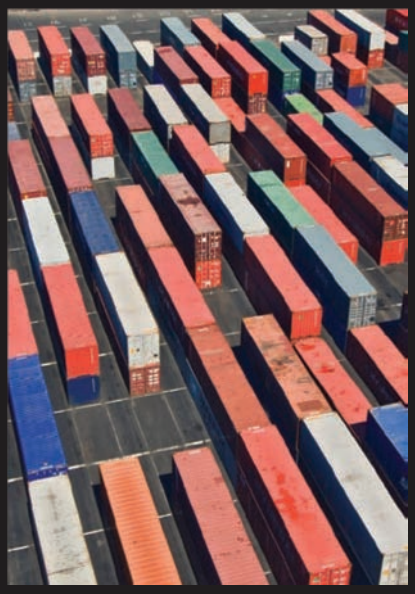
May 2021

Appendix D
Tech Memo #3:
Regional SWOT and Gap Analysis



GBNRTC

Buffalo-Niagara Regional Freight Plan

Summary

The current state of the Buffalo-Niagara Region freight and goods economy is defined by the regional freight analysis in Tech Memo #1. The future state of the Buffalo-Niagara Region freight and goods economy is based on the freight flow analysis from Tech Memo #2. Tech Memo #3 provides a plan of action, presenting the SWOT and Gap Analysis, identification of project goals, recommendations, justifications, and funding options, and prioritization of projects based on evaluation criteria.

- Section 1 outlines the Niagara Frontier Urban Area Freight Transportation Plan Value Statement.
- Section 2 discusses key findings derived from the previous tasks assembled into an easy to follow SWOT Analysis.
- Section 3 identifies the National Highway Freight Program, New York State Freight Plan, Western New York Regional Economic Development Council (WNY REDC), GBNRTC Moving Forward 2050, and Erie County Initiative for a Smart Economy goals that were used to help identify new strategies and projects as well as show consistency and conformance of recommended strategies and projects.
- Section 4 outlines the strategies and projects that are recommended. This section is further broken out into four sections:
    - ✓ Those strategies that were identified in the 2019 New York State Freight Plan and have been funded by the National Highway Freight Program.
    - ✓ Those strategies and projects that were identified as part of the 2010 Niagara Frontier Urban Area Freight Transportation Study or 2019 New York State Freight Plan and are no longer recommended, provided with a discussion as to why they are no longer recommended;
    - ✓ Those strategies and projects that were developed previously in the 2010 study or were identified in the 2019 New York State Freight Plan, but not yet advanced and should be kept and carried forward as part of this study; and,
    - ✓ New strategies and projects identified as part of this 2020 update in order to address unmet needs and to continue to strengthen the freight and logistics industry in the Buffalo-Niagara region.
- Section 5 outlines a transparent and defensible process by which projects distilled through the SWOT analysis and measures against national, state, and regional goals can be evaluated and prioritized for funding and implementation. Projects in this section are organized according to priority, with “High” priority projects listed first.

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1 Niagara Frontier Urban Area Freight Transportation Study Value Statement

The Value Statement is a message that conveys the values and priorities of this study to be delivered, communicated, and acknowledged. The Value Statement helps guide the development of strategies and projects to achieve this Value Statement. The Value Statement of the Niagara Frontier Urban Area Freight Transportation Study is as follows:

Promote the Buffalo-Niagara region as a premier bi-national hub for freight and logistics industries integrating "Green" or sustainable platforms and as an intermodal gateway for freight and goods traveling between the bi-national region and the Port Authority of New York/ New Jersey (PANYNJ) and other East Coast locations.

2 SWOT Analysis

This section consists of a SWOT Analysis of the freight and logistics industry in the Buffalo-Niagara region. The SWOT (strength, weaknesses, opportunities, and threats/ constraints) analysis is derived from the data, analysis, and findings outlined in previous memos as well as discussions with freight and logistics stakeholders. The gaps or needs, which contrast the strengths and opportunities with the weaknesses and threats, form the basis for developing responsive strategies and projects.

2.1 BUFFALO-NIAGARA REGION FREIGHT AND LOGISTICS SWOT ANALYSIS

Table 2.1 categorizes the region's freight and logistics related strengths and opportunities.

Table 2.1: Buffalo-Niagara Region Freight and Logistics SWOT Analysis – Strengths and Opportunities

	Key Strengths & Opportunities
Regional Freight & Logistics Industry	A major undertaking resulting from the 2010 Niagara Frontier Urban Freight Transportation Plan was the creation of the International Trade Gateway Organization (ITGO), which acts to promote the freight and logistics industry in the Buffalo-Niagara region.
	The Buffalo-Niagara region's economy is expected to grow by approximately 30% through 2045. This growth is largely driven by an expansion of wholesale/ retail distribution and manufacturing activities – slated to contribute over $10 billion to the regional economy by 2045 (constant 2018 dollars).
	As the region's economy grows, it will see an increased demand for goods amounting to over 33 million additional tons of goods being hauled by a mix of modes. These 33 million tons of freight represent an expansion of freight tonnage of approximately 47% over the period (2018-2045), which equates to 1.7% per year increase.
	It is expected that the production of goods will continue to shift towards international markets, up from 5.8% in 2018 to 17.6% in 2045.
	Trade between the Buffalo-Niagara region and the ports associated with PANYNJ is expected to increase by approximately 1.6 million tons by 2045.
	The International Trade Gateway Organization (ITGO) has established a strategic relationship with the Port Authority of New York and New Jersey (PANYNJ) to promote intermodal freight in the Buffalo-Niagara region. This led to a Memorandum of Understanding (MOU) with PANYNJ to designate the region as a "strategic international gateway", creating a relationship based on joint marketing and sharing of resources and data.

	Key Strengths & Opportunities
Regional Freight & Logistics Industry	As e-commerce continues to grow, retailers are increasingly looking to accommodate next-day and same-day deliveries, which will likely create demand for more distribution and sorting centers with reliable access to the urban areas of the region.
	The trucking industry is increasingly looking at electrification of trucks (over alternative fueling) for day-use deliveries (mainly focused around a 300-mile delivery day). While many fleets will look to develop electric charging stations on site at terminals, there will be a need to deploy electric charging stations around metro areas to accommodate truck fast charging, with demand possibly coming within five years. The Buffalo-Niagara region has access to inexpensive, clean, and renewable hydropower and other clean, renewable energy resources to power truck electric charging stations.
	The Niagara International Transportation Technology Coalition (NITTEC) Cross-Border Committee realizes the importance of the freight and logistics industry and in 2019 extended an invitation to Freight Operators from the U.S. and Canada to discuss concerns with the Committee. The participation by Freight Operators is expected to continue and to be enhanced.
	NITTEC's Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) grant program offers the opportunity to fund ITS, Integrated Corridor Management, Smart & Enhanced Multimodal Corridors (SEMA), and other freight technology demonstration projects.

	Key Strengths & Opportunities
Economic Development and Workforce Development	Currently, multiple entities and agencies are tasked with economic and industrial development and promotion of the Buffalo-Niagara region. There is an opportunity to align these efforts in order to better collaborate strategies for economic development that support regional goals, coordinate economic development efforts, and help grow the freight and logistics industry.
	Throughout the course of this study, stakeholders have indicated that there is a demand in the Buffalo-Niagara region for development sites that are "site-ready" or "pad-ready" and able to quickly accommodate construction of or conversion of industrial and warehouse space. These sites go beyond "shovel-ready" designation to prepare sites for quick accommodation of prospective tenants looking to be operational within a year. The region is also experiencing a large demand for warehousing, especially cold storage warehousing, warehousing over 100,000 sq. ft. in size, and warehousing with access to significant electrical infrastructure capable of handling 3MW peak demand.

	Key Strengths & Opportunities
Economic Development and Workforce Development	Erie County has undertaken improvements to the Bethlehem Steel site (Bethlehem Steel Advanced Manufacturing Park) to make it more attractive for industrial development. This includes upgrades to water and sewer service, rail relocation, and Dona Street extension to open land for development and improve access to/from the site. There are some development-ready sites within the Park.
	Erie County Industrial Development Agency (ECIDA) is currently pursuing developers through an incentivized RFP package to spec build manufacturing/ warehousing space at Bethlehem Steel Advanced Manufacturing Park to help fill a need in manufacturing and warehousing space identified throughout the region.
	Erie County is developing a new shovel-ready agriculture business park in Evans to meet a demand for agribusiness facilities.
	Regional stakeholders identified a need to enhance workforce development and job access for freight and logistics jobs and to establish and implement a new regional logistics workforce development upskilling and education programs.
	ITGO and is collaborating with NCCC to provide and advance workforce training and development in Supply Chain Management. Several other colleges and universities (Niagara University Center for Supply Chain Excellence, Buffalo State College, University at Buffalo, Canisius College), along with Northland Workforce Training Center, REDC Workforce Development Challenge, Erie-1 BOCES, WNY Talent Attraction and Retention Initiative are expanding freight and logistics workforce training across Western New York.

	Key Strengths & Opportunities
International Trade	Due to Buffalo-Niagara's bi-national location, Canada will continue to grow as a prominent trade partner with the region. It is expected that the production of goods will shift towards international markets: up from 5.8% of exports in 2018 to approximately 17.6% in 2045. While the Buffalo-Niagara Region relies on its gateways to Canada, the overwhelming geography of users of border crossings/ ports within the region are external to Buffalo: with 71% of international border crossing/ port volumes in 2018 being from other states. ***The volume of trade occurring at the region's ports of entry is expected to more than triple through 2045.***

	Key Strengths & Opportunities
International Trade	Buffalo-Niagara's freight traffic with the other ports along the northern New York border is expected to grow by 669,000 tons through 2045.
	The Buffalo-Niagara region is home to two commercial truck ports-of-entry (Peace Bridge and Lewiston-Queenston Bridge) and one commercial railroad port-of-entry (International Railway Bridge).
	The Buffalo-Niagara region is home to two Foreign Trade Zones, which can be used to facilitate international trade and increase the global competitiveness of U.S. based companies.
	Commercial truck traffic on both the Peace Bridge and Lewiston-Queenston Bridge has been experiencing fewer backups beyond the bridge property; any truck related congestion is related to clearance times, which has also been significantly reduced in recent years and is expected to continue to decrease with technology advancements.
	Technology advancements will continue to improve bridge clearance times: Pilot project at Peace Bridge will allow facial recognition, vehicle x-ray, and license plate scanning to all take place in Canada. Once entering the U.S., a driver will get a green light to proceed or a red light to proceed for further inspection. This will become the Standard Operating Procedure for commercial vehicles at all border crossings.
	The New York Gateway Connections Improvement Project improved direct access between I-190 and the Peace Bridge while also removing trucks and automobiles from local streets. Other improvements at the Peace Bridge that have been completed include expanding the U.S. bridge entry plaza and rehabilitation of the bridge deck.
	The Niagara Falls Bridge Commission is in the midst of several U.S. bridge plaza improvements on the Lewiston-Queenston Bridge that will add additional truck lanes and expand secondary screening to ultimately help truck traffic entering the U.S.
	New U.S.-Canada-Mexico trade agreement has the potential to increase cross border e-commerce industry, allowing U.S. based companies to deliver to Canada. In addition, as a result of Covid-19, firms in both Canada and the U.S. are looking to develop more resilient supply chains, meaning reducing their dependence on China and other overseas imports. This "re-shoring" will lead to an increase in dependence on North American production and imports, which could grow cross-border truck traffic.

	Key Strengths & Opportunities
International Trade	The recently signed Ontario – Maryland Strategic Investment and Procurement Agreement (SIPA), a subnational agreement focusing on increasing trade, investment, and jobs in the areas of advanced manufacturing, infrastructure, and the agri-food sector, would be expected to increase freight moving through border crossings in the Buffalo-Niagara region between Maryland and Ontario. This SIPA is the first to come out of the Ontario government's "Strategy for Trade with the U.S." As part of the strategy, Ontario is pursuing additional agreements with other U.S. states, which seek to secure improved access to investment and government procurement opportunities in the U.S. for Ontario businesses.
	The expanded e-commerce market accelerated by Covid-19 has resulted in a number of Canadian logistics businesses looking for warehouse space (generally in excess of 200,000 square feet) in the U.S. (including the Buffalo-Niagara region). These Canadian businesses ship a majority of their inventory to the U.S. and they want to be set up for same-day and next-day shipping to their U.S. customers without having to be concerned over potential delays with border crossings, and to get ahead of any impending changes to tariffs and duties. These Canadian businesses are able to retain their employees in Canada, working remotely, while operating a highly-automated warehouse in the U.S. with only a few on-site administrative personnel. Overall, this helps Canadian companies become more efficient in working with their U.S. customer base. As of late 2020, warehouse space in the region is at 2.5% vacancy, so this business practice might set off a "warehouse boom" in the Buffalo-Niagara region.

	Key Strengths & Opportunities
Freight Transportation System/ Network (Highway, Rail, Air, and Maritime)	The economic development and freight/ logistics stakeholders in the region generally agree that the overall regional transportation system is good and experiences little delays and few bottlenecks.
	The New York State Thruway Authority has fully converted from physical, manned toll collection booths to higher speed cashless tolling system in November 2020, helping to reduce delays caused by toll collection booths at the Williamsville and Lackawanna toll booths.

	Key Strengths & Opportunities
Freight Transportation System/ Network (Highway, Rail, Air, and Maritime)	The two bottlenecks identified in the 2010 Freight Plan – I-90/ NY 33 interchange and the Portageville Bridge (rail) have both been upgraded. • The Portageville Bridge replacement over the Genesee River, completed in 2017, removes a large bottleneck on the NS Southern Tier rail line and now allows for the movement of industry standard 286,000-pound cars and increased speeds. • I-90 underwent a series of improvements between I-290 and NY 33 to begin improving safety and congestion at the I-290, Cleveland Drive, and NY 33 interchanges.
	The NYSDOT reconstruction project, PIN 581361, will construct a new travel lane on Transit Road (NYS Route 78) between I-90 and Genesee Street to improve freight and air cargo access between Buffalo-Niagara International Airport and the New York State Thruway. The project was awarded $7.5 million in National Highway Freight Program funding and is expected to be completed in 2022.
	Niagara Falls International Airport (NFIA) contains a long (9,829 feet) runway that can accommodate most aircraft types, consists of relatively inexpensive landing fees, has capacity to accommodate expanded use, and has air cargo facilities that can accommodate growth. In recent years, NFIA has upgraded commercial airline facilities (in the form of a new passenger terminal complex) as well as facilities to support military operations.
	CSX operates rail service between PANYNJ and Buffalo that allows for double stacking of intermodal containers, opening up opportunities to build upon this network to increase rail and intermodal trade between the two regions.
	The Port of Buffalo has the capacity to increase the amount and type of cargo being handled at their current facility, and a new General Manager that is interested in expanding the Port of Buffalo market.

	Key Strengths & Opportunities
Freight Technology	306 billion trips are made annually across the U.S. using private vehicles. 40% of these trips are made for shopping and errands. According to industry publications, by 2035, 23% of these shopping and errand trips could be replaced by Autonomous Vehicle delivery services that bring products directly to the end user. This has the potential to reduce the number of automobile trips made for shopping and errands, and introduces new opportunities for “last-mile” delivery services.

	Key Strengths & Opportunities
Freight Technology	The evolution of connected and autonomous trucks will allow trucking fleets and drivers to better adjust to road and weather conditions; adjust to incidents, construction, and congestion; better manage fleet efficiency and productivity; and improve safety.
	Connected and automated vehicle technologies, such as platooning (the linking of two or more trucks in a convoy using connected and automated vehicle technology), have been shown to save freight and logistics fleets up to 10% in fuel costs.
	NITTEC was the recipient of an Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) grant from the USDOT to deploy a variety of ITS technologies across the region. Demonstration projects will look to better manage international bridge crossing demand, improve freight conditions through operator-targeted traveler information, enable benefits of integrated regional mobility, and expand real-time travel information.

Table 2.2 categorizes the region's freight and logistics related weaknesses and threats/ constraints.

Table 2.2: Buffalo-Niagara Region Freight and Logistics SWOT Analysis – Weaknesses and Threats/ Constraints

	Key Weakness & Threats/ Constraints
Regional Freight & Logistics Industry	Due to the Covid-19 pandemic, there is a large amount of uncertainty surrounding potential longer-term implications of the global economy and restructuring of supply chains. Due to this uncertainty, the FHWA Freight Analysis Framework (FAF) includes an alternate, more conservative forecast, which on average, reduce the volume of freight by approximately 10%.
	The increase in cross-border traffic is expected to increase truck traffic at border crossing by 50% by 2045, which without any technological and pre-clearance enhancements could potentially have an impact on border crossing delays and congestion.
	As supply chains and distribution structures evolve to accommodate the increase in e-commerce the region can expect an increase in overall vehicle miles travelled for last mile deliveries, as well as an increase in the number of delivery vehicles in urbanized regions and, in particular, on neighborhood streets.
	A transition of trucking fleets to electric (while decreasing the dependency on petroleum-based fuels and improving air quality) will lead to decreased revenue from gas and diesel taxes. Alternative sources for transportation funds would need to be explored sooner rather than later.
	The proposed developer for the Lakeside Commerce Park Cross-Docking Facility has since dropped its plans and is instead moving ahead with a solar energy facility. ITGO

	Key Weakness & Threats/ Constraints
	along with regional freight and logistics partners will need to identify a new site and will still need to make a convincing business case to CSX before the railroad would be willing to pick up or drop railcars there.

	Key Weaknesses & Threats/ Constraints
Economic Development and Workforce Development	According to regional stakeholders, industrial real estate in Erie and Niagara Counties is lacking inventory attractive to modern industry. There is currently less than 4% vacancy, and much of the vacancy is in obsolete buildings that are not suitable for today's industrial needs.
	Numerous shovel-ready sites are available across the Buffalo-Niagara region, but regional stakeholders have indicated that the Buffalo-Niagara region is losing out on economic development deals because prospective tenants and industries are looking for "site-ready" and "pad-ready" sites where they can quickly have a facility built.
	In addition to the need for "site-ready" and "pad-ready" sites, stakeholders have indicated that there is a strong demand for cold-storage, temperature-controlled, and spec warehousing space, but developers are reluctant to build facilities on spec without the guarantee of a long-term lease.
	Many freight and logistics related industries are looking for modern facilities that accommodate their business; many older urban industrial buildings do not meet the needs of modern freight and logistics operations.
	Numerous stakeholders throughout this study process indicated that increasingly, conflicting land uses in former exclusive industrial areas are raising access, safety, and quality of life issues for the users of those areas. In particular, in legacy industrial areas, the region is experiencing an increase in residential, entertainment, and other social gathering options that introduce pedestrian, bicycle, and non-industrial traffic resulting in conflicts with traditional industrial activities.
	There currently is not an ample supply of shipping containers in the region available to customers for outbound shipments. This is mainly caused by fewer inbound containers having their final destination be the Buffalo-Niagara region, and thus available for outbound shipping. When containers are not available, they must be relocated from areas where they are available, adding cost and time.

	Key Weaknesses & Threats/ Constraints
Economic Development and Workforce Development	Workforce availability, development, and access were identified by many regional stakeholders as significant challenges in growing the freight and logistics industry in the region. In particular, it was indicated that not many workforce development programs focus on the freight and logistics industry. It was also mentioned that numerous employment opportunities associated with the freight and logistics industry are increasingly being located in areas that aren't readily accessible to transit.
	The American Trucking Associations (ATA) estimates that the truck driver shortage will continue to worsen, from a shortage in 2016 of 36,500 drivers to a shortage of over 170,000 drivers by 2026. This is highlighted by a reluctance of drivers to want to drive long distances; many would prefer to be home with their families at the end of the day.
	At 2.6%, the Buffalo-Niagara region has one of the lowest industrial availability rates in the nation, according to market research conducted by CBRE|Buffalo.

	Key Weaknesses & Threats/ Constraints
International Trade	There is a disconnect between actual and perceived delay and congestion at border crossings for the freight and logistics industry, as follows: • During the freight stakeholder engagement undertaken as part of this effort, many members of the freight and logistics industry consistently stated that border crossing delay and congestion is a challenge to their business operations. • Peace Bridge and Lewiston-Queenston Bridge operators state that truck related volume, congestion, and clearance times are all down in recent years, and additional port-of-entry plaza improvements along with pre-clearance and other technology upgrades all suggest that delay and wait times will continue to decrease.
	Since 2014, there has been a slight decrease in the volume of trucks crossing Buffalo-Niagara region Port of Entries, with the 2018 volume down 2.1% from the 962,076 trucks in 2014. The volume of trains has also decreased slightly since 2014, down 13% from 2,395 trains in 2014. The size of trains has decreased significantly, down 57% from the 135,263 containers in 2014.

	Key Weaknesses & Threats/ Constraints
International Trade	According to published studies and plans, Transport Canada is looking to shift more intermodal shipments entering Canada from international ports to domestic ports (Such as Vancouver, Prince Rupert, Halifax, or Montreal), rather than through U.S. ports. This, as well as the potential for more freight to be handled by train, has the potential to limit the cross-border growth in trucking, and potentially result in lower than expected toll revenue collected by bridge commissions.
	Freight and logistics stakeholders have indicated that a weakness of the region is that it doesn't embrace sister-city trade relationships like other regions do in order to promote international trade.

	Key Weaknesses & Threats/ Constraints
Freight Transportation System/ Network (Highway, Rail, Air, and Maritime)	Access between the region and the PANYNJ is not direct; multiple roadways need to be used and often trucks divert from access-controlled highways to use surface highways. The FHWA Freight Flow Analysis conducted as part of this study portrays a large volume of truck traffic currently travelling between the region and the New York City Metro Area (PANYNJ) that uses U.S. 20A or NYS Route 63 to bypass the I-90 New York State Thruway to get to/ come from I-390 near Mount Morris.
	The Bottleneck Analysis revealed some roadways commonly used by trucks that experience recurring congestion and delay, including sections of I-290 between Millersport Highway and I-90, I-90 between I-290 and NY 33 and near Walden Avenue, I-190 through Downtown, Walden Avenue between I-90 and Union Road, Harlem Road between William Street and Clinton Street, and Genesee Street near Holtz Drive. While congestion and delay may only be experienced during peak hours, it can effect truck travel times throughout the region.
	The region is generally lacking a good north-south trade corridor, connecting the region and Canada with areas to the south. NYSDOT is currently pursuing a Supplemental Environmental Impact Statement (SEIS) to the 2003 EIS for improvements to the section of U.S. 219 between Peters Road and I-86.
	Many freight and logistics stakeholders have indicated that they don't feel that industry interests and needs are being adequately considered in the planning for the future of the Skyway (NYS Route 5 over the Buffalo River).

