Revitalizing car-dependent corridors with new mobility upgrades

Secondary corridors serve to connect important centers. They were originally designed for slow moving traffic and to cover shorter distances, but have expanded over time to become vital commercial corridors that link between major roadways to local streets.

The challenges of aging housing, underused commercial sites, and deteriorating infrastructure which face parts of our cities in Buffalo Niagara have also become a growing issue for first-ring suburbs in the region. Secondary corridors in these communities that once served to connect local areas and link to larger, main arterial roads have widened over time, becoming automobile centric and presenting safety concerns for pedestrians.

Over the horizon of