	Key Weaknesses & Threats/ Constraints
Freight Transportation System/ Network (Highway, Rail, Air, and Maritime)	The CP Draw Bridge over the Buffalo River is shared by multiple railroads. NS and CSX share responsibility of the CP Draw, but CSX is in charge of dispatching rail traffic over the bridge. This is identified as a disadvantage to other rail operations in the region, but not seen as a constraint to overall rail traffic as Precision Schedule Railroad service optimizes use of and operation of the bridge. The 2010 Freight Plan outlined several options for replacing or upgrading this bridge, but none have been advanced.
	The Buffalo-Niagara region consists of only one active international rail crossing – International Bridge. The International Rail Bridge has been identified in reports of needing structural improvements. The Whirlpool Rapids Bridge is not actively used for freight rail (only used for passenger rail) and while the Niagara Falls Bridge Commission owns the bridge, there is uncertainty as to which entity has maintenance responsibility of the rail tracks on the upper portion of the bridge. The Michigan Central Railway Bridge, located just south of the Whirlpool Rapids Bridge, is owned by Canadian Pacific Railway but is out of service. The tracks on the bridge and the lines leading to it have been removed. The railroad right-of-way in Canada has been purchased by the City of Niagara Falls, ON and on the U.S. side, the bridge over Main Street was removed when the new Niagara Falls train station was constructed. This places limits on available rail redundancy of international crossing in the event the International Bridge needs to be shut down for repairs or due to an incident.
	Norfolk Southern operated and marketed intermodal service between PANYNJ and Buffalo (Bison Yard) along the Southern Tier line since the new Portageville Bridge opened, but the market never materialized due to lack of demand, and the service has since been dropped.
	The tonnage of air freight handled in the region is expected to decrease slightly between 2018 and 2045, with a disproportionately greater decrease between 2018 and 2045 in the value of goods handled by the region's airports. This is simply a result of the nature of the air cargo industry and lack of a market in the Buffalo-Niagara region for high value/ time sensitive goods that would attract additional air cargo operations to the area. Most high value goods shipped by air cargo come through Toronto, Hamilton, or New York City.

	Key Weaknesses & Threats/ Constraints
Freight Transportation System/ Network (Highway, Rail, Air, and Maritime)	The Port of Buffalo is privately owned and operated, whereas many of the other ports on the Great Lakes- St. Lawrence River system are public benefit corporations and public authorities that can receive grant funding and participate in regional economic development programs. Further, since the Port of Buffalo is not a publicly owned and operated port, it is not affiliated with the American Great Lakes Port Association like counterpart ports in Oswego and Ogdensburg. The Port of Buffalo currently doesn't process any containers but is open to new markets, however, the Jones Act would limit any future marine cross-border shipping opportunities.
	The Strategy for the Great Lakes-St. Lawrence River Maritime Transportation System prepared by the Conference of Great Lakes and St. Lawrence Governors and Premiers indicates the greatest constraints to Short Sea Shipping that have limited its growth include the Harbor Maintenance Tax, trade and customs regulations, lack of proper ships, and the fact that it has yet to prove cost-effective. Overall, the Strategy recognizes that a larger US- Canadian plan is needed to facilitate, enhance, and accommodate Short Sea Shipping.

	Key Weaknesses & Threats/ Constraints
Freight Technology	As e-commerce accelerates the desire for "next-day" and "same-day" delivery, freight and logistics industries will continue to seek automated "last-mile" delivery methods that increase the efficiency and productivity of delivery models. This could potentially impact jobs as some human labor is replaced with automation.
	Reports have indicated that as retail supply chains continue to shift and direct-to-consumer e-commerce grows, this shift would result in fewer vehicle miles traveled for shopping and errands that will be replaced with "last-mile" delivery models. This "last-mile" delivery models will increase delivery vehicle traffic in neighborhoods, and conflicts between people and freight movement needs will likely grow.
	E-commerce and "last-mile" delivery models are expected to accelerate the influx of autonomous delivery vehicles and introduce more experimental delivery services and technologies. Much of our existing governance and infrastructure are not set up to handle an influx of experimental and automated technologies to guide such deployment.
	There are ecological and political concerns over the components used in electric vehicles, including battery, country of origin, and the mining/ use of rare-Earth metals (such as Neodymium). However, this also opens up opportunities for local businesses (such as Viridi Parente located in the old American Axle Plant in Buffalo) to expand business and make batteries for delivery vehicles.

3 National, State, and Regional Planning Goals that Guide this Study

This section identifies the National Highway Freight Program (NHFP), New York State Freight Plan, Western New York Regional Economic Development Council (WNY REDC), and GBNRTC Moving Forward 2050 goals. These goals were used to guide the identification of new strategies and projects. Projects located in Erie County were also guided by the goals outlined in the Erie County Initiatives for a Smart Economy. References to the goals are used in Section 5 to show how the recommended planning studies, strategies/ initiatives, and projects are consistent with and conform to the NHFP, New York State Freight Plan, WNY REDC, and GBNRTC goals. Since many projects identified are for the entire Buffalo-Niagara region, the goals and strategies outlined in the Erie County Initiatives for a Smart Economy are outlined in 3.5 for reference to show how these goals helped guide the development of projects, especially in Erie County.

3.1 NATIONAL HIGHWAY FREIGHT PROGRAM GOALS

On December 4, 2015, President Obama signed into law Public Law 114-94, the Fixing America's Surface Transportation Act (FAST Act). The FAST Act established a new National Highway Freight Program (NHFP) to improve the efficient movement of freight on the National Highway Freight Network (NHFN) and support several goals, as outlined in Table 3.1. The FAST Act guidance can be found at https://www.fhwa.dot.gov/fastact/.

Table 3.1: National Highway Freight Program Goals

Reference	Goal
F1	Investing in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity.
F2	Improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas.
F3	Improving the state of good repair of the National Highway Freight Network (NHFN).
F4	Using innovation and advanced technology to improve NHFN safety, efficiency, and reliability.
F5	Improving the efficiency and productivity of the NHFN
F6	Improving State flexibility to support multi-state corridor planning and address highway freight connectivity.
F7	Reducing the environmental impacts of freight movement of the NHFN.

3.2 NEW YORK STATE FREIGHT PLAN GOALS

Table 3.2 portrays the goals outlined in the New York State Freight Plan. These statewide freight goals can be found at https://www.dot.ny.gov/freight-plan/reports.

Table 3.2: New York State Freight Plan Goals

Reference	Goal	Goal Discussion
S1	Invest in the Future	New York State's freight transportation system should anticipate future growth and ensure the most efficient movement of goods in all modes, through removal of key freight bottlenecks and investment in strategic enhancements that will support existing and emerging freight markets.

Reference	Goal	Goal Discussion
S2	Build Partnerships	Engage regional partners, government agencies, economic development councils, the private sector, and international trade partners to develop a strategic framework to advance high priority freight transportation projects and strategies.
S3	Ensure Safety & Security	The freight transportation system must be safe, secure, and be designed to be resilient to the impacts of extreme weather and climate change.
S4	Provide Sound and Efficient Infrastructure	Identify infrastructure and innovative technology investments and operational strategies that will ensure that the infrastructure is in a state of good repair and efficient for multi-modal freight movement.
S5	Foster Economic Competitiveness	Strengthen national and global competitiveness for existing and emerging freight-centered business and activity in New York State by selecting strategies and projects that support emerging markets and ensure reliable, efficient multi-modal supply chains.
S6	Respect the Environment	Provide efficient goods movement through a connected multi-modal infrastructure that supports the most fuel efficient, economical, and sustainable freight movement and delivery.

3.3 WNY REGIONAL ECONOMIC DEVELOPMENT COUNCIL GOALS

Table 3.3 lists the core strategies and sector strategies that drive economic growth outlined by the WNY REDC in their Economic Development Strategic Plan - "A Strategy for Prosperity". These regional goals can be found at https://regionalcouncils.ny.gov/western-new-york.

Table 3.3: WNY REDC Core Strategies and Sector Strategies

Reference	Core Strategy	Strategy Discussion
R1	Implement Smart Growth	Invest in infrastructure on smart growth principles
R2		Invest in downtowns, villages, neighborhoods, and brownfields.
R3		Protect water resources, waterfront, and habitats.
R4	Foster a Culture of Entrepreneurship	Foster and support entrepreneurs.
R5		Fund entrepreneurs.
R6	Prepare Our Workforce	Develop and cultivate the WNY talent pool including workers with advancement potential, underemployed, unemployed, and special populations.
R7		Engage students, parents, educators, and businesses in the P-12 system to build awareness.
Reference	**Sector Strategy**	**Strategy Discussion**
R8	Advanced Manufacturing	Leveraging research capacity to attract and accelerate the development of advanced manufacturing
R9		Boost competitiveness through career awareness.
R10	Health & Life Sciences	Stimulate business creation and job growth in the life sciences industry.
R11	Tourism	Facilitate growth of quality tourism product.
R12	Agriculture	Make agriculture more competitive through branding, innovation, and career readiness.
R13	Bi-National Logistics	Leverage our international border location.

Reference	Core Strategy	Strategy Discussion
R14	Energy	Position WNY as a global energy hub.
R15		Energy efficient transportation investment and support structure.
R16	Professional Services	Leverage existing assets and foster synergies between industries and education.

3.4 GBNRTC MOVING FORWARD 2050 GOALS

Table 3.4 portrays the regional goals outlined in the GBNRTC Moving Forward 2050 Plan. These regional goals can be found at https://www.gbnrtc.org/movingforward2050.

Table 3.4: GBNRTC Moving Forward 2050 Goals

Reference	Goal	Goal Discussion
G1	Our Economy	Raise the region's standard of living by supporting REDC target sectors: advanced manufacturing, agriculture, bi-national logistics, energy, health/ life sciences, higher education, professional services, and tourism.
G2		Support efficient freight movement by improving regional connectivity and reducing freight delays.
G3		Strengthen the fiscal health of local governments by minimizing local governments' infrastructure costs and maximizing benefits from investments.
G4	Our Communities	Support focused growth in communities (urban, suburban, and rural) by maximizing investments in community centers.
G5		Ensure access to opportunities and services by increasing multi-modal access to neighborhood services.
G6		Support healthy and safe communities through targeted transportation investment by improving equitable access to education and employment, increasing active transportation options, and improving transportation safety for all users.
G7	Our Environment	Preserve and protect a healthy environment and accessible open spaces and waterways by reducing negative impacts of transportation, increasing the diversity and sustainability of energy supply for transportation uses, and improving public access to quality of life resources.
G8		Maximize infrastructure resiliency by reducing transportation infrastructure land use and improving the ability of infrastructure to respond to weather and other extreme events.
G9	Innovation	Create a fully integrated and seamless transportation environment by building out a system of connected corridors in the region, establishing a Smart Ecosystem of data acquisition and management for transportation efficiency, creating a robust Mobility Marketplace that assures mobility on demand and integrates technology, and creates and deploys new models of transportation finance and project delivery.

3.5 ERIE COUNTY INITIATIVES FOR A SMART ECONOMY GOALS

Table 3.5 portrays the goals and strategies outlined in the Erie County Initiatives for a Smart Economy that helped guide the development of projects in this study.

Table 3.5: Erie County Initiatives for a Smart Economy Goals

Goal	Goal Discussion
Advanced Manufacturing	Erie County will redevelop the former Bethlehem Steel site, which is critical to the transformation of our region. Specific projects include relocation of rail tracks, property acquisition, construction of public roads, and water/sewer infrastructure upgrades.
	Erie County and ECIDA will construct a Net Zero Energy ("NZE") manufacturing building. The NZE facility will help spur revitalization and redevelopment on the Bethlehem Steel site. The project consists of constructing a 101,100 gross square feet flex-manufacturing building on the Bethlehem Steel site.
Infrastructure and Transportation	Erie County will provide infrastructure services that foster economic vitality for both businesses and communities. Erie County's infrastructure and transportation decisions have a widespread impact on housing, development, investment patterns, and quality of life. Erie County will work toward addressing the infrastructure and transportation needs of our region using a comprehensive approach – an approach to modernize services that are accessible to everyone in all types of communities. Strategic investments in infrastructure and transportation systems will position Erie County to prosper in the 21st century and will allow for greater access to shared employment and economic opportunity throughout the region.
Agriculture	Erie County will develop an agribusiness-focused industrial park at the former Angola Airport. This project seeks to create a 152-acre agriculture-oriented industrial park in southern Erie County for the purpose of attracting private sector investment in food processing, manufacturing, logistics, and distribution.
Bi-National Logistics and International Trade	Erie County will become the first choice location along the United States-Canadian border for foreign investment and the distribution of domestic and international goods. Positioning Erie County as a primary port of entry into the United States from Canada and other international ports will have an immediate impact on the region. Attracting investment from Canada and around the world will increase opportunity to create new shipping and rail jobs for those underserved and underemployed. Improvements to Erie County's intermodal infrastructure will create a favorable business climate for international shippers and manufacturers. They, in turn, will bring new investments from outside the region, generating new wealth and expanding opportunity for all Erie County residents.

4 Recommended Strategies and Projects

This section presents the strategies and projects that are recommended as part of this 2020 update. The strategies and projects identified in this section are derived from Tech Memos 1 and 2, which lay the foundation for existing and future freight conditions in the Buffalo-Niagara region, build off the opportunities and needs identified in the SWOT Analysis, and are guided by national, state, and regional goals.

Follow up conversations were held with a number of local, state, and national freight stakeholders and freight policy officials to discuss the recommended strategies and projects, determine their consistency with other freight plans and initiatives, and to gather their input on any other strategies and projects that should be included in this plan. This section offers a discussion of each project identified in this study. Additional information on each project's consistency with region, state, and national goals as well as project planning level cost information and priority is outlined in table format in Section 5.

This section is further broken out into four sections:

1. Those strategies that were identified in the 2019 New York State Freight Plan and have been funded by the National Highway Freight Program.

2. Those strategies and projects that were identified as part of the 2010 Niagara Frontier Urban Area Freight Transportation Study or 2019 New York State Freight Plan and are no longer recommended, provided with a discussion as to why they are no longer recommended;

3. Those strategies and projects that were developed previously in the 2010 study or were identified in the 2019 New York State Freight Plan, but not yet advanced and should be kept and carried forward as part of this study; and,

4. New strategies and projects identified as part of this 2020 update in order to address unmet needs and to continue to strengthen the freight and logistics industry in the Buffalo-Niagara region.

4.1 PROJECTS BEING FUNDED BY THE NATIONAL HIGHWAY FREIGHT PROGRAM

There were two projects identified in the New York State Freight Plan that are currently programmed on the GBNRTC's 2020-2024 Transportation Improvement Plan and are being funded by the National Highway Freight Program. They are:

1. PIN 581361 – Construction of a new travel lane on Transit Road (NYS Route 78) between the I-90 New York State Thruway interchange and Genesee Street (NYS Route 33). The purpose of this additional travel lane is to relieve congestion on this stretch of Transit Road and enhance the freight/ air cargo route between the Buffalo Niagara International Airport Air Cargo facility and the Interstate highway system. This project is included in the TIP with a construction cost of $11M. The project is expected to be let in 2021 with construction completed in 2022.

2. PIN 575825 – Rehabilitation of both the Ohio Street and Michigan Street Lift Bridges is underway to provide state of good repair improvements. These lift bridges are vital to not only trucking routes that

traverse the Buffalo River, but also to maritime barge traffic that travels the Buffalo River. This project is included in the TIP with a construction cost of $20M. The expected completion date for the Michigan Avenue Bridge is October 2021; the expected completion date for the Ohio Street Bridge is June 2021.

4.2 PREVIOUSLY IDENTIFIED STRATEGIES AND PROJECTS NOT CONTINUED INTO THIS PLAN

These are strategies or projects that were identified in the 2010 study that were not yet implemented or otherwise advanced towards implementation that are no longer identified to be advanced as part of this update. In some cases, strategies or projects identified in the 2010 study have been modified to fit new strategies or projects identified in the 2020 study update. Below provides the rationale that was used to discontinue these projects, and if applicable, how they are modified to fit within the context of the study update.

4.2.1 Peace Bridge Expansion (Removed). Since the 2010 study, priorities surrounding Peace Bridge expansion have changed. The focus has shifted from expanding capacity on the bridge to improving clearance and inspections at the bridge plazas and enhancing connections to the Interstate system to reduce congestion and improve connectivity. Completed in 2017, the New York Gateway Connections Improvement Project (GBNRTC 2014-2018 TIP PIN 576080) was a $56.7 million project to improve direct access between I-190 and the Peace Bridge while removing trucks and automobiles from the local street system. Since that project, the Buffalo and Fort Erie Public Bridge Authority has undertaken $175 million in capital improvements that include expanding the U.S. bridge entry plaza and rehabilitation of the bridge deck.

Additionally, a pre-clearance pilot program and advances in technology for all commercial vehicles crossing the Peace Bridge is currently under design and involves relocation of Customs and Border Patrol (CBP) technologies, including drive-thru non-intrusive inspection, license plate reads, radiation portal monitors, and biometric identification, to Canada. Screening trucks and drivers on the Canadian side of the bridge will allow CBP to adjudicate as the truck is traversing the bridge and make an admissibility or referral determination prior to the truck arriving at the primary inspection booth. This will result in a much quicker primary inspection and significantly reduce commercial border wait times. Completion of this project is anticipated by the fall of 2021. Relocation of CBP infrastructure to Canada allows for the opportunity to redesign and reconfigure the U.S. Customs plaza to make it more efficient and functional and more aesthetically pleasing, befitting a key entry to the United States. This demonstration project can be transferrable to the Lewiston-Queenston Bridge in the near-term. With the combination of the Gateway Project and pre-clearance and technology advances either completed or underway, the Peace Bridge expansion is no longer seen as a priority.

4.2.2 New York Route 63 Bypass (Modified). This route is sometimes used as a shortcut for trucks traveling between I-90 and I-390. A new bypass was considered near this route in a corridor study commissioned by NYSDOT in the early 2000's. The alternative was rejected due to cost and the estimated time to complete. However, the bypass study focused primarily on the inconvenience to local residents resulting from trucks using the shorter route (and thus passing through downtown Batavia). The project has not been advanced further than the study at this point, but the issue continues to exist. A study to understand trucking issues and opportunities is needed by NYSDOT, and while removing this particular project isn't meant to drop the issues all together, it is recognized that a larger study is needed, possibly through a partnership between GBNRTC and Genesee Transportation Council (GTC), to understand the larger issue of why trucks are diverting from I-390

and NYS Thruway and using surface streets through Livingston, Wyoming, and Genesee Counties. This larger study is proposed as part of this study, discussed in Section 4.3 and should be advanced in place of the Route 63 Bypass.

4.2.3 AES Lake Unloading Facility (Removed). Prior to the 2010 study, AES Somerset was ready to invest $25 million to construct a 3,200-foot long pier conveyor that would allow the facility to obtain waterborne deliveries of coal, petroleum coke, and limestone instead of having to rely on rail. AES has since filed for bankruptcy and the power plant has since been decommissioned with a new owner taking over the site. The site has been the focus of conversations for conversion to a data center, and the future of the pier is very much uncertain. Without a clear direction on the use of this site and potential uses for a dock, the AES Lake Unloading Facility is being removed from the Niagara Frontier Urban Freight Transportation Study update.

4.2.4 Revitalized Erie Canal (Removed). The 2010 study identified several opportunities to enhance the freight carrying capacity of the Erie Canal, which would require dredging. There have been some rehabilitation projects done along the Erie Canal, most of which have been routine maintenance activities, but no large-scale dredging has occurred.

In 2019, Governor Cuomo announced a $300 million "Reimagine the Canals" initiative to be a catalyst for economic development and environmental resiliency, with the following goals:

- Identify potential new uses for the Erie Canal aimed at improving the quality of life for New Yorkers,
- Evaluate how the Erie Canal can support and enhance economic development along the canal corridor,
- Find new opportunities to enhance recreation and tourism along the Erie Canal,
- Assess how the Erie Canal can help mitigate impacts from flooding and ice jams to improve resiliency and restore ecosystems in canal communities,
- Identify opportunities for using Erie Canal infrastructure to expand irrigation for Western New York farms.

Through this initiative, the focus of reimagining the Erie Canal appears to be less on freight transportation, thus unless a statewide business strategy to support freight transport on the Canal is undertaken, it appears using funding to support regional freight transportation would be a tough argument to make, and thus this project is not advanced to this 2020 study update.

4.3 PREVIOUSLY IDENTIFIED STRATEGIES AND PROJECTS CONTINUED INTO THIS PLAN

These are strategies or projects that were identified in the 2010 Niagara Frontier Urban Area Freight Study or 2019 New York State Freight Plan that were not yet implemented or otherwise advanced towards implementation at the time of preparing this update. These projects still have merit in being implemented to enhance the Buffalo-Niagara regional freight and logistics economy and transportation system, and thus are carried forward into this current plan for continued consideration.

4.3.1 Buffalo Logistics Complex/ Lakeside Commerce Park Cross-Docking Facility. The creation of the International Trade Gateway Organization (ITGO) out of the 2010 study was an essential step in fostering an improved environment for the freight and logistics industry in the Buffalo-Niagara

region. The strategic partnership with PANYNJ should continue and, with the anticipated increase in freight trade between the region and PANYNJ expected to increase by 1.6 million tons by 2045, support for the construction of the Buffalo Logistics Complex Cross-Docking Facility should be prioritized. A site at the Lakeside Commerce Park was previously identified and a developer partner announced, however, as of late 2020, the developer has since dropped plans for a Cross-Docking Facility for a solar energy facility due to subsurface contamination of the site at Lakeside Commerce Park. Therefore, while construction of the Buffalo Logistics Complex Cross-Docking Facility is still a priority, in the near-term, a new site must be identified. Once a new site is identified, the facility should be advanced in the form of securing new development partners, identifying funding and financing opportunities and/or public-private partnerships, and undertaking infrastructure enhancements. The estimated overall cost of the facility when it was to be located at Buffalo Lakeside Commerce Park was $20.75 million, so similar project expenses can be anticipated at another site. The project has the support of the freight and logistics community as well as the agribusiness industry.

4.3.2 U.S. 219 Improvements. NYSDOT hasn't announced a determination on the future of U.S. 219 yet, however, this should remain a corridor of interest for the freight and logistics industry. A Record of Decision (ROD) was granted by FHWA in 2003 to allow NYSDOT to construct a four-lane limited access freeway. A Partial-Build Assessment determined that NYSDOT could build 6.8 miles of the proposed 27 miles of freeway alternative between NY Route 39 in Springville and Snake Run Road in Ashford, Cattaraugus County (referred to as Sections 5 and 6). Design commenced for Sections 5 and 6, including the design of two bridges over Cattaraugus Creek, followed by construction of the U.S. Route 219, Section 5 freeway segment (between NY Route 39 and Peters Road) in 2007 and opening for traffic in 2010. The final design of the Section 6 freeway segment (between Peters Road and Snake Run Road) was never constructed because it was determined that there were more wetland and stream impacts than originally anticipated in the 2003 FEIS. NYSDOT is currently pursuing a Supplemental Environmental Impact Statement (SEIS) to the 2003 EIS for improvements to U.S. 219 between Peters Road and I-86.

The freight and logistics industry should remain involved in the U.S. 219 Project and advocate for improvements that satisfy trucking bottlenecks and safety concerns whether it be in the form of a full corridor improvement or nodal improvements at various bottlenecks or constrained locations. One such location consistently identified by freight and logistics stakeholders as needed for improvement is the area around the U.S. 219/ I-86 interchange. As NYSDOT studies for U.S. 219 continue, the interchange of U.S. 219 with I-86 should be looked at for improvement.

4.3.3 CP Draw Bridge Alternatives. The CP Draw Bridge is utilized by several Class I railroad as well as short line railroads. While this bridge still creates a bottleneck to the larger rail network as well as a lack of redundancy in rail connections over the Buffalo River, the stakeholders involved in this study, including Class I and Short Line Railroads, all indicated that the CP Draw Bridge satisfactorily addresses their needs from an operating standpoint. New Precision Scheduled Railroading (PSR) has allowed trains to pass over the bridge efficiently and with little congestion. The biggest concern was that stakeholders would prefer alternative bridge crossings so that they don't have to constantly negotiate with the bridge dispatcher – CSX, even though the bridge is owned by Norfolk Southern. There is also a desire for additional crossings that will add redundancy to the rail network should the CP Draw Bridge have to close for repair and provide railroads with options if dispatch is backing up trains.

The 2010 Freight Plan identified 4 potential projects that could either reconstruct or replace the CP Draw. These projects are outlined below, however, it is first recommended that a further planning study be conducted to identify feasible alternatives for an additional Buffalo River railroad crossing that can address needs of all users and be a benefit to the region, as well as provide updated cost estimates for each so that a unified approach to enhancing a new Buffalo River rail crossing can be achieved.

1. **CP Draw Bridge Replacement**. One concept was to replace the inactive northern bridge (currently fixed in the upright position) with a new bridge structure, connecting the CSX lines on either side of the Buffalo River and allowing NS and short lines use of the existing structure. The questions with this alternative revolve around whether this would be a moveable bridge (Buffalo River is a navigable waterway) or if the portion of the river could be de-designated as a navigable waterway to allow for a fixed bridge. This alternative would also require realigning CSX tracks on either side of the river to access a new bridge structure. This alternative, estimated in 2010 at $40 million, has been under consideration for some time, but has never progressed.

2. **G&W Connection from NS to Buffalo Line to BPRR Line**. Involves construction of a second rail connection across the Buffalo River to relieve congestion at CP Draw by providing a secondary rail crossing for Genesee & Wyoming Railroad (GWRR) and NS trains. This project was awarded Passenger Freight Rail Assistance Program (PFRAP)/ multimodal funds but has not yet advanced, as additional funding is still needed. The 2010 estimated cost for this alternative was $2 million.

3. **CN Northern Connection (Niagara Branch)**. Canadian National Railway (CN) has experienced some delays in the Buffalo-Niagara region because they occasionally need to use the CSX tracks over CP Draw Bridge to access Frontier Yard in order to interchange with other rail carriers. Currently, trains coming from or going to Canada must use the Belt Line because the International Bridge rail connection only allows for movements to/from the north with no access to the Niagara Branch (through downtown). If CN had access to Frontier Yard via CSX trackage rights over the Niagara Branch, then they could avoid the CP Draw Bridge entirely, however there are clearance restrictions on the Niagara Branch south of International Bridge that may limit this traffic. This would require construction of a “wye” in the area near Niagara Street and Tonawanda Street that would allow trains to move southbound from Canada to the Niagara Branch rather than continuing to the Belt Line and accessing the CP Draw Bridge. The 2010 estimated cost for this alternative was $3 million.

4. **CN Southern Connection (Avenue Running Track)**. This alternative complements the Northern Connection by providing for a new, automated southern connection from the Niagara Branch to the Avenue Running Track, thus allowing CN trains to access South Buffalo via CSX’s Compromise Branch and bypassing both the CP Draw and Frontier Yard, however there are clearance restrictions on the Niagara Branch south of International Bridge that may limit this traffic. The 2010 estimated cost for this alternative was $5 million.

4.3.4 Lehigh Valley Yard Development. The NYSDOT owned Lehigh Valley Yard located in Niagara Falls was proposed in the 2010 plan to be used as an intermodal facility, and Lehigh Valley Yard would be expanded as an Intermodal and Free Trade Zone center. NYSDOT issued an RFP in 2012 for development of an intermodal yard, but no favorable responses were received. Following that RFP,

NYSDOT pursued construction of an Amtrak maintenance facility that would aid in expanding New York State's High Speed Rail Plan. To date, NYSDOT continues to seek funding to construct an Amtrak maintenance facility at the site and work with the Federal Railroad Administration (FRA) and Amtrak to determine the best method in which to continue to maintain trains and equipment for passenger rail service in Niagara Falls given that the existing facility is near the end of its useful service life.

The Amtrak maintenance facility project at Lehigh Valley Yard would relocate the existing mainline tracks and provide Amtrak with a greatly improved ability to perform maintenance operations that only a new modern facility can provide. The new facility would provide a new Storage Canopy and Service & Inspection (S&I) Shop that will allow for the ability to safely change out coach wheelsets, air conditioning units, and provide storage space for layover trains. The new facility would also allow for maintenance activities such as interior cleaning, coupler inspections, and toilet repair to be performed in a covered environment. It should also be noted that the FRA approved the National Environmental Policy Act (NEPA) Categorical Exclusion for this project on March 16, 2016.

Although most of the new yard is being developed to maintain and store passenger rail rolling stock, it should be noted that as much area as possible is being reserved in the eastern portion of the yard for a future freight storage yard. The main considerations for placing the future freight storage yard in the eastern portion were the following:

- Locate the higher noise generating freight yard as far away as possible from any residential areas.
- Locate the freight yard as close to the yard entrance as possible so that heavily loaded tractor trailers can enter and exit more efficiently.
- Since most rail freight would enter from the east and exit to the east, having the yard on the east end would result in less interference with passenger trains to/from the yard and Niagara Falls Station.
- Comply with Amtrak's request to place the canopy close to the old station building.

The Lehigh Valley Yard project remains in the Niagara County Comprehensive Economic Development Strategy 2020 and as one of the ITGO priorities for 2020 for development of a freight and passenger rail car maintenance and/or intermodal transportation facility. While the larger-scale intermodal facility originally envisioned appears to be less of a priority than completing the Amtrak maintenance facility, GBNRTC and freight stakeholders should continue to work with NYSDOT to identify potential freight rail uses for the remainder of the site.

4.3.5 Improve Falls Road Railroad Bridge over Erie Canal. The bridge, located in Lockport, has continuously been identified as a priority for improvements to address structural issues of the bridge, as well as track rehabilitation. In 2018, $900,000 was awarded through the Governor's Passenger and Freight Rail Assistance Program for upgrades and state of good repair to Falls Road Railroad Bridge over Erie Canal. An additional $480,000 was awarded in 2019 from Northern Border Regional Commission to fund state of good repair to Falls Road Railroad. While construction of the bridge hasn't yet begun, the $1.38M in awarded grant funding should help to continue to advance the project towards that goal.

4.3.6 Niagara Falls International Airport (NFIA) Air Cargo Expansion. Several projects aimed at enhancing air cargo operations and expansion at NFIA were identified in the New York State Freight Plan and

are continued into this study. The recent announcement from Stavetti Aerospace to operate a production facility for prototype aerospace development, production, and aircraft on the 19.8-acre former U.S. Army Reserve Center located adjacent to Niagara Falls International Airport further emphasizes the need for proposed improvements at the airport in the near future. Projects identified include:

1. **Air Cargo Access Road Construction.** Identified as a Phase II project, with a construction timeline of 2022-2026 in the NFIA Airport Master Plan, this project involves the design and construction of a new western access road for the air cargo facility and general aviation facility.
2. **Air Cargo Apron Construction.** Identified as a Phase III project, with a construction timeline of 2027-2036 in the NFIA Airport Master Plan, this project involves the design and construction of a new air cargo apron to facilitate operations at the air cargo facility.
3. **Air Cargo Building Construction.** Identified as a Phase III project, with a construction timeline of 2027-2036 in the NFIA Airport Master Plan, this project involves the design and construction of two 100,000 square foot air cargo facilities.

4.3.7 Buffalo-Niagara International Airport (BNIA) Air Cargo Expansion. Projects aimed at enhancing air cargo operations at the BNIA were identified in the New York State Freight Plan, and are continued into this study. While BNIA has indicated that the current air cargo facility can adequately handle existing and future expansion of air cargo operations, the long-term strategy is to plan for accommodating much expanded air cargo operations.

1. **Air Cargo Apron Expansion.** Identified as a project to occur between 2020-2030 in the BNIA Airport Master Plan, this involves design and construction of an air cargo apron expansion to the existing apron to accommodate additional air cargo planes and allow for more efficient movements of planes.
2. **Air Cargo Building Expansion.** Identified as a project to occur in 2028 in the BNIA Airport Master Plan, this involves design and construction of a 100,000 square foot air cargo expansion to the existing air cargo facility.

4.4 NEW STRATEGIES AND PROJECTS IDENTIFIED IN THIS PLAN

The following are strategies or projects that are newly identified in this Niagara Frontier Urban Freight Transportation Study update that will enhance the region's freight & logistics economy and transportation system. These may consist of strategies or projects that have merit but require further study to determine a specific action plan, those that consist of more policy level or conceptual recommendations that are more reliant upon other larger scale efforts to ensure conformance, and projects that mainly involve construction of infrastructure that can be transferred into the Transportation Improvement Program (TIP) or identified for other funding opportunities.

4.4.1 Support for Long-Term Transportation Bill. There is a need for a long-term federal transportation bill to enhance and modernize freight transportation infrastructure. This should also include identifying new sources of revenue as gas and diesel gas tax revenues remain stagnant and even decline. GBNRTC, along with transportation, freight, and logistics stakeholders should take on a collaborated advocacy role in supporting ongoing efforts by New York State Association of Metropolitan Planning Organizations (NYSAMPO), AASHTO, and other organizations to resolve this at the national level.

4.4.2 Stay Abreast on Transportation Master Plan Update in Niagara Region, Ontario. At the time of this study, the Niagara Region, Ontario was updating their Transportation Master Plan. Stakeholders from the Niagara Region and Peel Region were involved in the Stakeholder meetings for this study and indicated a desire in Ontario to improve border crossing congestion and clearance times and enhance Niagara-Greater Toronto Area freight access by looking at alternative corridors (such as the Niagara-Hamilton Trade Corridor between Hamilton and Welland and NGTA East Corridor between Welland and Fort Erie). GBNRTC and other freight and logistics stakeholders should remain involved in Niagara Region transportation planning as new or improved trade corridors can impact corridors and border crossings in the Buffalo-Niagara region.

4.4.3 Create a Transportation Improvement Program (TIP) Freight Funding Block. A TIP funding block should be created as a subset to the full GBNRTC TIP to program select smaller freight and logistics projects. This would also identify opportunities for GBNRTC to coordinate on and support state and federal grant opportunities for freight projects.

4.4.4 Promote Region as a "Green" Cross-Border Logistics Hub. Regional stakeholders indicated a need to better promote the cross-border economy by using the region's international location to grow bi-national logistics and trade, and by breaking the perception that the border is difficult to maneuver. This is further aligned with strategies outlined in the WNY REDC to "Leverage Our International Border Location". Further, the region can market inexpensive, clean, renewable energy resources derived from hydro generation stations in Southern Ontario and Western New York to promote this "Green" Cross-Border Logistics Hub.

With multiple regions competing against each other for economic development, one way the Buffalo-Niagara region can differentiate itself; one that has gained support in concept from freight and logistics stakeholders, is to promote the region as a "Green" or "Sustainable" Cross-Border Logistics Hub. This would take advantage of the region's unique location along the Canadian border coupled with the ability to build green, sustainable development to create and promote a unique brand for the freight and logistics industry. The WNY REDC outlines strategies to create a Regional Smart Growth Coordination Council and establish the region as a center of green innovation, which would align with this strategy when combined with the Bi-National Logistics Council and ITGO efforts. The region could establish certain brownfield redevelopment sites and Foreign Trade Zones as demonstration sites for Green Cross-Border Logistics Hubs. The sites could include Bethlehem Steel Advanced Manufacturing Park**,** Buffalo Lakeside Commerce Park**,** the 133-acre site adjacent to Niagara Falls International Airport, and 50-acre site south of Niagara Falls International Airport to name a few. Additionally, when marketing the Buffalo Logistics Complex, the ability to use this Green Cross-Border Logistics Hub strategy to reduce the number of truck vehicle-miles-travelled by moving more freight to rail can help to prioritize the need for the facility.

1. **ITGO Involvement on NITTEC Cross-Border Committee and WNY REDC.** When the Buffalo Niagara Partnership (BNP) reorganized its economic councils, the CanAm Council was reorganized into other councils and efforts. While the BNP still advocates for cross-border economy through partnerships with Niagara Region and Hamilton Region Chambers of Commerce, by advocating for policy that facilitates cross-border trade, and holding bi-national events, this reorganization leaves a need for a cross-border committee or alliance to regularly meet to collaborate cross-border economy, trade, and logistics and to promote the region as a bi-national logistics hub. NITTEC has a Cross-Border Committee that meets regularly on transportation and information collaboration. The NITTEC Cross-Border Committee realizes the importance of the freight and logistics industry and in 2019

extended an invitation to freight operators from the U.S. and Canada to discuss concerns with the Committee. The participation by freight operators is expected to continue and to be enhanced.

There are two recommendations outlined - one is for NITTEC's Cross-Border Committee to make a permanent position available for ITGO and/or freight operators in the U.S. and Canada in order to bring a voice for the freight and logistics industry to the cross-border discussion. Secondly, GBNRTC, in partnership with ITGO, NITTEC, and other entities, should advocate for the WNY Regional Economic Development Council to include a member of the freight and logistics industry (potentially a member of ITGO). With an expected three-fold increase in freight volume utilizing Buffalo-Niagara region ports of entry by 2045, the region needs to be ready to facilitate cross-border trade.

2. **Remove Perception that the Border is Difficult to Maneuver.** There is a need to better educate and relay information on clearance procedures and border wait times, and provide information on the best times to cross (lowest wait times) and the typical peak times that would result in longer waits. This could come in the form of improved communication of wait times, expanded use of real-time information, which is outlined later in this section, and bridge authorities/ commissions could even study the use of variable pricing to try to better distribute truck traffic throughout the day or week as to spread out demand for a few peak times. This involves a collaboration of NITTEC, bridge authorities/ commissions, and trucking industry stakeholders. This portion involves the communication aspect of removing the perception, technology and infrastructure elements are expanded upon under the Expanded Intelligent Transportation Systems in the Region action item.

3. **Build Upon Ontario's Strategic Investment and Procurement Agreement.** The recently signed Ontario – Maryland Strategic Investment and Procurement Agreement (SIPA), a subnational agreement focusing on increasing trade, investment, and jobs in the areas of advanced manufacturing, infrastructure, and the agri-food sector, would be expected to increase freight moving through border crossings in the Buffalo-Niagara region between Maryland and Ontario. This SIPA is the first to come out of the Ontario government's "Strategy for Trade with the U.S." As part of the strategy, Ontario is pursuing additional agreements with other U.S. states, which seek to secure improved access to investment and government procurement opportunities in the U.S. for Ontario businesses. As other SIPA's are signed, the Buffalo-Niagara region should look to position itself as the most logical ports of entry for which to conduct cross-border trade between Ontario and states in the eastern portion of the U.S. ITGO should look to spearhead similar SIPA opportunities with New York State that would help grow the freight and logistics industry in the Buffalo-Niagara region.

4.4.5 Enhance Regional Collaboration of the Freight and Logistics Industry in Regional Economic Development and Promotional Efforts. Building upon the strategy to promote the region as a Green Cross-Border Logistics Hub, there was a desire expressed by freight stakeholders to have a stronger collaboration and promotion of the freight and logistics industry in economic development efforts to the liking of those in peer cities (i.e., Kansas City, St. Louis, Toledo, Lehigh Valley, etc.). Thus, in order for the Buffalo-Niagara region to attain this, there is a need to better collaborate efforts amongst the various economic development and promotional agencies and to involve the freight and logistics industry in this collaboration. The creation of ITGO out of the 2010 study was an essential step in

fostering an improved environment for the freight and logistics industry in the Buffalo-Niagara region. ITGO has brought together many common freight interests into an organized coalition to promote the freight and logistics industry, but more collaboration and alignment of efforts is needed. The following are several strategies aimed at enhancing this collaboration and promotion:

1. **Support Regional Economic Development Collaboration and Strategies.** Currently, multiple entities and agencies are tasked with economic and industrial development and promotion of the Buffalo-Niagara region. There is a need to align these efforts in order to collaborate strategies for economic development that support regional goals, with a single entity or committee acting as the lead for coordinated economic development efforts. This could come in the form of a Freight & Logistics Economic Task Force that is organized by GBNRTC and/or ITGO that includes members of the freight and logistics industry, members from the economic development community, as well as government entities; or could be lumped together with the larger Bi-National efforts. Numerous peer cities have utilized the region's Metropolitan Planning Organization (MPO) as the agency to collaborate amongst freight and regional economic development interests. ITGO has brought together many common freight interests into an organized coalition to promote the freight and logistics industry, but more collaboration and alignment of efforts is needed and the effort needs to be well funded in order to compete with peer cities. In order for ITGO to play an expanded role in promoting the freight and logistics industry and taking a lead in collaborating economic development interests in WNY, more attention needs to be paid to ITGO and it needs to be better funded.

2. **Use Invest Buffalo-Niagara Study Findings to Guide Regional Economic Development.** Invest Buffalo Niagara is currently undertaking a WNY Industrial Real Estate Development Strategy to understand the regional market and characteristics of industrial and warehouse space. The study is ongoing and expected to be completed in 2021. The study will identify markets that the region should target along with strategies and infrastructure needed to facilitate targeting such markets. One of the early findings from that study is that the region continues to see a lack of industrial space and warehouse space in the market; specifically, buildings that are available for purchase. Available buildings that are over 100,000 SF in size and buildings that have significant electric infrastructure capacity (3+ MW peak demand) are fairly scarce.

   GBNRTC and ITGO should advocate for regional collaboration amongst the WNY REDC, Invest Buffalo Niagara, GBNRTC, ITGO, industrial development agencies, economic development agencies, government and not-for-profit entities, and developers to use the results of the Invest Buffalo Niagara study to identify a strategy for targeting specific industries and addressing industrial and warehouse space needs; a subset of which can be used to target markets related to the freight and logistics industry.

4.4.6 Support and Expand ITGO Partnership with PANYNJ. In conformance with ITGO's 2020 priorities, the region should continue to strengthen and enhance ITGO's relationship with PANYNJ through the Memorandum of Understanding (MOU), while raising the profile of the connection with the WNY state delegation, WNY REDC, and the Governor's office, collaborating with PANYNJ on interaction with both rail lines and ocean carriers, and strengthening relationships with additional contacts at PANYNJ to prepare for upcoming retirements.

4.4.7 Target Development of "Site-Ready" and "Pad-Ready" Sites that Facilitate Freight and Logistics Industry Expansion. Throughout the course of this study, stakeholders have indicated that there is a demand in the Buffalo-Niagara region for development sites that are "site-ready" or "pad-ready" and able to quickly accommodate construction of or conversion of industrial and warehouse space. These sites go beyond "shovel-ready" designation to prepare sites for quick accommodation of prospective tenants looking to be operational within a year.

Covid-19 has acted to expedite the growth in e-commerce, with consumers in search of next-day and same-day delivery of their goods. The expanded e-commerce market accelerated by Covid-19 has resulted in a number of Canadian logistics businesses looking for warehouse space (generally in excess of 200,000 square feet) in the U.S. (including the Buffalo-Niagara region). These Canadian businesses ship a majority of their inventory to the U.S. and they want to be set up for same-day and next-day shipping to their U.S. customers without having to be concerned over potential delays with border crossings, and to get ahead of any impending changes to tariffs and duties. These Canadian businesses are able to retain their employees in Canada, working remotely, while operating a highly-automated warehouse in the U.S. with only a few on-site administrative personnel. Overall, this helps Canadian companies become more efficient in working with their U.S. customer base. As of late 2020, warehouse space in the region is at 2.5% vacancy, so this business practice might set off a "warehouse boom" in the Buffalo-Niagara region.

Further, Covid-19 has facilitated a movement by consumers to search for more locally sourced food and to seek same-day delivery of food and produce. This has led to grocers and food producers seeing a growth in fresh food purchases, a resurgence in frozen foods, and growth in e-commerce and third-party deliveries for groceries. As a result of the growth in e-commerce, retail and distribution supply chains have had to continue to evolve. Retailers will increasingly look for ways to facilitate same-day or overnight delivery of goods directly to customers, in keeping with e-commerce service commitments. Many of these retailers will use a two-tiered distribution system whereby larger regional distribution centers ship to smaller local fulfillment and sorting centers where small package carriers and contract drivers will deliver the goods directly to customers. The shifting retail and distribution supply chain combined with the expected increase in freight trade at Buffalo-Niagara region ports of entry will likely increase the demand for distribution warehousing, storage space (including cold-storage), and brokerage warehousing. That being said, developers in the region are reluctant to build spec space without the promise of a tenant unless there are numerous incentives to reduce financial risk, thus resulting in a gap in demand and supply. Without these "site-ready" or "pad-ready" sites, many stakeholders believe the region simply won't be considered for many prospective projects.

1. **Expand "Site-Ready" and "Pad-Ready" Incentives.** As part of the collaborated regional economic development approach outlined previously, GBNRTC should advocate for strategies that incentivize "site-ready" or "pad-ready" sites aimed at attracting such businesses. This strategy should also be approached as a program to modernize Buffalo's industrial building stock, and ITGO, GBNRTC, and/or freight and logistics stakeholders can play a lead or support role in this. In an effort to help meet the demand for warehousing space, ECIDA is currently pursuing developers through an incentivized RFP package to spec build manufacturing/ warehousing space at Bethlehem Steel Advanced Manufacturing Park to help fill a need in manufacturing and warehousing space identified throughout the region. To accommodate a freight and logistics industry that is increasingly becoming more

automated, many freight stakeholders have shown support for restructuring regional strategies and economic development based incentives to align with growth the number of businesses and in terms of square feet of development rather than only job-based or wage-based performance measures. Further, the region can market inexpensive, clean, renewable energy resources derived from hydro generation stations in Southern Ontario and Western New York as an incentive for "site-ready" and "pad-ready" sites.

2. **Facilitate Repurposing of "Greyfield" Sites for Local Distribution and Fulfillment Centers.** Many regions are looking at repurposing unproductive retail malls and large shopping centers left behind by the e-commerce market with distribution and fulfillment centers, bringing about an opportunity for "greyfield" reuse. A similar effort could be promoted in the Buffalo-Niagara region to revitalize older commercial areas, which would require a look at local Comprehensive Plans and Zoning codes to accommodate such warehouse and distribution space in older retail areas that can accommodate truck traffic. Incentive packages could be customized to target "greyfield" redevelopment of older commercial areas (New York State already provides incentives for roof-top solar installations).

3. **Target Development of Temperature Controlled Warehousing.** The growth in next-day and same-day food and grocery e-commerce suggests additional need for temperature-controlled warehousing that can enable localized next-day and same-day delivery of fresh and frozen foods to customers. Further, logistics providers that deliver these goods are looking to optimize their supply chain, meaning they prefer to locate closer to warehouses to minimize "deadhead" miles travelled to pick up goods but also want to be close to their consumer base to minimize travel time. A similar strategy in using an incentivized RFP package developed by ECIDA for Bethlehem Steel Advanced Manufacturing Park could be developed for seeking temperature-controlled warehousing in the region.

   Targeting the above strategies towards brownfields, greyfields, or as adaptive reuse of older industrial buildings, with the ability to locate some of these facilities that generate cross-border trade within Foreign Trade Zones, would further enable the area being able to promote itself as a Green Cross-Border Logistics Hub.

4. **Develop a Regional Geographic Information System (GIS) Database to Support Freight and Logistics Industry.** A GIS mapping interface is needed, and regularly updated, for use in economic development planning and marketing the region for industrial and freight/ logistics prospects. The database should identify available properties for development along with cost, their level of cleanup (greenfield, greyfield, brownfield), their status for development (approved, shovel-ready, pad-ready), and contact info for interested parties. This database should show all private and public sector properties.

4.4.8 Enhance Workforce Development and Access for Freight and Logistics Jobs. Regional stakeholders identified a need to enhance workforce development and job access for freight and logistics jobs. Workforce development is identified as one of ITGO's priorities for 2020. ITGO and other freight and logistics industry stakeholders should work with supply chain management and logistics centers and workforce training programs, such as at college and universities across the region (NCCC, Niagara University Center for Supply Chain Excellence, Buffalo State College, University at Buffalo, Canisius College), Northland Workforce Training Center, REDC Workforce Development Challenge, Erie-1

BOCES, WNY Talent Attraction and Retention Initiative, and other partners to secure grant funding to establish and implement a new regional logistics workforce development upskilling and education program to include:

- Regional Workforce Needs – work directly with companies providing or requiring logistics services to determine the region's current and forward-looking personnel needs.
- Logistics Career Promotion – Create logistics workforce development and career path portal for students, job seekers, and workers changing careers. The portal can include job board, promotion of logistics careers, and links to education/ upskilling resources.

The collaboration with NCCC is advancing, however advocated have indicated that workforce development associated with the freight and logistics industry needs adequate funding and attention from state and local workforce agencies. The New York State Department of Labor needs to establish an apprentice job title for the freight and logistics industry.

Also, regional economic development agencies should look to align industrial development with existing transportation options, ensuring job centers have access to transit in terms of both routing and scheduling. Improving worker access would require collaboration with regional employers, transit operators, job training centers, and community service agencies to improve job access and mobility.

4.4.9 Continue to Advance UPWP Projects that Support Freight Transportation. The GBNRTC UPWP identifies several planning projects that aim to enhance safety and improve transportation for the freight and logistics industry that should be advanced in upcoming years. The following require additional planning and/or analysis to refine specific strategies or projects before they can be implemented:

1. **Conduct I-290/ Main Street Interchange Area Assessment.** This has been identified as a location that needs attention to address safety improvements to reduce the number of crashes and attention to making the area safer and more walkable for pedestrians. This could include reconfiguring ramps.
2. **Analyze Access Improvements for I-290 Ramp to I-190.** This assessment would look to reduce congestion that builds on northbound I-190 prior to the South Grand Island Bridge and improve the safety of merging vehicles onto I-190 northbound from I-290.
3. **Analyze the Ramp Configuration on Westbound I-90 to Northbound I-190.** This assessment would look at ways to improve merging operations to reduce congestion and make the interchange safer.
4. **Further Analyze I-190 Niagara/ Virginia Street Ramps.** This analysis would be conducted in relation to the Ralph C. Wilson Jr., Centennial Park redevelopment; this could involve improvements to the existing ramps, construction a new access roadway and realigning the interchange, or removing the ramps all together. This interchange is identified as one of the high frequency crash locations in Tech Memo #1.
5. **Develop Alternatives for Twin Cities Highway (NY Route 425) and River Road (NY Route 265).** Both of these corridors in North Tonawanda are utilized by truck traffic and the planning studies will look at opportunities to implement more context-appropriate roadway

features and incorporate placemaking and pedestrian/ bicycle opportunities while balancing the needs of the freight and logistics industry.

6. **Undertake the Youngs Road Interchange Analysis.** This assessment would look at alternatives and feasibility of constructing a NYS Thruway Interchange at Youngs Road. This project is one of ITGO's 2020 priorities and has been identified by freight stakeholders as well as elected officials and community stakeholders, as desirable to not only provide a freight and logistics benefit to support Air Cargo at Buffalo Niagara International Airport and nearby industrial, warehousing, and logistics community, but to provide a commuting benefit that would help alleviate congestion on nearby north-south roadways (Main Street and Wehrle Drive).
7. **Undertake a I-190/ Niagara Falls Boulevard Interchange Improvement Assessment.** With emerging freight congestion portrayed in the bottleneck analysis outlined earlier in this study, further analysis will identify recommendations for reducing congestion and improving freight flows in the area, while also enhancing other multi-modal mobility.

4.4.10 Advance Future UPWP Projects. In addition to the projects already identified in the UPWP, the following interchanges/ intersections that were identified as high-crash locations in Tech Memo #1 and corridors that were identified in the Bottleneck Analysis as experiencing congestion should be considered for future UPWP projects to study and evaluate potential improvements:

1. **I-290 Between Millersport Highway and I-90 and I-90/ I-290 Interchange**. Both the eastbound and westbound sections of I-290 between I-90 and Millersport Highway have V/C ratios reaching capacity by 2045. In conjunction, the interchange of I-290 and I-90 has shown up as a key congestion point in bottleneck analysis for both the 2010 study and this study update. Studies have been undertaken on this interchange and improvements were made to eastbound I-90 approaching the interchange and on westbound I-90 between the I-90/I-290 merge and SR 33 Kensington Expressway, but the interchange still experiences congestion. Congestion on eastbound I-290 approaching the interchange routinely occurs in the AM and PM peak, often causing congestion beginning around Millersport Highway. This stretch of I-290 as well as the I-290/ I-90 interchange should be analyzed together to address one of the more congested interchanges in the region.
2. **I-90 Between I-290 and I-190.** This stretch of I-90 known as the "Mainline" is identified in the Bottleneck Analysis as experiencing both recurring and non-recurring congestion by 2045. There have been several spot improvements done of the years, but the corridor still experienced congestion currently that is expected to worsen. A UPWP project should take a larger look at the corridor to identify whether additional interchange improvements or Integrated Corridor Management can address congestion or if additional capacity is needed.
3. **I-190/ LaSalle Expressway/ Niagara Scenic Parkway/ Buffalo Avenue Interchange Study.** One of the projects identified in the Niagara Falls Transportation Management Study currently underway that should be pursued is an interchange study to assess how the I-190/ LaSalle Expressway/ Niagara Scenic Parkway/ Buffalo Avenue Interchange can be reconfigured and made more safe, navigable, and act as an attractive gateway to Niagara Falls. This could involve downgrading several roadways in the area, combining interchanges, and/or removing numerous ramps to open up land for public waterfront access and development. This roadway is part of the Critical Urban Freight Corridor network.

4. **I-290 Interchanges at Sheridan Drive and Millersport Highway.** Both of these interchanges show up as high frequency crash locations in Tech Memo #1. A UPWP project should further evaluate how these interchanges can be upgraded to improve safety. This roadway is part of the Critical Urban Freight Corridor network.
5. Walden Avenue Between I-90 and Union Road. Congestion along this stretch is mainly caused by dense retail and numerous traffic signals in close proximity to the I-90 interchange ramps. The corridor experiences high truck usage associated with retail, a nearby truck stop, and industrial uses that are located further east and west where trucks are accessing I-90. The Walden Avenue corridor and interchange with I-90 should be analyzed for improvements, which could come in the form of short-term fixes such as traffic signal coordination; with consideration for longer-term improvements that could consist of interchange and driveway reconfigurations.
6. I-190 from Elm/ Oak to Porter Avenue. Both the northbound and southbound directions of
    a. 190 through downtown experience V/C rations reaching capacity by 2045, as outlined in the Bottleneck Analysis in Tech Memo #1. The corridor and associated interchanges should be analyzed for improvements to enhance safety and reduce congestions. This roadway is part of the Critical Urban Freight Corridor network.

For these roadway corridors, since adding capacity is an expensive proposition and often results in additional traffic volumes that just bring the roadway to capacity again, analysis should focus on improving interchanges and continuing the region's efforts to enhance ITS and integrated corridor management components to manage traffic. These areas should be monitored for future congestion and could become test pilot for technology or safety programs. Freight and logistics stakeholders should provide input into these studies.

4.4.11 Ganson Street Area Plan. Numerous stakeholders throughout this study update process indicated that continuously conflicting land uses in former exclusive industrial areas are raising access, safety, and quality of life issues for the users of those areas. As an example, the increase in entertainment, restaurant, and residential uses in the Ganson Street area have been raised as increasing conflicts between industrial uses and the users of those non-industrial users. Stakeholders have suggested a small area plan for the area of Ganson Street to identify a strategy to allow the uses to operate in sync with an increased look at access (rail, truck, bicycle, pedestrian), safety (conflicts between pedestrians and customer vehicles and rail and truck), and quality of life issues (noise, night operations, etc.). The findings from this study could be transferrable to implementing strategies in other areas of the region experiencing a transition from industrial to mixed uses so that the various uses can continue to exist with minimal conflict.

4.4.12 Multi-Agency Enhanced Freight Corridor Study. GBNRTC should coordinate a multi-agency planning study with NYSDOT and Genesee Transportation Council (GTC) to assess freight movement between the region and the New York City Metro Area. This multi-agency study is needed to understand the larger issues of why trucks are diverting from I-390 and NYS Thruway and using surface streets through Livingston, Wyoming, and Genesee Counties, whether or not cashless tolling on NYS Thruway will likely have an impact, and to what extent these alternative routes need upgrades or by-passes to accommodate increasing truck traffic and to minimize impacts on local communities.

The FHWA Freight Flow Analysis conducted as part of this study portrays a large volume of truck traffic currently travelling between the region and the New York City Metro Area (PANYNJ) that uses U.S. 20A or NYS Route 63 to bypass the I-90 New York State Thruway to get to/ come from I-390 near Mount Morris. While the FHWA FAF indicates the growth in freight through 2045 between the Buffalo-Niagara region and New York City Metro Area shifting from truck to more rail and intermodal freight, truck traffic is expected to increase for freight coming through the region from New York City Metro Area to Southern Ontario. Further, until rail and intermodal infrastructure is able to support this growth in freight volume, trucks may be asked to handle a larger volume of freight between the regions in the meantime. With future freight flows increasing, there should also be a commitment to long-term I-390 and I-86 State of Good Repair to accommodate truck traffic. According to the Volume/Capacity analysis conducted as part of this study, capacity expansion isn't shown to be needed through 2045, as V/C ratios continue to remain acceptable.

4.4.13 Establish Regional Truck and Delivery Vehicle Electric Charging Stations. As companies look to expand and promote their sustainability and "green" platforms, electrification of freight and delivery vehicles, along with the imminent increase in AV delivery vehicles, is on the near horizon. One effect this will have is to necessitate demand for electric vehicle charging stations (whether public or private). Canadian truck companies are a little ahead of the U.S. in terms of electrification of trucking fleets, however truck electric charging stations in the U.S. aren't as prevalent, making travel in the U.S. by Canadian electric trucking fleets more difficult. The need to deploy truck electric charging stations across the region will help accommodate Canadian trucking companies, can facilitate the electrification of local trucking and delivery fleets, and can help promote the area as that "Green" Cross-Border Logistics Hub. The implementation of both private and public electric charging stations often requires upgrading the electric grid to accommodate large scale charging and should be anticipated in development programs. NYSERDA and many utility companies have programs for upgrading electric grids to accommodate electric charging stations. The NYS Public Service Commission's new "Make Ready" program provides utility-based funding for this type of improvement.

GBNRTC should coordinate with NYSERDA, NYSDOT, NYS Public Service Commission, New York Power Authority (NYPA), ITGO, the freight and logistics industry, and utilities to identify locations to begin planning for delivery vehicle electric charging stations and identify grant or pilot programs to initiate such upgrades, then develop RFP's to work with vendors on deploying pilot electrification stations. Areas where the utility grid needs upgrades to accommodate electric charging stations for freight, transit, and municipal vehicle fleets (whether public or private charging stations) should also be identified and coordinated with the Public Service Commission, utilities, and fleet operators. Electrification of trucking will likely come for long distance hauling first (within next 5 years), and autonomous, electric delivery logistics will follow for "last-mile" deliveries.

4.4.14 Development of Curbside Management and Autonomous Delivery and Micro-Delivery Policies and Procedures. As supply chains continue to evolve, new delivery techniques will likely emerge in the form of autonomous delivery vehicles and micro-delivery vehicles, or delivery bots. The changing supply chains will mean an increase in delivery vehicles in urban areas and, in particular, on neighborhood streets. This brings to light the importance of curbside management that both allows businesses to load delivery vehicles to ship their products directly to consumers and to allow delivery vehicles to access consumer homes. Below are strategies that GBNRTC should be involved with to ready the region for such technologies and advancements in the freight and logistics industry.

1. **Curbside Management Policies.** Curbside management policies would be aimed at removing static use of roadway curbsides and transitioning to dynamic use that reflects the demand for curbside space during different times of the day, week, and/or year, recognizing the need to share curbside space with delivery vehicles. The ideal curbside management strategy would involve the use of smart mobility technology that could work in a connected environment with vehicles to relay real-time information about what curbside usage is permitted and where. For instance, a delivery vehicle pulling up to a curb looking to pick up or make a delivery would be alerted as to whether or not the curb use is active for deliveries or not, and can potentially be reserved by said delivery vehicle ahead of time. This technique is similar to real-time parking management strategies used by cities to assist commuters and visitors find parking, only this approach is directed at the freight and logistics industry.
2. **Autonomous Delivery and Micro-Delivery Vehicle Policies.** Autonomous delivery vehicles are driver-less vehicles that pick-up products from source locations (businesses, warehouses, manufactures, etc.) and deliver them to consumers. Micro-delivery techniques reflect the use of non-traditional delivery devices, such as delivery robots and drones that make deliveries directly to consumers, and could be used in connection with a larger delivery vehicles that arrives in a neighborhood and then sets a smaller bot or drone to make the final product delivery to the consumer's door. These technologies may also necessitate the need for communal neighborhood drop-off/ pick-up zones that residents can use, like a mini P.O. box. This would allow delivery vehicles, robots, and drones to make one stop at a communal location rather than multiple trips throughout a neighborhood. Policies on how these vehicles/ devices may operate on and across streets and sidewalks and where they may "park" will need development. Policies on the operation of package drones similarly need development; for example, should they be restricted to flight paths over existing rights of way, where can they land, and what protections are needed should packages come loose and fall from overhead.

While much of the autonomous and micro-delivery policies and regulations would come from federal agencies or New York State, GBNRTC should be a liaison to local municipalities in getting policies and regulations regarding curbside management and autonomous and micro-delivery vehicles into their codes that are consistent with federal and state policies and regulations, and with industry best practices. It will be beneficial to the freight and logistics industry to have consistency across jurisdictional boundaries. Being proactive regarding new technologies and advancements in freight and logistics will ready communities for the deployment of these technologies rather than waiting for the private sector to force technology on a community (similar to how e-scooters were brought on the scene without policies or procedures in place). The UPWP already identifies providing support to the City of Buffalo to develop a flexible curb space framework, additional support should go towards other urbanized communities.

4.4.15 Buffalo-Niagara Integrated Corridor Management

ICM uses technology-enabled transportation management and operations strategies that leverage existing assets to reduce congestion and enhance safety. ICM strategies are able to provide information to empower motorists to make decisions, offer variable toll rates that incentivize travel during less congested times, and enable the rapid removal of incidents, the optimizing of traffic signals, and other strategies to manage transportation capacity. The key benefits of ICM are:

- Increased safety with a reduction and/or prevention of crashes

- Reduction in vehicle hours traveled
- Improved weekday commute period travel conditions
- Greatest travel improvements found with traveler information and incident response strategies
- Reduction in emissions
- Arterial signal management increases the benefit-cost ratio

NITTEC and GBNRTC tested ICM strategies for five different base conditions including weekday AM and PM peak commute periods, incident, holiday, snow, and game day traffic conditions along the I-190 corridor between Downtown Buffalo and Niagara Falls. The ICM strategies tested include:

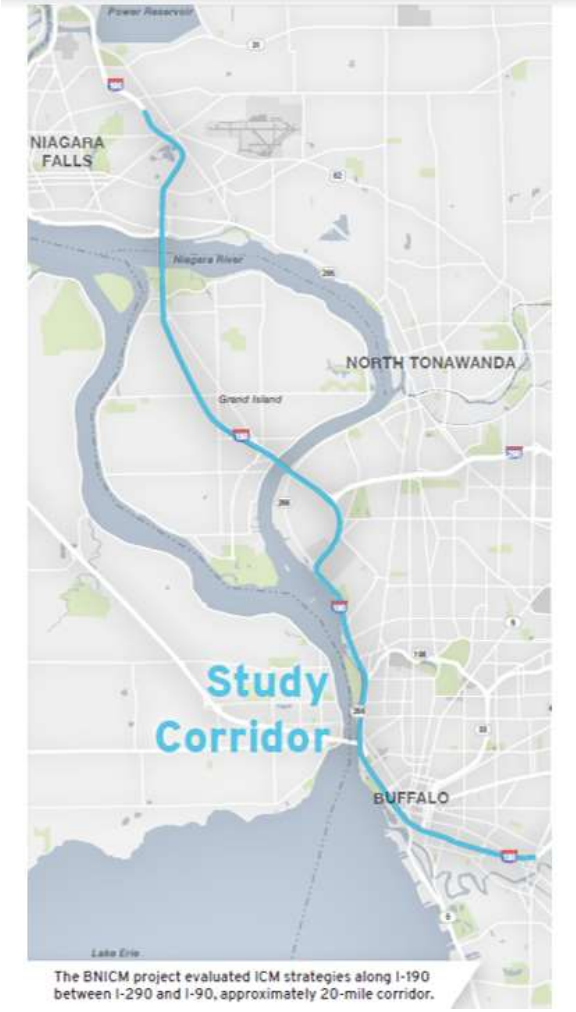
- Dynamic Traveler Information
- Variable Speed Limits and Queue Warning
- Dynamic Lane Controls
- Freeway Incident Detection & Patrols
- Variable Toll Pricing
- Parking ITS
- Ramp Metering
- Arterial Signal Coordination
- Road Weather Information Systems and Plow Management System

The results of the tested ICM strategies indicated that two packages of ICM strategies are recommended – Package A (which includes Dynamic Traveler Information, Freeway Incident Detection and Patrol, Ramp Metering, Variable Speed Limits and Queue Warnings, and Variable Toll Pricing) and Package B (which includes the same strategies as Package A plus Arterial Signal Coordination). ICM strategies were grouped into packages because ICM strategies work together to improve congestion and benefits cannot be accurately understood when looking at them one at a time. Package A is a slightly less expensive concept, while Package B, which includes Arterial Signal Coordination, is a more expensive concept but provides a better benefit/ cost ratio. These packages of ICM strategies are highlighted further as separate project tasks under the ICM project.

The next steps in implementing ICM strategies are:

1. Seek funding opportunities such as grants for design and development
2. Conduct a detailed design for specific ICM locations and equipment
3. Explore staged or phased deployment since it may be cost prohibitive to implement the whole system at one time.
4. Provide a Performance Evaluation Program to evaluate effectiveness and make adjustments based on real-world conditions.

Figure 4.1: Integrated Corridor Management I-190 Study Corridor



Source: NITTEC

4.4.16 Expand Intelligent Transportation Systems (ITS) in the Region. NITTEC was the recipient of an Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) grant from the USDOT to deploy a variety of ITS technologies across the region. NITTEC is currently undertaking the planning phase of this project, which includes Project Management Plan, System Engineering Management Plan, Project Evaluation Plan, Concept of Operations, System Requirements, and development of an RFP for the design, development, and implementation phases of the project.

Once the planning phase is completed, NITTEC will coordinate with transportation agencies and other community stakeholders to identify pilot projects to fund and implement across the region that deploy a variety of ITS technologies, help realize a multi-agency, technology enabled, and integrated regional mobility management system, and enhanced real-time information to travelers as part of the ATCMTD program. As outlined in the ATCMTD program, pilot projects should:

- Balance multi-modal demand at international border crossings through active demand management to provide acceptable levels of service;

- Improve freight operations through freight operator-targeted traveler information, including development of vehicle-to-infrastructure (V2I) applications supporting in-vehicle dissemination of alerts and advisories;
- Enable the benefits of integrated regional mobility by extending existing integrated corridor management (ICM) activities; and,
- Move toward an integrated region by creating the opportunity for agencies to share information and collaborate in real-time.

Below are a list of potential pilot projects that were discussed in concept as part of this study effort with NITTEC and various stakeholders that have the ability to benefit the freight and logistics industry, and that could be funded and implemented in the region once the ATCMTD planning phase is complete and NITTEC is ready to issue RFP's for pilot projects.

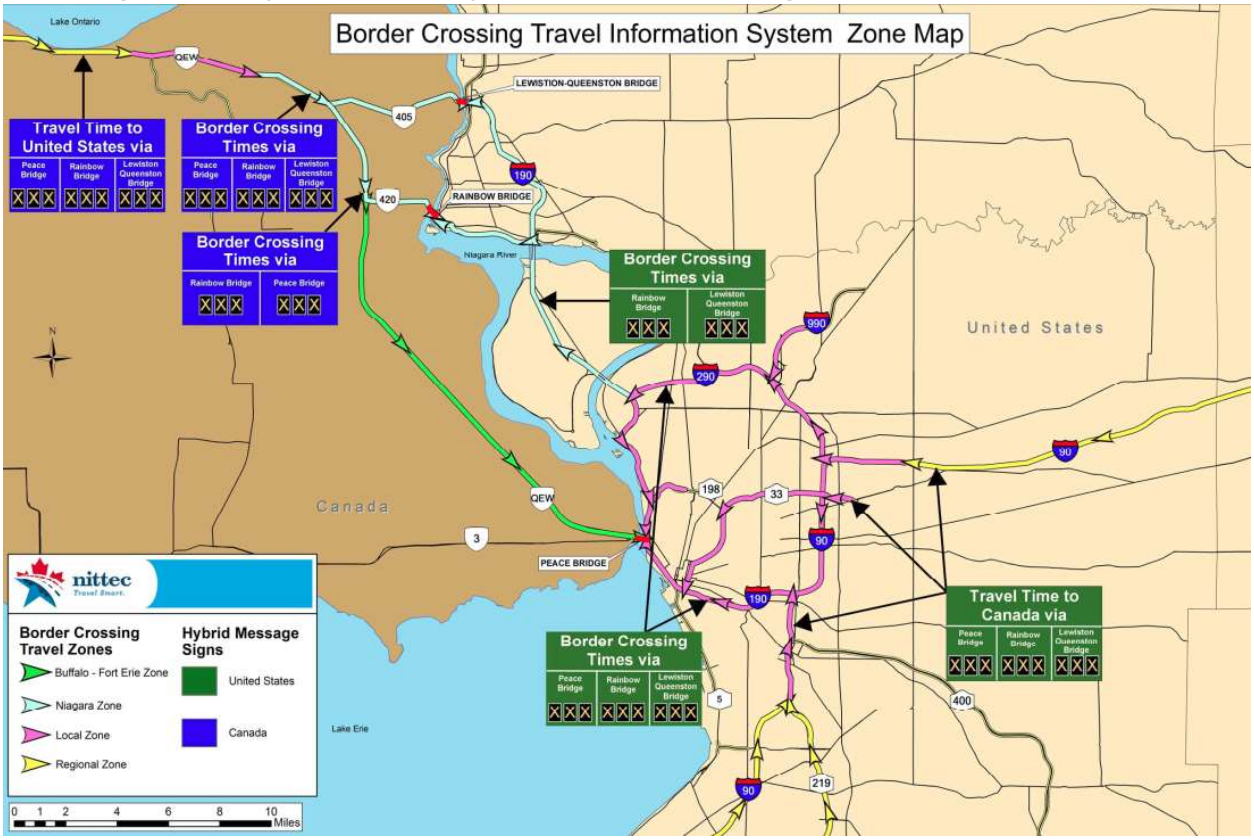
1. **Expand Border Crossing Travel Information in the Region.** The freight and logistics community has continuously indicated that maneuvering the border is a challenge, whether it be from a congestion standpoint or a clearance standpoint. As discussed previously, technological pre-clearance of all commercial vehicles crossing the Peace Bridge is currently under design and involves relocation of CBP technologies (drive-thru non-intrusive inspection, license plate reads, radiation portal monitors, biometric identification) to Canada. Screening trucks and drivers on the Canadian side of the bridge will allow CBP to adjudicate as the truck is traversing the bridge and make an admissibility or referral determination prior to the truck arriving at the primary inspection booth. This will result in a much quicker primary inspection and significantly reduce commercial border wait times. Completion of this project is anticipated by the fall of 2021. Relocation of CBP infrastructure to Canada allows for the opportunity to redesign and reconfigure the U.S. Customs plaza to make it more efficient and functional and more aesthetically pleasing, befitting a key entry to the United States. This demonstration project can be transferrable to the Lewiston-Queenston Bridge in the near-term.

   As a compliment to the Peace Bridge technological pre-clearance project, NITTEC has identified the need to expand the deployment of Variable Message Signs (VMS) across the region in order to enhance real-time border crossing information. These VMS boards would be dedicated to portraying real-time border crossing information for the Peace Bridge, Rainbow Bridge, and Lewiston-Queenston Bridge. Proposed locations for new VMS boards are outlined below and portrayed in Figure 4.2:

   i. Westbound I-90 (NYS Thruway) just east of the Transit Road interchange (Exit 49).
   ii. Westbound SR 33 (Kensington Expressway) east of the Union Road interchange.
   iii. Eastbound I-90 (NYS Thruway) between SR 400 and I-190.
   iv. Westbound I-290 west of the Delaware Avenue interchange.
   v. Northbound I-190 east of the Oak/ Elm Street interchange.

vi. Northbound I-190 on Grand Island approaching the North Grand Island Bridge (this VMS board will only display real-time border crossing information for Rainbow Bridge and Lewiston-Queenston Bridge).

Figure 4.2: Proposed Locations of Additional Border Crossing VMS Boards



Map of proposed Border Crossing VMS Boards (NITTEC)

2. **Pilot Integrated Corridor Management (ICM) Strategies.** Following completion of the ATCMTD planning project, early next steps would be to identify specific ICM elements at border crossings and along the I-190 corridor that should be piloted, and then develop an application for use of ATCMTD funds for an ICM demonstration project. One potential ICM project is discussed as a separate project – Buffalo-Niagara Integrated Corridor Management.

   To further alleviate peak commercial vehicle congestion at the Peace Bridge and Lewiston-Queenston Bridge, the ICM project could explore deploying a dynamic variable toll pricing system. This would allow the toll for crossing the bridge to be adjusted based on expected peak truck volumes throughout the week to better spread peak commercial vehicle traffic out across the day and week. This would work by charging a premium price for commercial vehicles to cross the bridges during typical congested periods, and lower prices for commercial vehicles to cross during typical low volume periods.

   Another corridor that could become the focus of ICM strategies is I-90 between Buffalo and Rochester. According to the FAF, by 2045, some rural sections of I-90 between Buffalo and Rochester begin to show up as reaching V/C ratio capacity and may become congested. For

these rural sections of I-90, the use of a smart and connected ICM environment would help the corridor become less congested through the use of technology. The onset of connected vehicles (i.e., truck platooning and other CVs) is imminent and already being piloted. Early strategies would be to deploy vehicle-to-infrastructure (V2I) roadside sensors that establish the framework to allow for Connected and Autonomous Vehicle use. Connected Vehicles are able to travel closer together and thus help to safely increase capacity of roadways. V2I infrastructure also improves freight operations through freight operator-targeted traveler information, including development of applications supporting in-vehicle dissemination of alerts and advisories. This deployment can be done to compliment ongoing truck platooning pilot planning along the New York State Thruway, discussed further in the following.

3. **Support NYSERDA Planning for New York State Platooning Demonstration.** NYSERDA, in partnership with NYSDOT, recently performed stakeholder interviews and preliminary planning for a potential New York State platooning demonstration. The findings from the NYS platooning stakeholder workshop and the preliminary planning discussions indicate that continuing to pursue a truck platooning demonstration in NYS is warranted. The benefits of truck platooning include lower fuel consumption, reduction in Green House Gas emissions, improved safety, , cost savings, and an overall more efficient supply chain. GBNRTC should monitor this demonstration, and if agreements can be reached on the legalities of truck platooning and with a commercial truck platoon system developer, then GBNRTC should work with stakeholders to identify a truck platoon staging area in the region, which could be located near the I-90 interchange at Transit Road (where a park-and-ride lot and trucking terminals already exist).

4. **Implement Smart & Enhanced Multimodal Corridors (SEMA)**. Using technology to increase capacity of roadways and facilitate the flow of goods movement should be considered for corridors that are heavily relied upon for freight movements. Overall, freight and logistics stakeholders indicated that the Buffalo-Niagara region's transportation network is adequate for their needs. Comments were made that, in general, urban delivery could be improved by way of better coordinating traffic signals to reduce urban congestion and improve on-time performance of deliveries. One potential ATCMTD project that could be applied for is to identify one or more corridors in the region where piloting SEMA strategies would benefit the freight and logistics industry. Important SEMA features would entail V2I roadside sensors that would facilitate dynamic traffic signal coordination and supply real-time travel information to vehicles. Potential freight and logistics benefited SEMA corridors could include:

    i. Route 5/ Main Street.

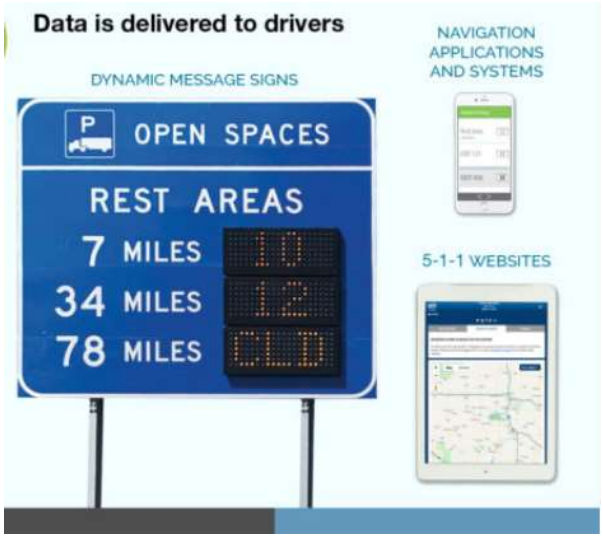
    ii. Bailey Avenue (with focus on the stretch between Main Street and South Park Avenue).

    iii. One of the east-west corridors such as Walden Avenue (with focus on the stretch between Bailey Avenue and Town Line Road at the Lancaster/ Alden border), Genesee Street (with focus on the stretch between Union Road and Town Line Road at the Lancaster/ Alden border), or Broadway (with focus on the stretch between Bailey Avenue and Village of Lancaster).

iv. Niagara Falls Boulevard, with focus on the section in Niagara Falls between Packard Road and Niagara Falls International Airport.

5. **Real-Time Truck Parking Information.** There are two general categories of truck parking needs: locations for long haul drivers to stop for rest/ sleep, and locations for drivers making local deliveries or pickups to stage while awaiting appointment times. The FHWA has been working with a number of states on implementing Truck Parking Information Management Systems (TPIMS). These systems are intended to convey real-time information to truck drivers about available parking, thereby maximizing utilization of existing truck parking capacity. TPIMS collects real-time parking information using sensors in the parking facility. The data is then sent to an information processing center or advanced traffic management center and is then disseminated to the trucking community via in-cab units, roadside VMS boards, and mobile applications. The system can be expanded to allow for a reservation type system to be in place where truck drivers can reserve a parking space ahead of time. The TPIMS is being deployed in several states outside of New York. In addition to TPIMS, FHWA is working with states on other deployment technologies, including overhead sensors that simply count the number of trucks that enter and exit a rest stop, providing information as to approximately how much capacity exists at a truck parking area. Figure 4.3 displays a typical TPIMS system being deployed in several state.

Figure 4.3: Typical TPIMS System



How real-time truck parking information is relayed to the trucking community, www.truckparkhere.com

The region should work with NYS Thruway Authority, NYSDOT, NYSERDA, and other public, private, and not-for-profit partners to explore deployment of a real-time truck parking information system (TPIMS or a similar compatible system). The system could initially be put in place at Thruway rest areas and then expanded to include private truck stops (such as at the Walden Avenue exit).

6. **Urban Truck Hub or Mobile Depot.** The concept behind Urban Truck Hubs or Mobile Depots is to identify truck parking areas in urban areas where larger trucks making deliveries can stage while other "last-mile" delivery methods make final deliveries to their destinations. The growing difficulty with multiple trucks and vans maneuvering and using curb space on

narrow and congested urban streets, combined with the growing desire by consumers to have next-day or same-day delivery of goods is proving difficult to serve consumer needs solely through the use of delivery trucks that transport directly from a warehouse, distribution or sorting center, or retailer. The current state of next-day or same-day delivery is focused on time sensitivity rather than cost sensitivity. As the need to focus more on cost sensitivity increases, alternative "last-mile" delivery methods will continue to be tested and deployed, such as contractor or third-party delivery providers (i.e., Instacart, Uber Eats, Amazon Fresh), autonomous vehicles, cargo bikes, delivery bots, and drones. This concept, already being deployed in Europe and soon to be tested in Toronto, allows for a larger delivery vehicle to get close enough to its final destination for the "last-mile" delivery method to complete the delivery in a more economically efficient way.

An Urban Truck Hub or Mobile Depot uses an underutilized site (typically a surface parking lot, land use that experiences different peaks than deliveries such as a church, or underutilized curb space) to allow trucks and delivery vehicles to stage and complete "last-mile" pick-ups or deliveries to consumers that are located on congested urban streets rather than crowding urban streets and curb space with trucks. Some Mobile Depots are being tested for drone landing in urban areas, with "last mile" delivery from a larger drone to consumers.

In coordination with NITTEC, NYSERDA, City of Buffalo, freight stakeholders, third-party delivery providers, and parking lot operators, the concept of the Urban Truck Hub or Mobile Depot should be considered as a pilot project under the ATCMTD in one or more denser urban neighborhoods across the City.

7. **Weather and Incident Related Closure Information.** NITTEC and freight stakeholders have both indicated that a more reliable and quicker communication method is needed to get real-time information regarding weather-related closures and detours, border crossing information, and incident related delays and closures to the trucking community. A pilot project under the ATCMTD could be deployment of V2I infrastructure that would communicate closures and incidents in real-time to truck drivers, and more clearly relay information on detour routes to truck drivers. This would involve a larger deployment of roadside sensors along Interstate highway and along arterials that are designated as detour routes.

8. **Implement Truck Low Bridge Clearance Warning Detection.** NYSDOT and other transportation agencies have started using technology such as truck height detectors, cameras, and electric signs to warn truck drivers of upcoming low bridge clearance heights. These detection systems can help save bridges with low clearance from constant collisions from trucks, and thus help to extend their structural life. The detection system works by using a camera or laser detection system prior to a low bridge that identifies if a vehicle is too tall for the bridge clearance. If the camera or laser detects a vehicle too large for the clearance, a VMS board or sign with flashing beacons lights up detecting the truck driver not to proceed. Advanced implementation involves the use of V2I infrastructure to provide in-cab notifications to the truck driver to not proceed to the bridge, and eventually automatic vehicle stopping mechanisms to avoid bridge collisions. Figure 4.4 shows an example of a low bridge clearance warning detection deployed by NYSDOT on Long Island.

Figure 4.4: Low Bridge Clearance Warning Detection System

Example of low bridge clearance warning detection system in operation in Long Island, deployed by NYSDOT.

GBNRTC is currently in the process of approving PIN 581451. This NYSDOT project will "bring expressway ramp termini and low clearance bridge locations into compliance with Statewide design standards, Federal MUTCD Section 2B.41, NYS MUTCD, and Section 1621(c) of NYS Vehicle and Traffic Law, effective signing to promote safe and efficient traffic flow will be provided." This mainly involves enhanced signing countermeasures. Locations for low clearance bridge detection include:

- Niagara Scenic Parkway and LaSalle Expressway in the City of Niagara Falls – The I-190 bridge over the Niagara Scenic Parkway/ LaSalle Expressway has a posted low clearance of 11' 8", and is routinely hit by trucks, buses, and other commercial vehicles. There is a portable VMS sign posted at the off-ramp from northbound I-190 to Niagara Scenic Parkway signaling that trucks are prohibited from using Niagara Scenic Parkway; however, the bridge is still routinely hit.
- Several locations on NY Route 249 in the Village of Farnham – The CSX and NS bridges over NY Route 249 have posted clearances of 12' 5".
- Several locations on NY Route 5 in the Town of Brant – The CSX and NS bridges over NY Route 5 have post clearances of 12' 6".

Another pilot project that could come out of the ATCMTD program deployment of a low bridge clearance warning detection system for non-expressway locations that can be piloted at several low bridges that frequently experience truck collisions, including the locations listed above as well as:

- Colvin Boulevard in the City of Buffalo – The CSX bridge over Colvin Boulevard between Amherst Street and Hertel Avenue has a posted low clearance point of 9' 1" and is routinely hit by trucks that aren't centered on the arch span.
- Clinton Street in the City of Buffalo – The CSX bridge over Clinton Street between Jefferson Avenue and Fillmore Avenue has a posted clearance of 11' 6". Additionally, the CSX bridge over Clinton Street between New Babcock Street and Bailey Avenue has a posted clearance of 11' 11". Clinton Street is signed as State Route 354 and is heavily

used by trucks, and these bridges have been the recipient of several truck collisions in the past.

- Young Street in the City of Tonawanda – The CSX bridge over Young Street north of State Street has a posted clearance of 11' 10", and regardless of multiple signs posted warning of low bridge clearance, is constantly hit by trucks.

4.4.17 Bethlehem Steel Advanced Manufacturing Park Infrastructure. While improvements have been made and some infrastructure has been constructed to provide initial access to the Bethlehem Steel site, ECIDA has identified, through its Bethlehem Steel Advanced Manufacturing Park master plan, several additional transportation and water/ sewer infrastructure projects that are needed to enhance the park and further market the site as an Advanced Manufacturing Park. The below roadway access projects are identified as needed to help grow the Bethlehem Steel Advanced Manufacturing Park, and are also portrayed in the Bethlehem Steel Advanced Manufacturing Park Master Plan in Figure 4.5:

1. **Northern Access**. Extend Ridge Road from Fuhrmann Boulevard west into the site to provide access to lots at the northern portion of the site (lots 7, 8, 9, and 10).

2. **Southern Access**. Construct a new roadway from Route 5 (aligned with the intersection of Madison Avenue) to provide access to the southern lot, south of Smokes Creek. Construction of this southern access is recommended to accompanied by a 200' southbound right turn lane (as outlined in the Bethlehem Steel Advanced Manufacturing Park Master Plan and GEIS) to minimize impacts to the southbound travel lanes.

3. **Additional Access**. Construct a new roadway from Route 5 (aligned with the intersection of Odell Street) to provide additional access to the central portion of the site, with the potential to eventually provide public access to the Port of Buffalo.

4. **Improve Route 5/ Ridge Road Interchange.** Construction of designated left turn and right turn lane on southbound NY Route 5 off ramp intersection with Ridge Road to alleviate backups on the ramp during peak times. Currently, vehicles create left turn and right turn lanes by utilizing the shoulders of the ramp; reconstruction of the ramp would provide two lanes dedicated for left turns and right turns, and appropriate shoulder.

Figure 4.5: Bethlehem Steel Advanced Manufacturing Park Master Plan

Bethlehem Steel Advanced Manufacturing Park Master Plan, ECIDA

4.4.18 Niagara County Rural Bridges Improvements. Niagara County sought funding in 2019 and again in 2020 to improve several roads and bridges in the county that are in disrepair and need attention through a BUILD grant application for their Niagara County Rural Bridges Improvement Initiative. While unsuccessful in attaining the BUILD grant, the need for improvements to these roads and bridges remains and are supported by freight stakeholders in the region and is one of the ITGO priorities for 2020. Improvements to these Niagara County bridges support agribusiness in Niagara County, as they are needed for transport of goods or raw materials and will yield a positive impact on the County's farms and agribusiness.

1. **Carmen Road over Johnson Creek.** Replace this structurally deteriorating bridge with a longer, wider bridge to accommodate larger agricultural vehicles, including new abutment, footing, and wing walls. The priority of this project has recently been elevated and placed in the TIP for upcoming replacement.

2. **Carmen Road over Golden Hill Creek.** Replace this structurally deteriorating bridge with a longer, wider bridge to accommodate larger agricultural vehicles, including new abutment, footing, and wing walls.

3. **Johnson Creek Road over Golden Hill Creek.** Replace this structurally deteriorating bridge with a longer, wider bridge to accommodate larger agricultural vehicles, including new abutment, footing, and wing walls. This project will again be part of the 2021 BUILD application.

4. **Gasport Road over Eighteen Mile Creek.** Replace this structurally deteriorating bridge with a longer, wider bridge to accommodate larger agricultural vehicles, including new abutment, footing, and wing walls.

5. **Hartland Road over Golden Hill Creek.** Replace this structurally deteriorating bridge with a longer, wider bridge to accommodate larger agricultural vehicles, including new abutment, footing, and wing walls. This project will again be part of the 2021 BUILD application.

6. **Royalton Center over Mud Creek.** Rehab this bridge, which hasn't seen major rehab work done since its construction in 1964.

7. **Ditch Road over Black Creek.** Undertake bridge rehab, which hasn't seen major rehab work done since 1982.

8. **West Somerset Road over Fish Creek.** Undertake bridge rehab, will be included in the 2021 BUILD application.

9. **Ewings Road over Eighteen Mile Creek.** Undertake bridge rehab, will be included in the 2021 BUILD application.

4.4.19 Facilitate Skyway Alternatives that Accommodate Freight & Logistics Industry. The NYSDOT undertook a comprehensive and objective evaluation of a range of concepts for the Skyway Project, which involves a look at removing the Skyway and replacing it with alternative access. Of the 28 concepts considered, it was determined that only one concept (Concept I) would meet the project purpose and all of the project objectives. Based on these potential wetland impacts and in consideration of agency input, the NYSDOT studied variations to the Concept I alignment that would avoid, minimize, or reduce impacts to the wetlands referenced above. Two variations, described below, were determined to be both reasonable and practicable and are being advanced for detailed study in the DDR/DEIS as two separate build alternatives. The initial alignment of Concept I was dismissed from further consideration.

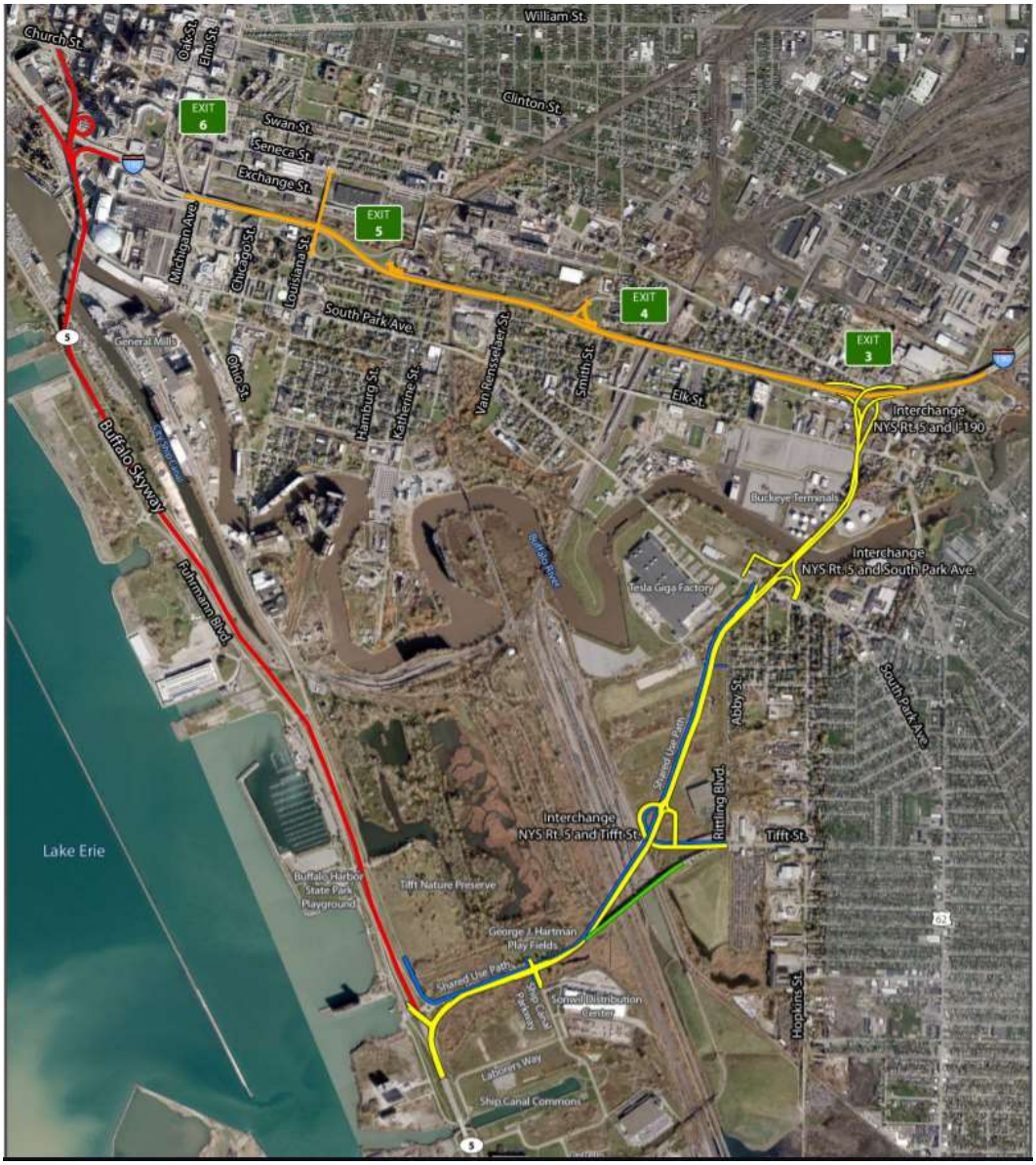
1. **Build Alternative 1: New Highway Connecting NYS Route 5 to I-190.** Build Alternative 1 would remove the Buffalo Skyway structure and elevated approaches between Tifft Street and Church Street and realign NYS Route 5 from Tifft Street to I-190 via a new controlled access highway partially utilizing abandoned railroad right-of-way. The highway connector would include interchanges at Tifft Street, South Park Avenue, and I-190. The new interchange with I-190 would replace the current partial interchange at Exit 3 and be dedicated to movements between the highway connector and I-190. To accommodate the additional traffic that would utilize I-190, improvements would be made to I-190 between the new Exit 3 and existing Exit 6 (Elm Street). Existing streets and intersections at key locations would be improved through the addition of turn lanes and traffic signal optimization and coordination. To improve operating conditions for bicyclists and pedestrians, a shared-use path would be constructed to connect Tifft Street with South Park Avenue. This is displayed in Figure 4.6.

Figure 4.6: NYSDOT Skyway Build Alternative 1 – New Highway Connecting NYS Route 5 to I-190

Build Alternative 1, NYSDOT

2. **Build Alternative 2: New Boulevard Connecting NYS Route 5 to I-190.** Build Alternative 2 would remove the Buffalo Skyway structure and elevated approaches between Tifft Street and Church Street and realign NYS Route 5 from Tifft Street to I-190 via a new boulevard partially utilizing the existing Tifft Street corridor and abandoned railroad right-of-way. The boulevard would include connections at Fuhrmann Boulevard, Ship Canal Parkway, Tifft Street, South Park Avenue, and I-190. The new interchange with I-190 would replace the current partial interchange at Exit 3 and be dedicated to movements between the boulevard and I-190. To accommodate the additional traffic that would utilize I-190, improvements would be made to I-190 between the new Exit 3 and existing Exit 6 (Elm Street). Existing streets and intersections at key locations would be improved through the addition of turn lanes and traffic signal optimization and coordination. To improve operating conditions for bicyclists and pedestrians, a shared-use path would be constructed to connect Tifft Street with South Park Avenue. This is shown in Figure 4.7.

Figure 4.7: NYSDOT Skyway Build Alternative 2 – New Boulevard Connecting NYS Route 5 to I-190



Build Alternative 2, NYSDOT

The freight and logistics industry as indicated concern over removal of the Skyway because it provides a vital trucking link between the Peace Bridge and greater Interstate system with industrial areas and freight and logistics centers along Route 5 and throughout South Buffalo. The region has spent considerable resources on cleaning up, developing, and promoting industrial areas such as Lakeside Commerce Park and the Bethlehem Steel site as new light industrial, warehousing, and logistics centers. The continued growth of these and other industrial areas along Route 5 is hinged on maintaining quality access to the Interstate system and Peace Bridge. If/ when the Skyway removal moves ahead, the freight and logistics community has indicated that identifying and developing an alternative that maintains an equivalent level of or enhances access to/from I-190 and the Peace Bridge will need to be constructed.

4.4.20 Widen Transit Road Between Walden Avenue and Gould Avenue in Village of Depew. This section of Transit Road (NYS Route 78) is 40-foot wide and consists of four 10-foot lanes. The outside travel lanes are constrained with three railroad bridge support structures and their abutments that make use of the outside travel lanes difficult for larger vehicles and trucks. Further, during heavy rains, poor drainage causes flooding and often renders the outside lanes unusable. A project was undertaken in 2018 to remove one of the inactive railroad bridges and improve stormwater and curbing, allowing for full use of the four travel lanes. This project would expand on that project, and involve widening Transit Road, and subsequently replacing the railroad bridges to allow for such widening, and improving the stormwater system and curbing to allow for the safer use of all four travel lanes on Transit Road.

4.4.21 River Road Roundabout at Riverview Solar Technology Park. The construction of Riverwalk Parkway was completed to accommodate Riverview Solar Technology Park, a 200-acre business park located in the Town of Tonawanda. As the park has continued to fill in, truck traffic has increased. Further, the development of an Amazon facility has brought about heavier volumes of truck and van traffic exiting and entering the park to/ from River Road. To date, there is no traffic signal at the intersection due to lack of a warrant to install a traffic signal. The Sustainable Tonawanda Brownfield Opportunity Plan identified constructing a roundabout at this intersection to serve multiple purposes:

- Provide improved truck access to/from Riverview Solar Technology Park
- Assist in applying a road diet to River Road to make the corridor more pedestrian and bike friendly; and,
- Allow for a safer transition for pedestrians and bicyclists to cross between the Riverview Solar Technology Park trail and the Shoreline Trail. As part of improvements to the Shoreline Trail being undertaken by Erie County, a trail switchback will provide access between the Shoreline Trail and a point across from Riverview Parkway.

4.4.22 Rail Spur to Future WNY Agribusiness Park Market Study. The Buffalo and Erie County Industrial Land Development Corporation (a member of ECIDA) is currently in the process of developing a Master Plan and General Environmental Impact Statement (GEIS) for a new agribusiness park located on the site of the former Eden Angola Airport in the Town of Evans. While the Master Plan and GEIS will study the feasibility of constructing the park, including needed utilities, transportation, stormwater, parcel size, and site amenities, it does not go as far as including a market assessment and feasibility of constructing a rail spur into the site to provide rail access. The agribusiness sector has indicated that rail usage for agricultural products is feasible in other agribusiness parks and would be a benefit to this park. As a follow up to the Master Plan and GEIS, a market and feasibility study should be undertaken to determine the feasibility of constructing a rail spur to the park, identify if construction of a rail spur into the site would provide a positive cost/ benefit to filling the park, and estimating the cost and process for constructing such a rail spur would be.

4.4.23 Long-Term Planning for International Rail Crossings. The Buffalo-Niagara region consists of only one active international rail crossing – International Bridge. Below are strategies/ initiatives to maintain this crossing in a state of good repair as well as look at opportunities for redundancy in international rail crossings, especially in the event that the International Bridge has to be closed for some time due to construction or an incident.

1. **State-of-Good-Repair Upgrade to International Rail Bridge.** The International Railroad Bridge is the only bridge currently being used for cross-border rail traffic. It is owned by the Canadian National (CN) Railway, which operates train to connect with CSX and NS Yards in the Buffalo-Niagara region. The International Rail Bridge has been identified in documents as needing repairs and improvements, including foundation upgrades, in order to maintain and extend its useful life. While this bridge is owned by a railroad company, it will likely require a bi-national, multi-agency collaboration effort to address improvements, to which this coordination effort should begin soon. If rail rerouting is needed, upgrades would be needed to the Whirlpool Rapids Bridge (see following project).

2. **Whirlpool Rapids Bridge Improvements Assessment.** The Whirlpool Rapids Bridge is located on the upper portion of the bridge (with vehicular traffic on the lower portion). The rail bridge is down to a single track that runs down the center of the bridge. The bridge is used by Amtrak for its Maple Leaf Service to Toronto and is currently not used for freight rail traffic. Currently, Amtrak trains operate on the bridge at 5mph as a precautionary measure to reduce the vibration impact on the bridge. The Niagara Falls Bridge Commission will soon begin a load rating assessment on the Whirlpool Bridge that may offer additional insight into needed repairs for the bridge if the bridge were to be used for freight rail again, even temporarily to offer a detour route should the International Bridge need to be closed for repairs or reconstruction. Regarding the rail portion of the bridge, there is dispute as to who has maintenance responsibility for improvements, which will need to be resolved.

GBNRTC should act as a liaison for the region in coordinating with bi-national stakeholders on a strategy for improving existing international rail bridges, planning for redundancy in international rail crossings, and identifying potential funding sources for such improvements.

4.4.24 Depew, Lancaster & Western (DL&W) Railroad Line Upgrades. The Erie County IDA, in partnership with the Genesee Valley Transportation Company, Inc., have identified several infrastructure needs of the short line DL&W railroad which operates between Cheektowaga and Lancaster, NY. The DL&W Railroad operates terminal switching operations with Norfolk Southern and handles a range of agricultural products, plastics, forest materials, and freight too large for over-the-road trucking. Several projects that would be important for improving safety and efficiency and maintaining compliance to run the heavier 286K rail cars on their line are outlined below:

1. **Improve Driveway Access to/from the DL&W Transload Facility.** This project focuses on improving the driveway access to/from the DL&W transload facility in Lancaster from Walter Winter Road by paving and widening the access into a two-way access road. Currently the driveway supports only one-way movement of trucks, with trucks entering from Walter Winter Road and either having to back out or uses a neighboring property to exit, which is not a long-term solution. Figure 4.8 is a photo of the existing one-way access.

Figure 4.8: Access Road to/from DL&W Transload Facility

Google Street View of DL&W Transload Facility access drive

2. **Extend Engine House Track.** This project focuses in on the engine house area in Lancaster and the switching and off-loading activities at the east end of operations. DL&W proposes to extend the engine house track east 250 feet and re-join the mainline with a turnout creating a run around for safer switching. In addition, DL&W looks to upgrade frogs and switch stands to accompany the improved driveway access. These upgrades will benefit health and safety concerns and create efficiencies for switching and transload staging in and near to their Lancaster, NY engine house.

3. **Improve the DL&W Interchange with Norfolk Southern.** This project focuses on improving the DL&W interchange with Norfolk Southern in Depew and building new interchange sidetrack using relay track for better car hand-offs to NS. This project would also include a robust mainline tie replacement and surfacing. Currently, DL&W Railroad is required to bring railcars to the NS yard to interchange, which is inefficient because it often requires two trips. This project would construct a new interchange track close to the property line with NS on the DL&W side of the property so that cars can be left near the interchange for NS to pick up without DL&W cars going onto NS tracks. Benefits here are to eliminate the need to push cars into place with an employee hanging on the end of a train; the operator would be able to pull cars into hand-off track and leave at the west end and the NS operators would be able to hook up and pull out directly instead of pushing cars. Further, the project will support and maintain the good level of track maintenance to care for the growth of traffic in this industrial area of WNY. Figure 4.9 portrays this situation in an aerial view.

4. **Replace Structurally Deteriorating Bridge.** This project focuses on removing a structurally deteriorating bridge on the DL&W line over a drainageway, located between Broadway and Walden Avenue, east of Dick Road in Depew, and replacing it with a culvert. The neighboring tracks on the NS Railway have removed their bridge at this location and replaced it with a culvert for drainage purposes. DL&W would propose doing the same which would eliminate operating over one of the oldest rapidly deteriorating bridge structures on the old Erie Lackawanna Line. Figure 4.9 shows the location of this bridge.

Figure 4.9: DL&W Interchange with Norfolk Southern

4.4.25 Buffalo Southern Railroad (BSOR) Line 1246 Improvements. The Erie County IDA identified infrastructure needs of BSOR Railroad, which operates from Buffalo south to Gowanda. BSOR railroad has two projects that include bridge and highway crossing upgrades that would be important for improving safety and efficiency, as well as upgrading track standards, as outline below:

1. **Improving Six Bridges.** This project focuses on improving six bridges in four Erie County towns. Four of the bridges primarily require new bridge timbers and a walkway, one small bridge needs a new steel or concrete structure to bring it up to 286K compliance, and one bridge needs new ties and ballast with sealant applied to the steel structure. The BSOR serves a host of businesses between Buffalo and North Collins and some of the rural areas that are serviced require crossing large creek bed bridges. The steel structures are in good shape but in most cases the bridge timbers are at the end of their useful service life.

   The bridges needing repair include:

   i. **Bridge MP 13.94 over North Branch Eighteen Mile Creek, Town of Hamburg**. Replace bridge timbers, add safety walkway, and repair approaches.

   ii. **Bridge MP 15.85 over South Branch Eighteen Mile Creek, Town of Hamburg**. Replace bridge timbers, add safety walkway, repair steel, and repair abutment and approach ties.

   iii. **Bridge MP 22.25 over Franklin Gulf, Town of North Collins.** Replace bridge timbers, add safety walkway, repair approach ties, and add ballast and guard rail.

   iv. **Bridge 23.97 through Ballast, Town of North Collins.** Replace deck ties, replace approach ties, add guard rail and ballast, steel repair, and provide deck sealing.

v. **Bridge 32.44 near Perry Street, Village of Gowanda**. Replace existing structure with precast concrete, repair slabs on abutment, add ballast, replace 15 wood timbers, and repair approach ties.

vi. **Bridge 32.90 over Cattaraugus Creek, Village of Gowanda.** Replace bridge timbers, add safety walkway, provide ballast, repair approach ties.

The major benefits of completing these safety and operational track improvements are to maintain the ability of the farming industries in WNY to be able to continue receiving bulk resources (allowing for 286K rail cars) by rail keeping the prices down, allow BSOR to continue to transport 20 million gallons of Liquid Propane to 20 different retail marketers in the area, and also to shift more heavy product shipments from highway to rail, thus reducing truck traffic and highway maintenance costs.

2. **Replace Five Highway At-Grade Crossings.** This project replaces five highway at-grade crossings with modular pre-cast concrete panels, new rail sections, and conduits for signal wire upgrades. The BSOR has been using precast panel crossings for full depth replacements beginning in 2003. The added benefit is whenever the highway paving is upgraded, they receive railroad approvals to pave right up to the sides of the panels to restore and new driving condition as needed. The municipalities have really appreciated these crossing replacements. The Towns of Hamburg, Eden, and N. Collins will be beneficiaries of the next round of crossing replacements.

   The highway at-grade crossing upgrades include:

   i. **MP 14.08 at South Creek Road, Town of Hamburg.** Upgrade at-grade crossing with precast concrete panels, provide welded rail, repair approach ties, and provide/ update ballast, conduit, and signaling system.

   ii. **MP 15.14 at Hickox Road, Town of Hamburg/ Town of Eden.** Upgrade at-grade crossing with precast concrete panels, provide welded rail, repair approach ties, and provide/ update ballast, conduit, and signaling system.

   iii. **MP 16.37 at Bley Road, Town of Eden.** Upgrade at-grade crossing with precast concrete panels, provide welded rail, repair approach ties, and provide/ update ballast, conduit, and signaling system.

   iv. **MP 18.87 at Hemlock Road, Town of Eden.** Upgrade at-grade crossing with precast concrete panels, provide welded rail, repair approach ties, and provide/ update ballast, conduit, and signaling system.

   v. **MP 22.76 at School Street, Town of North Collins.** Upgrade at-grade crossing with precast concrete panels, provide welded rail, repair approach ties, and provide/ update ballast, conduit, and signaling system.

4.4.26 Work with the Port of Buffalo on New Market Business Planning. The Port of Buffalo is a privately-owned port and has a new general manager that is interested in expanding business opportunities but is not familiar with public-private partnerships related to transportation funding. The 2010 study recommended pursuing a roll-on/roll-off (Ro/Ro) service, which allows trailers used in over-the-road transport to be loaded onto or off of a cargo ship between Buffalo and Detroit and containerized

service between Buffalo and either Halifax or Montreal. Further, the Port of Buffalo indicated a need for infrastructure upgrades at the site, including upgrading the lighting system, installing new scales, power upgrades, improvements to the conveyor systems, and installation of break bulk lifting to allow for handling of ship containers. Before any Ro/Ro service is pursued, a more detailed New Market Business Plan should be initiated by the Port of Buffalo, with assistance from the region's interest public and private sectors, to identify if new markets are feasible for the Port and to identify what upgrades to the Port are needed prior to pursuing. GBNRTC should initiate a kick-off with the Port of Buffalo general manager to further scope this effort.

For reference, the Port of Cleveland is currently developing a similar Business Plan to establish new container feeder service linking the Port of Cleveland with the Port of Montreal, and potentially other ports on the St. Lawrence Seaway. The Business Plan, under development as of the preparation of this update, indicates a potential for the Port of Cleveland to operate feeder service to allow for international container shipments bound for east coast ports to be brought inland via feeder service and then loaded to rail or truck for final delivery to the Midwest. The Business Plan also indicates that there may be cost savings in shipments due to port congestion, however, a major constraint to this being feasible are the expansions at PANYNJ and Port of Montreal underway that will expand rail lift capacity to allow container to rail service, which is more cost effective than container feeder service. Further, short sea shipments are subject to Harbor Maintenance Taxes, which are not imposed on shipments made by rail or truck, further hindering the financial feasibility.

4.4.27 **Safety Improvements to Roadways near Intermodal Yards.** An assessment of the NYS Safety Information Management System (SIMS) over the last 5 years (2015-2019) was undertaken to search for Priority Investigation Locations (PILs), Safety Deficient Locations (SDCs), or Priority Investigation Intersections (PIIs) along roadways that provide access to the region's three main rail/ intermodal facilities, which are:

- Norfolk Southern Bison Yard and Buffalo Transload Facility located on Bison Parkway in Sloan, with access to Harlem Road (via Gruner Road), south of Broadway.
- CSX Frontier Yard located at 1836 Broadway in Buffalo, with access to Broadway east of Bailey Avenue.
- CSX Intermodal Terminal located at 257 Lake Avenue in Blasdell, with access to Lake Avenue east of Route 5.

The assessment of the SIMS data was undertaken to identify intersections or corridors that have experienced freight related crashes and should become the focus of safety improvements that will aid in the safe, efficient flow of freight across the region. The following findings came from the SIMS assessment:

- ***Nearby to Bison Yard and Frontier Yard.*** Along Harlem Road between Walden Avenue and William Street, there were Specialty PILs identified in 2015, 2016, and 2108. This included speed related crashes, right angle crashes, head on crashes, large truck crashes, and fixed object/ run off road crashes. A view of the corridor suggests that many of these crashes might be attributed to the road profile, which consists of multiple bridge flyovers that result in slower acceleration uphill and faster speeds downhill, as well as a general lack of acceleration or deceleration lanes. The intersection of Harlem Road and Walden Avenue was identified as a PII in 2017 with a high number of pedestrian crashes.
- ***Nearby to CSX Intermodal Terminal.*** In the vicinity of the CSX Intermodal Terminal, PILs were identified on South Park Avenue in 2015 and 2016, and SDLs were identified on Route 5 and

South Park Avenue in 2015, 2016, and 2017. Specialty PILs were flagged on South Park Avenue and Route 5 in 2015, 2016, 2017, and 2018. Additionally, in 2017, SIMS identified two PIIs in the vicinity of the Route 5/ Lake Avenue intersection. The assessment identified aggressive driving crashes, fixed object/ run off road crashes, right angle crashes, rear end crashes, and large truck crashes.

CSX has indicated that they don't experience any operational issues or congestion at their Intermodal Terminal on Lake Avenue. Safety issues near the Lake Avenue facility show up on Route 5 and South Park Avenue, with limited issues on Lake Avenue. Lake Avenue was recently repaved and contains a smoother surface for truck traffic.

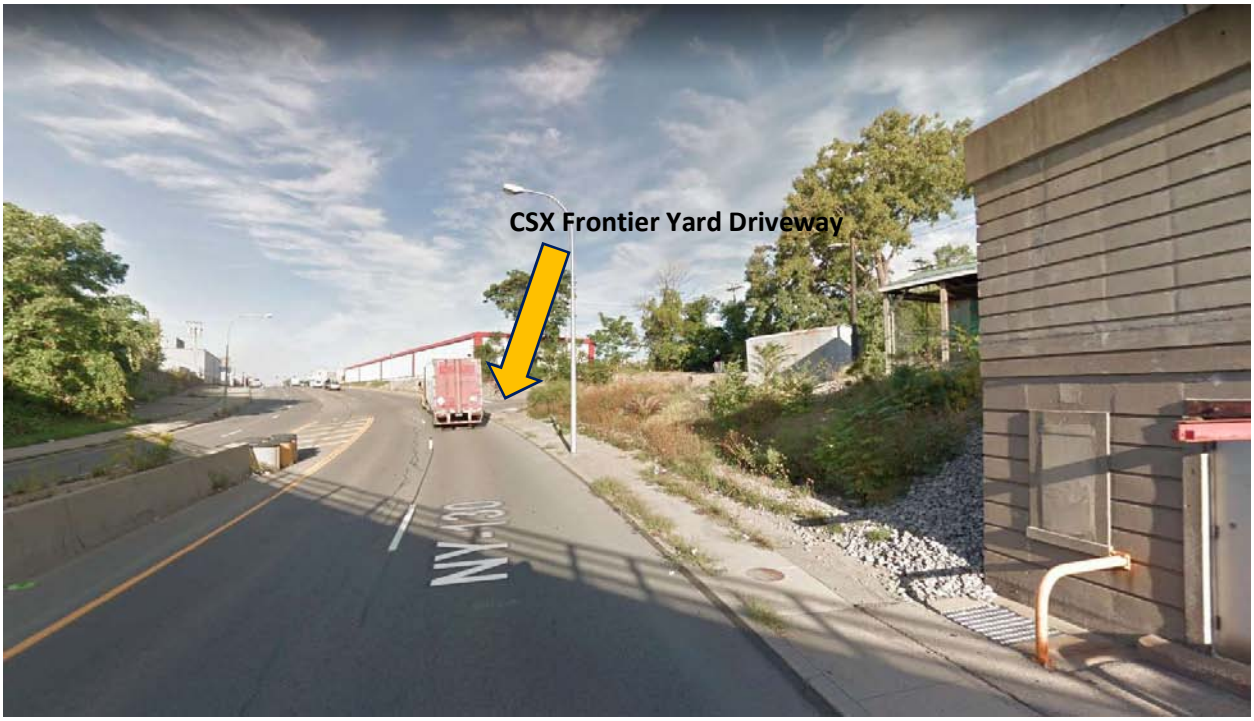
Below are projects that focus on safety improvements that will aid in the safe, efficient flow of freight across the region.

1. **Safety Improvements at Intersection of Harlem Road and Gruner Road**. There are two areas along the section of Harlem Road between Walden Avenue and William Street where safety improvements would enhance safety. The first is at the intersection of Harlem Road and Gruner Road. Gruner Road, with continued access to Bison Parkway, provides the main access for the Norfolk Southern Bison Yard, as well as other trucking, warehousing, and manufacturing business. A signalized intersection at Harlem Road and Gruner Road allows for controlled truck access to/from these industrial areas. Vehicles traveling northbound are coming down the bridge, typically at accelerated speeds and with limited sight distance. Trucks turning right onto Gruner Road do so from the right travel lane, meaning they must begin decelerating on the downhill and make a tight 90 degree turn onto Gruner. An upgrade here would be to add a northbound deceleration and right turn lane so turning vehicles and trucks can do so out of the travel lanes. The turning radii for the right turn should also be increased to avoid trucks jumping the curb to make the turn. Increasing the turning radii would require relocating a utility pole on the southeast corner of the intersection. The figure below shows this intersection.

2. **Safety Improvements at Intersection of Harlem Road and Broadway Ramp**. The other project on Harlem Road is located at the ramp that provides access between Harlem Road and Broadway. There are two sets of access ramps – one that provides access between southbound Harlem Road and Broadways and the ramp that provides access between northbound Harlem Road and Broadway. Broadway is used by truck traffic to access the CSX Frontier Yard to the west and warehousing and distribution centers to the east. The safety problem arises from the traffic merging from the ramp to northbound Harlem Road, which then begins to incline up a bridge flyover. Traffic often backs up on this ramp during peak hours because merging onto northbound Harlem can be difficult, especially for trucks which must directly merge into the right travel lane while accelerating up the inclining bridge. This merging and slow acceleration causes safety issues at that location. The northbound Harlem Road bridge embankment limits the ability to construct an acceleration lane. NYSDOT should undertake a more detailed intersection study to see if other improvements can be made, possibly signalizing the ramp interchange with Harlem Road, similar to how they are signalized at Broadway, to provide a safer access. The figure below shows the Broadway ramp intersecting with northbound Harlem Road.

3. **Safety Improvements at Intersection of Broadway and CSX Frontier Yard Driveway**. The main driveway for the CSX Frontier Yard intersects with Broadway at an odd angle and is located just beyond a railroad viaduct, creating an uncontrolled intersection with sight distance and safety issues. Trucks pulling out of the driveway must look into the viaduct for westbound oncoming vehicle and up an inclined roadway for eastbound oncoming vehicles. Trucks turning right must also then accelerate up an incline coming out of the viaduct. Trucks traveling westbound on Broadway face a difficult, skewed right turn into the driveway. With constraints around the intersection such as buildings, railroad bridges, and embankments, reconstructing the intersection is not feasible. NYSDOT could consider other safety improvements at the

intersection, such as installation of flashing beacons prior to the bridge viaduct warning oncoming vehicles of the potential for stopped or slow moving trucks entering or exiting the driveway, as well as installing additional lighting near the intersection. Additionally, NYSDOT could assess the potential for converting the westbound right lane on Broadway into a deceleration/ acceleration lane to accommodate trucks turning into and exiting the driveway, removing these trucks from the travel lane and decreasing the chance for truck crashes. The average annual daily traffic for the westbound direction of Broadway is 8,247 (2014), which is typically within the threshold of the capacity of one travel lane. The figure below show this intersection.



4.4.28 NYS Route 270 Campbell Boulevard and N. French Road Improvements. Improvements to NYS Route 270 Campbell Boulevard between N. French Road and Tonawanda Creek Road and to North French Road between NYS Route 270 and I-990. Project includes pavement resurfacing, shoulder reconstruction and widening on NYS Route 270, truck turning radii improvements and installation and extension of turning lanes at intersection of NYS Route 270 and N. French Road, and installation of two-way left turn lanes on N. French Road between NYS Route 270 and I-990. The project will address safety and capacity issues, non-standard shoulder widths, insufficient truck turning radii, and accommodation of bicycles and pedestrians.

5 Project Evaluation and Prioritization

This section portrays how the strategies and projects developed as part of this Study were evaluated and prioritized in two simple figures – Figure 5.5 identifies the strategies and projects conformance with national, state, and regional freight transportation goals, which are used to help evaluate projects. Figure 5.6 portrays the strategies and projects in terms of priority and planning level cost estimate.

Below, for reference, are the National Highway Freight Program (NHFP), New York State Freight Plan, Western New York Regional Economic Development Council (WNY REDC), and GBNRTC Moving Forward 2050 goals that were used to help identify new strategies and projects as well as show consistency and conformance of recommended strategies and projects.

5.1 NATIONAL HIGHWAY FREIGHT PROGRAM GOALS

On December 4, 2015, President Obama signed into law Public Law 114-94, the Fixing America's Surface Transportation Act (FAST Act). The FAST Act established a new National Highway Freight Program to improve the efficient movement of freight on the National Highway Freight Network (NHFN) and support several goals, as outlined in Table 5.1. The FAST Act guidance can be found at https://www.fhwa.dot.gov/fastact/.

Table 5.1: National Highway Freight Program Goals

Reference	Goal
F1	Investing in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity.
F2	Improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas.
F3	Improving the state of good repair of the National Highway Freight Network (NHFN).
F4	Using innovation and advanced technology to improve NHFN safety, efficiency, and reliability.
F5	Improving the efficiency and productivity of the NHFN.
F6	Improving State flexibility to support multi-state corridor planning and address highway freight connectivity.
F7	Reducing the environmental impacts of freight movement of the NHFN.

5.2 NEW YORK STATE FREIGHT PLAN GOALS

Table 5.2 portrays the goals outlined in the New York State Freight Plan. These statewide freight goals can be found at https://www.dot.ny.gov/freight-plan/reports.

Table 5.2: New York State Freight Plan Goals

Reference	Goal	Goal Discussion
S1	Invest in the Future	New York State's freight transportation system should anticipate future growth and ensure the most efficient movement of goods in all modes, through removal of key freight bottlenecks and investment in strategic enhancements that will support existing and emerging freight markets.
S2	Build Partnerships	Engage regional partners, government agencies, economic development councils, the private sector, and international trade partners to develop a strategic framework to advance high priority freight transportation projects and strategies.
S3	Ensure Safety & Security	The freight transportation system must be safe, secure, and be designed to be resilient to the impacts of extreme weather and climate change.
S4	Provide Sound and Efficient Infrastructure	Identify infrastructure and innovative technology investments and operational strategies that will ensure that the infrastructure is in a state of good repair and efficient for multi-modal freight movement.
S5	Foster Economic Competitiveness	Strengthen national and global competitiveness for existing and emerging freight-centered business and activity in New York State by selecting strategies and projects that support emerging markets and ensure reliable, efficient multi-modal supply chains.
S6	Respect the Environment	Provide efficient goods movement through a connected multi-modal infrastructure that supports the most fuel efficient, economical, and sustainable freight movement and delivery.

5.3 WNY REGIONAL ECONOMIC DEVELOPMENT COUNCIL GOALS

Table 5.3 portrays the core strategies and sector strategies to drive economic growth outlined by the WNY REDC in their Economic Development Strategic Plan - "A Strategy for Prosperity". These regional goals can be found at https://regionalcouncils.ny.gov/western-new-york.

Table 5.3: WNY REDC Core Strategies and Sector Strategies

Reference	Core Strategy	Strategy Discussion
R1	Implement Smart Growth	Invest in infrastructure on smart growth principles
R2		Invest in downtowns, villages, neighborhoods, and brownfields.
R3		Protect water resources, waterfront, and habitats.
R4	Foster a Culture of Entrepreneurship	Foster and support entrepreneurs.
R5		Fund entrepreneurs.
R6	Prepare Our Workforce	Develop and cultivate the WNY talent pool including workers with advancement potential, underemployed, unemployed, and special populations.
R7		Engage students, parents, educators, and businesses in the P-12 system to build awareness.
Reference	**Sector Strategy**	**Strategy Discussion**

Reference	Core Strategy	Strategy Discussion
R8	Advanced Manufacturing	Leveraging research capacity to attract and accelerate the development of advanced manufacturing
R9		Boost competitiveness through career awareness.
R10	Health & Life Sciences	Stimulate business creation and job growth in the life sciences industry.
R11	Tourism	Facilitate growth of quality tourism product.
R12	Agriculture	Make agriculture more competitive through branding, innovation, and career readiness.
R13	Bi-National Logistics	Leverage our international border location.
R14	Energy	Position WNY as a global energy hub.
R15		Energy efficient transportation investment and support structure.
R16	Professional Services	Leverage existing assets and foster synergies between industries and education.

5.4 GBNRTC MOVING FORWARD 2050 GOALS

Table 5.4 portrays the regional goals outlined in the GBNRTC Moving Forward 2050 Plan. These regional goals can be found at https://www.gbnrtc.org/movingforward2050.

Table 5.4: GBNRTC Moving Forward 2050 Goals

Reference	Goal	Goal Discussion
G1	Our Economy	Raise the region's standard of living by supporting REDC target sectors: advanced manufacturing, agriculture, bi-national logistics, energy, health/ life sciences, higher education, professional services, and tourism.
G2		Support efficient freight movement by improving regional connectivity and reducing freight delays.
G3		Strengthen the fiscal health of local governments by minimizing local governments' infrastructure costs and maximizing benefits from investments.
G4	Our Communities	Support focused growth in communities (urban, suburban, and rural) by maximizing investments in community centers.
G5		Ensure access to opportunities and services by increasing multi-modal access to neighborhood services.
G6		Support healthy and safe communities through targeted transportation investment by improving equitable access to education and employment, increasing active transportation options, and improving transportation safety for all users.
G7	Our Environment	Preserve and protect a healthy environment and accessible open spaces and waterways by reducing negative impacts of transportation, increasing the diversity and sustainability of energy supply for transportation uses, and improving public access to quality of life resources.
G8		Maximize infrastructure resiliency by reducing transportation infrastructure land use and improving the ability of infrastructure to respond to weather and other extreme events.
G9	Innovation	Create a fully integrated and seamless transportation environment by building out a system of connected corridors in the region, establishing a Smart Ecosystem of data acquisition and management for transportation efficiency, creating a robust Mobility Marketplace that assures mobility on demand and integrates technology, and creates and deploys new models of transportation finance and project delivery.

The following figure identifies how strategies and projects developed as part of this Study update conform with National Highway Freight Program, New York State Freight Plan, WNY REDC, and GBNRTC Moving Forward 2050 goals. The various goals relate back to Section 3, and are the columns in this figure. The figure is also used to identify whether a project falls within a NYSDOT designated Freight Core Highway Network Corridor Segment. A symbol indicates that the specific strategy or project conforms to that goal.

Goals Consistent with

Strategy or Project	Mode	NYSDOT FCHNS	Federal FAST Act							NYS Freight Plan						WNY REDC Strategic Plan														GBNRTC Moving Forward 2050								
			F1	F2	F3	F4	F5	F6	F7	S1	S2	S3	S4	S5	S6	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	G1	G2	G3	G4	G5	G6	G7	G8	G9
Develop Buffalo Logistics Complex	Air, Truck, Rail	NA	●	●	○	○	○	●	●	●	○	○	●	●	●	●	●	○	○	○	○	○	○	○	○	○	●	●	○	●	○	●	●	○	●	○	○	○	●	●
Improve U.S. 219 Improvements	Truck	YES	●	●	○	○	●	●	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	●	●	●	○	○	○	●	○	○	○	○	○	○	○	●
Repair or Replace CP Draw Bridge	Rail	NA	●	●	○	○	○	○	○	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	○	○
Expand Lehigh Valley Yard Development	Rail, Air	NA	●	○	○	○	○	○	○	●	●	●	○	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Improve Falls Road Railroad Bridge over Erie Canal	Rail	NA	●	●	○	○	○	○	○	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	●	○	○	○	●	●
Expand Niagara Falls International Airport (NFIA) Air Cargo	Air																																						
Construct Air Cargo Access Road	Air	NA	●	●	○	○	○	○	○	●	○	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	○	○
Construct Air Cargo Apron	Air	NA	●	●	○	○	○	○	○	●	○	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	○	○
Construct Air Cargo Building	Air	NA	●	●	○	○	○	○	○	●	○	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	○	○
Expand Buffalo-Niagara International Airport (BNIA) Air Cargo Expansion	Air																																						
Expand Air Cargo Apron Expansion	Air	NA	●	●	○	○	○	○	○	●	○	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	○	○
Expand Air Cargo Building	Air	NA	●	●	○	○	○	○	○	●	○	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	○	○
Support for Long-Term Transportation Bill	Air, Truck, Rail	NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	●	●	●	○	●	○	●	●	●	●	●	●	●	●
Stay Abreast on Transportation Master Plan Update in Niagara Region, Ontario	Air, Truck, Rail	NA	●	●	○	●	○	●	●	●	●	○	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	●
Create a Transportation Improvement Program (TIP) Freight Funding Block	Air, Truck, Rail	NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	●	●	●	○	●	○	●	●	○	●	●	●	○	●	●

Goals Consistent with

Strategy or Project	Mode	NYSDOT FCHNS	Federal FAST Act							NYS Freight Plan						WNY REDC Strategic Plan														GBNRTC Moving Forward 2050								
			F1	F2	F3	F4	F5	F6	F7	S1	S2	S3	S4	S5	S6	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	G1	G2	G3	G4	G5	G6	G7	G8	G9
Promote Region as a "Green" Cross-Border Logistics Hub		NA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	●	●	●	●	●	○	●	●	○	●	●	●	●	●
Advance ITGO Involvement on NITTEC Cross-Border Committee and WNY REDC		NA	●	●	○	●	●	●	●	●	●	○	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○
Remove Perception that the Border is Difficult to Maneuver		NA	●	●	○	●	●	●	●	●	●	○	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	●
Build Upon Ontario's Strategic Investment and Procurement Agreement		NA	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	●	○	○	●	●
Enhance Regional Collaboration of the Freight & Logistics Industry in Regional Economic Development and Promotional Efforts		NA	●	●	●	●	●	●	○	●	●	○	●	●	○	●	●	○	●	○	●	○	○	○	○	○	●	●	○	●	●	●	●	●	○	○	○	○	○
Support Regional Economic Development Collaboration and Strategies		NA	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●	○	●	○	●	○	●	○	○	○	●	●	○	●	●	●	●	●	○	○	○	○	○
Use Invest Buffalo-Niagara Study Findings to Guide Regional Economic Development		NA	●	●	●	●	●	●	○	●	●	○	●	●	○	●	●	○	●	○	●	○	●	○	○	○	●	●	○	●	●	●	●	●	○	○	○	○	○
Support and Expand ITGO Partnership with PANYNJ		NA	●	○	○	●	○	●	○	●	●	○	○	●	○	●	●	○	●	○	●	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	○
Target Development of "Site-Ready" and "Pad-Ready" Sites that Facilitate Freight & Logistics Industry Expansion		NA	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	○	○	○	○	●	○	●	○	●	●	●	●	●	●	○	○	●	●	○	○	○	○
Expand "Site-Ready" and "Pad-Ready" Incentives		NA	●	●	○	●	○	○	○	●	●	○	●	●	○	●	●	○	○	○	○	○	●	○	●	○	●	●	●	●	●	○	○	●	●	○	○	○	○
Facilitate Repurposing of "Greyfield" Sites for Local Distribution and Fulfillment Center		NA	●	●	○	●	○	○	●	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	●	○	○	○	○	●	○	○	●	●	●	●	●
Target Development of Temperature Controlled Warehousing		NA	●	●	○	●	○	○	○	●	●	○	○	●	○	●	●	○	○	○	○	○	○	○	○	○	●	●	○	●	○	●	●	○	●	○	○	●	●
Develop a Regional GIS Database to Support Freight and Logistics Industry		NA	●	○	○	●	○	○	○	○	●	○	○	○	○	●	●	●	○	○	○	○	○	○	○	○	●	○	○	○	○	●	○	○	○	○	○	●	●
Enhance Workforce Development and Access for Freight and Logistics Jobs		NA	●	●	○	○	○	○	○	●	●	○	○	●	○	●	●	○	●	○	●	●	●	●	●	○	●	●	●	○	●	●	○	○	○	●	●	○	○	○

Goals Consistent with

Strategy or Project	Mode	NYSDOT FCHNS	Federal FAST Act							NYS Freight Plan						WNY REDC Strategic Plan														GBNRTC Moving Forward 2050								
			F1	F2	F3	F4	F5	F6	F7	S1	S2	S3	S4	S5	S6	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	G1	G2	G3	G4	G5	G6	G7	G8	G9
Continue to Advance UPWP Projects that Support Freight Transportation																																						
Conduct I-290/ Main Street Interchange Area Assessment		YES	●	●	●	○	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Analyze Access Improvements for I-290 Ramp to I-190		YES	●	●	●	○	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Analyze the Ramp Configuration on Westbound I-90 to Northbound I-190		YES	●	●	●	○	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Further Analyze I-190 Niagara/ Virginia Street Ramps		YES	●	●	●	○	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Develop Alternatives for Twin Cities Highway and River Road		NO	●	●	●	○	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	●	○	●	●	●	●	●	●	●	●
Undertake the Youngs Road Interchange Analysis		YES	●	●	●	○	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	●	○	○	○	●	○
Undertake a I-190/ Niagara Falls Boulevard Interchange Improvement Assessment		YES	●	●	●	●	●	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Advance Future UPWP Projects																																						
Study I-290 Between Millersport Highway and I-90 and I-90/I-290		YES	●	●	●	●	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Study I-90 Between I-290 and I-190		YES	●	●	●	●	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Study I-190/ LaSalle Expressway/ Niagara Scenic Parkway/ Buffalo Avenue Interchange		YES	●	●	●	●	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Study I-290 Interchange at Sheridan Drive and Millersport Highway		YES	●	●	●	●	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●
Study Walden Avenue Between I-90 and Union Road		NO	●	●	●	●	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	●	○	●	●	○	●	○	○	○	○	●
Study I-190 from Elm/ Oak to Porter Avenue		YES	●	●	●	●	●	○	●	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	●

Goals Consistent with

Strategy or Project	Mode	NYSDOT FCHNS	Federal FAST Act							NYS Freight Plan						WNY REDC Strategic Plan														GBNRTC Moving Forward 2050								
			F1	F2	F3	F4	F5	F6	F7	S1	S2	S3	S4	S5	S6	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	G1	G2	G3	G4	G5	G6	G7	G8	G9
Study Ganson Street Area Plan		NA	●	●	○	○	○	○	○	●	●	●	○	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	●	○
Study of Multi-Agency Enhanced Freight Corridor Study		YES	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	●	○
Establish Regional Truck and Delivery Vehicle Electric Charging Stations		NA	●	●	○	●	○	○	●	●	●	○	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	○	○	○	●	○	○	●
Develop Curbside Management and Autonomous Delivery and Micro-Delivery Policies and Procedures																																							
Develop Curbside Management Policies		NA	●	●	○	●	●	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	●	○	●	●	●	●	●	○	●	●
Create Autonomous Delivery and Micro-Delivery Vehicle Policies		NA	●	●	○	●	●	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	●	○	●	●	●	●	●	○	●	●
Develop Pilot Integrated Corridor Management (ICM) Strategies		YES	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	●	●
Expand Intelligent Transportation Systems (ITS) in the Region																																							
Expand Border Crossing Travel Information in the Region		YES	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	●	●
Support NYSERDA Planning for New York State Platooning Demonstrations		YES	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	○	●
Implement Smart & Enhanced Multimodal Corridors (SEMA)		NO	●	●	○	●	●	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	●	○	○	○	●
Expand Real-Time Truck Parking Information		YES	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	●	●
Create Urban Truck Hub or Mobile Depot		NO	●	○	○	●	○	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	●	○	○	○	●
Improve Circulation of Weather and Incident Related Closure Information		YES	●	●	○	●	●	●	○	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	○	○	○	○	●	●
Implement Truck Low Bridge Clearance Warning Detection		NO	●	●	●	●	○	○	○	●	●	●	●	○	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	●	○	●	●	○	●	○	○	○	●	●

Goals Consistent with

Strategy or Project	Mode	NYSDOT FCHNS	Federal FAST Act							NYS Freight Plan						WNY REDC Strategic Plan														GBNRTC Moving Forward 2050								
			F1	F2	F3	F4	F5	F6	F7	S1	S2	S3	S4	S5	S6	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	G1	G2	G3	G4	G5	G6	G7	G8	G9
Improve Bethlehem Steel Advanced Manufacturing Infrastructure																																						
Improve Northern Access		NO	●	●	○	○	○	○	○	●	○	○	○	○	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	○
Improve Southern Access		NO	●	●	○	○	○	○	○	●	○	○	○	○	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	○
Improve Additional Access		NO	●	●	○	○	○	○	○	●	○	○	○	○	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	○
Improve Route 5/ Ridge Road Interchange		NO	●	●	●	○	●	○	○	●	○	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	○	○	○	○	○
Repair Niagara County Rural Bridges Improvements																																						
Repair Carmen Road over Golden Hill Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair Johnson Creek Road over Golden Hill Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair Gasport Road over Eighteen Mile Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair Hartland Road over Golden Hill Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair Royalton Center over Mud Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair Ditch Road over Black Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair West Somerset Road over Fish Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair Carmen Road over Johnson Creek		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Repair Ewings Road over Eighteen Mile		NO	●	●	●	○	○	○	○	●	○	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Support Skyway Alternatives that Accommodate Freight & Logistics Industry		NO	●	●	○	●	●	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	●	●	●	●	○	●

Goals Consistent with

Strategy or Project	Mode	NYSDOT FCHNS	Federal FAST Act							NYS Freight Plan						WNY REDC Strategic Plan															GBNRTC Moving Forward 2050								
			F1	F2	F3	F4	F5	F6	F7	S1	S2	S3	S4	S5	S6	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	G1	G2	G3	G4	G5	G6	G7	G8	G9
Widen Transit Road Between Walden Avenue and Gould Avenue		NO	●	●	○	○	○	○	○	●	○	●	●	○	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	●	○	○	○	●	○
Construct River Road Roundabout at Riverview Drive		NO	●	●	○	○	○	○	○	●	○	●	●	○	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	●	○	○	○	○	○
Study Rail Spur to WNY Agribusiness Park		NA	●	●	○	○	○	○	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Initiate Long-Term Planning for International Rail Crossings																																							
Upgrade to International Rail Bridge to State-of-Good-Repair		NA	●	●	●	○	○	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Assess Whirlpool Rapids Bridge Improvements		NA	●	●	●	○	○	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	●	●	○	○	○	○	○	○	○
Upgrade Depew, Lancaster & Western (DL&W) Railroad Line Upgrades																																							
Improve Driveway Access to/from the DL&W Transload Facility		NA	●	●	○	○	○	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	●	○	○	○	○	○
Extend Engine House Track		NA	●	●	○	○	○	○	●	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	○	○	○	○	○	○
Improve the DL&W Interchange with Norfolk Southern		NA	●	●	○	○	○	○	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	●	○	○	○	○	○
Replace Structurally Deteriorating Bridge		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	○	○	○	○	●	○
Improve Buffalo Southern Railroad (BSOR) Line 1246																																							
Improve Bridge MP 13.94 over North Branch Eighteen Mile Creek		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	●	○	○	○	○	○
Improve Bridge MP 15.85 over South Branch Eighteen Mile Creek		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	●	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	●	○	○	○	○	○

Goals Consistent with

Strategy or Project	Mode	NYSDOT FCHNS	Federal FAST Act							NYS Freight Plan						WNY REDC Strategic Plan																				GBNRTC Moving Forward 2050								
			F1	F2	F3	F4	F5	F6	F7	S1	S2	S3	S4	S5	S6	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	G1	G2	G3	G4	G5	G6	G7	G8	G9
Improve Bridge MP 22.25 over Franklin Gulf		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Improve Bridge 23.97 through Ballast		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Improve Bridge 32.44 near Perry Street		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Improve Bridge 32.90 over Cattaraugus Creek		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Upgrade At-Grade Crossing at MP 14.08 at South Creek Road		NA	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Upgrade At-Grade Crossing at MP 15.14 at Hickox Road		NO	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Upgrade At-Grade Crossing at MP 16.37 at Bley Road		NO	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Upgrade At-Grade Crossing at MP 18.87 at Hemlock Road		NO	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Upgrade At-Grade Crossing at MP 22.76 at School Street		NO	●	●	○	○	○	○	○	●	●	●	●	●	○	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○
Collaborate with the Port of Buffalo on New Market Business Planning		NA	●	●	○	○	○	○	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	●	○	●	●	●	○	○	○	○	○	○	○
Improve Safety of Roadways near Intermodal Yards																																									
Improve at Harlem Road and Gruner Road		NA	●	●	○	○	○	○	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	●	○	○	○	○	○
Improve Safety at Harlem Road and Broadway Ramp		NA	●	●	○	○	○	○	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	●	○	○	○	○	○
Improve Safety at Broadway and CSX Frontier Yard Driveway		NA	●	●	○	○	○	○	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	●	●	○	●	○	○	○	○	○
Improve NY Route 270 Campbell Blvd, N. French Rd to Tonawanda Creek Rd		NO	●	●	●	○	●	●	○	●	○	○	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	●	●

5.6 PROJECT PRIORITY AND COST ESTIMATES

The following figure lists the strategies and projects developed as part of this Study update along with priority and planning level cost estimate. Priority is based on input from stakeholders, how well the strategy/ project conforms to national, state, and regional goals, and the ability for the project to address opportunities or challenges identified in the SWOT Analysis. Strategy or project priority is laid out as High, Medium-High, Medium, Medium-Low, and Low.

Estimated cost is a conceptual planning level cost estimate derived either from stakeholders who have begun to cost such improvements or taken from similar projects undertaken recently. Costs are only provided for those projects that involve a planning study or infrastructure construction; projects that involve an initiative that requires coordination with and actions by other entities are not provided. The tables below outline strategies and projects organized by their priority, beginning with "High" priority projects and ending with "Low" priority projects.

Table 5.6: High Project Priority and Cost Estimates

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Buffalo Logistics Complex	Multimodal	High	$20.75M	ITGO
Support for Long-Term Transportation Bill	Multimodal	High	Not know at this time	NYSDOT
Promote Region as a "Green" Cross-Border Logistics Hub	Multimodal	High		
ITGO Involvement on NITTEC Cross-Border Committee and WNY REDC	Multimodal	High	NA	NITTEC
Remove Perception that the Border is Difficult to Maneuver	Highway	High	NA	Multiple Agencies
Build Upon Ontario's Strategic Investment and Procurement Agreement.	Highway	High	In-kind staff costs associated with collaboration efforts	ITGO
Enhance Regional Collaboration of the Freight & Logistics Industry in Regional Economic	Multimodal			

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Development and Promotional Efforts				
Support Regional Economic Development Collaboration and Strategies	Multimodal	High	Unknown at this time	Multiple Agencies
Use Invest Buffalo-Niagara Study Findings to Guide Regional Economic Development	Multimodal	High	Unknown at this time	Multiple Agencies
Support and Expand ITGO Partnership with PANYNJ	Multimodal	High	Not known at this Time	ITGO
Continue to Advance UPWP Projects that Support Freight Transportation	Multimodal			
Conduct I-290/ Main Street Interchange Area Assessment	Highway	High	$100K	NYSDOT
Buffalo-Niagara Integrated Corridor Management	Highway	High	Package A: $4,936,110 Package B: $5,109,416	NITTEC
Expand Intelligent Transportation Systems (ITS) in the Region	Highway			
Expand Border Crossing Travel Information in the Region	Highway	High	$3M	NITTEC & NYSDOT
Weather and Incident Related Closure Information	Highway	High	V2I sensors, communication, and VMS Boards - $200K - $300K for each system.	NITTEC and NYSDOT

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Niagara County Rural Bridges Improvements	Highway			
Carmen Road over Johnson Creek	Highway	High	$2M	Niagara County
Facilitate Skyway Alternatives that Accommodate Freight & Logistics Industry	Highway	High	~$8M	NYSDOT
NY Route 270 Campbell Blvd, N. French Rd to Tonawanda Creek Rd	Highway	High	$5M	NYSDOT

Table 5.7: Medium-High Project Priority and Cost Estimates

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Improve Falls Road Railroad Bridge over Erie Canal	Rail	Medium-High	$1.5M	NYSDOT/ Railroad
Stay Abreast on Transportation Master Plan Update in Niagara Region, Ontario	Multimodal	Medium-High	In-kind staff costs associated with collaboration efforts	GBNRTC
Create a Transportation Improvement Program (TIP) Freight Funding Block	Multimodal	Medium-High	In-kind staff costs associated with collaboration efforts	GBNRTC
Target Development of “Site-Ready” and “Pad-Ready” Sites that Facilitate Freight & Logistics Industry Expansion	Multimodal			
Expand “Site-Ready” and “Pad-Ready” Incentives	Multimodal	Medium-High	Unknown at this time	Multiple Agencies

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Target Development of Temperature Controlled Warehousing	Multimodal	Medium-High	Unknown at this time	Multiple Agencies
Enhance Workforce Development and Access for Freight and Logistics Jobs	Multimodal	Medium-High	Unknown at this time	ITGO
Continue to Advance UPWP Projects that Support Freight Transportation	Multimodal			
Undertake the Youngs Road Interchange Analysis	Highway	Medium-High	$200K	NYSDOT & NYS Thruway Authority
Undertake a I-190/ Niagara Falls Boulevard Interchange Improvement Assessment	Highway	Medium-High	$150K	NYSDOT
Advance Future UPWP Projects	Multimodal			
I-290 Between Millersport Highway and I-90 and I-90/ I-290 Interchange	Highway	Medium-High	$250K	NYSDOT
I-190 from Elm/ Oak to Porter Avenue	Highway	Medium-High	$200K	NYSDOT
Multi-Agency Enhanced Freight Corridor Study	Highway	Medium-High	$175K	NYSDOT w/ GBNRTC and GTC
Development of Curbside Management and Autonomous Delivery and	Highway	Medium-High		Multiple Agencies

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Micro-Delivery Policies and Procedures				
Curbside Management Policies	Highway	Medium-High	$80K	Multiple Agencies
Expand Intelligent Transportation Systems (ITS) in the Region	Highway			
Support NYSERDA Planning for New York State Platooning Demonstrations	Highway	Medium-High	$8.4M for Truck Platooning Staging Area (based on construction estimates from an FHWA study in Ohio)	NYSERDA and NYSDOT
Implement Smart & Enhanced Multimodal Corridors (SEMA)	Highway	Medium-High	Unknown at this time	NITTEC and NYSDOT
Real-Time Truck Parking Information	Highway	Medium-High	$1.75M for 5 sites	NYSDOT and NYS Thruway Authority
Bethlehem Steel Advanced Manufacturing Infrastructure	Highway			
Northern Access	Highway	Medium-High	$1.5M	ECIDA and NYSDOT
Niagara County Rural Bridges Improvements	Highway			
Carmen Road over Golden Hill Creek	Highway	Medium-High	$1.56M	Niagara County
Johnson Creek Road over Golden Hill Creek	Highway	Medium-High	$1.37M	Niagara County

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Gasport Road over Eighteen Mile Creek	Highway	Medium-High	$1.4M	Niagara County
Hartland Road over Golden Hill Creek	Highway	Medium-High	$1.1M	Niagara County
Royalton Center over Mud Creek	Highway	Medium-High	$500K	Niagara County
Ditch Road over Black Creek	Highway	Medium-High	$400K	Niagara County
West Somerset Road over Fish Creek	Highway	Medium-High	Unknown at this time	Niagara County
Gasport Road over Eighteen Mile	Highway	Medium-High	Unknown at this time	Niagara County
Ewings Road over Eighteen Mile	Highway	Medium-High	Unknown at this time	Niagara County
Long-Term Planning for International Rail Crossings	Rail			
State-of-Good-Repair Upgrade to International Rail Bridge	Rail	Medium-High	Unknown at this time	Multiple Agencies
Safety Improvements to Roadways near Intermodal Yards	Highway			
Safety Improvements at Intersection of Harlem Road and Gruner Road	Highway	Medium-High	$721K	NYSDOT
Safety Improvements at Intersection of Harlem Road and Broadway Ramp	Highway	Medium-High	$500K	NYSDOT

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Safety Improvements at Intersection of Broadway and CSX Frontier Yard Driveway	Highway	Medium-High	$75K	NYSDOT

Table 5.8: Medium Project Priority and Cost Estimates

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
U.S. 219 Improvements	Highway	Medium	Unknown at this Time	NYSDOT
CP Draw Bridge Alternatives	Rail	Medium	$300K for Alternatives Study	NYSDOT/ Railroads
Niagara Falls International Airport (NFIA) Air Cargo Expansion	Air			
Air Cargo Access Road Construction	Air	Medium	$1.5M	NFTA
Air Cargo Apron Construction	Air	Medium	$5M	NFTA
Air Cargo Building Construction	Air	Medium	$15M	NFTA
Target Development of "Site-Ready" and "Pad-Ready" Sites that Facilitate Freight & Logistics Industry Expansion	Multimodal			
Facilitate Repurposing of "Greyfield" Sites for Local Distribution and Fulfillment Center	Multimodal	Medium	Unknown at this time	Multiple Agencies
Develop a Regional GIS Database to Support	Multimodal	Medium	$50K	GBNRTC

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Freight and Logistics Industry				
Continue to Advance UPWP Projects that Support Freight Transportation	Multimodal			
Analyze Access Improvements for I-290 Ramp to I-190	Highway	Medium	$65K	NYSDOT
Analyze the Ramp Configuration on Westbound I-90 to Northbound I-190	Highway	Medium	$65K	NYSDOT
Further Analyze I-190 Niagara/ Virginia Street Ramps	Highway	Medium	$300K	NYSDOT
Develop Alternatives for Twin Cities Highway and River Road	Highway	Medium	$150K	NYSDOT
Advance Future UPWP Projects	Multimodal			
I-90 Between I-290 and I-190	Highway	Medium	$300K	NYSDOT
I-190/ LaSalle Expressway/ Niagara Scenic Parkway/ Buffalo Avenue Interchange Study	Highway	Medium	$225K	NYSDOT & NYS Thruway Authority
I-290 Interchange at Sheridan Drive and Millersport Highway	Highway	Medium	$65K	NYSDOT

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Walden Avenue Between I-90 and Union Road	Highway	Medium	$100K	NYSDOT
Ganson Street Area Plan	Multimodal	Medium	$75K	GBNRTC & City of Buffalo
Establish Regional Truck and Delivery Vehicle Electric Charging Stations	Highway	Medium	$500K ea.	NYSERDA and NYSDOT
Development of Curbside Management and Autonomous Delivery and Micro-Delivery Policies and Procedures	Highway			Multiple Agencies
Autonomous Delivery and Micro-Delivery Vehicle Policies	Highway	Medium	$80K	Multiple Agencies
Expand Intelligent Transportation Systems (ITS) in the Region	Highway			
Pilot Integrated Corridor Management (ICM) Strategies	Highway	Medium	Not known at this time	NITTEC and NYSDOT
Implement Truck Low Bridge Clearance Warning Detection	Highway	Medium	$350K ea.	NYSDOT
Bethlehem Steel Advanced Manufacturing Infrastructure	Highway			
Southern Access	Highway	Medium	$2M	ECIDA and NYSDOT

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Additional Access	Highway	Medium	$1.5M	ECIDA and NYSDOT
Improve Route 5/ Ridge Road Interchange	Highway	Medium	$1.5M	NYSDOT
Niagara County Rural Bridges Improvements	Highway			
Royalton Center over Mud Creek	Highway	Medium	$500K	Niagara County
Ditch Road over Black Creek	Highway	Medium	$400K	Niagara County
Depew, Lancaster & Western (DL&W) Railroad Line Upgrades	Rail & Multimodal			
Improve Driveway Access to/from the DL&W Transload Facility	Multimodal	Medium	$150K	ECIDA and Railroad
Extend Engine House Track	Rail	Medium	$1M	ECIDA and Railroad
Improve the DL&W Interchange with Norfolk Southern	Rail	Medium	$850K	ECIDA and Railroad
Replace Structurally Deteriorating Bridge	Rail	Medium	$350K	ECIDA and Railroad
Buffalo Southern Railroad (BSOR) Line 1246 Improvements	Rail			
Improve Bridge MP 13.94 over North Branch Eighteen Mile Creek	Rail	Medium	$308K	ECIDA and Railroad

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Improve Bridge MP 15.85 over South Branch Eighteen Mile Creek	Rail	Medium	$540.5K	ECIDA and Railroad
Improve Bridge MP 22.25 over Franklin Gulf	Rail	Medium	$184.75K	ECIDA and Railroad
Improve Bridge 23.97 through Ballast	Rail	Medium	$86.4K	ECIDA and Railroad
Improve Bridge 32.44 near Perry Street	Rail	Medium	$51.5K	ECIDA and Railroad
Improve Bridge 32.90 over Cattaraugus Creek	Rail	Medium	$148K	ECIDA and Railroad
Upgrade At-Grade Crossing at MP 14.08 at South Creek Road	Rail & Highway	Medium	$57.5K	ECIDA and Railroad
Upgrade At-Grade Crossing at MP 15.14 at Hickox Road	Rail & Highway	Medium	$57.5K	ECIDA and Railroad
Upgrade At-Grade Crossing at MP 16.37 at Bley Road	Rail & Highway	Medium	$57.5K	ECIDA and Railroad
Upgrade At-Grade Crossing at MP 18.87 at Hemlock Road	Rail & Highway	Medium	$65K	ECIDA and Railroad
Upgrade At-Grade Crossing at MP 22.76 at School Street	Rail & Highway	Medium	$65K	ECIDA and Railroad
Work with the Port of Buffalo on New Market Business Planning	Maritime	Medium	$350K	GBNRTC

Table 5.9: Medium-Low Project Priority and Cost Estimates

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Lehigh Valley Yard Development	Rail/ Intermodal	Medium-Low	Unknown at this Time	NYSDOT
Expand Intelligent Transportation Systems (ITS) in the Region	Highway			
Urban Truck Hub or Mobile Depot	Highway	Medium-Low	$500K for Urban Tactical Pilot	Multiple Agencies
River Road Roundabout at Riverview Drive	Highway	Medium-Low	$1.3M	NYSDOT
Rail Spur to Future Evans Agribusiness Park Market Study	Rail	Medium-Low	$150K	ECIDA and Railroad
Long-Term Planning for International Rail Crossings	Rail			
Whirlpool Rapids Bridge Improvements Assessment	Rail	Medium-Low	Unknown at this time	NFBC

Table 5.10: Low Project Priority and Cost Estimates

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Buffalo-Niagara International Airport (BNIA) Air Cargo Expansion	Air			
Air Cargo Apron Expansion	Air	Low	$5M	NFTA
Air Cargo Building Expansion	Air	Low	$25.5M	NFTA

Project	Transportation Mode	Priority	Planning Level Cost Estimate	Lead Project Sponsor
Widen Transit Road Between Walden Avenue and Gould Avenue	Highway	Low	$60M	NYSDOT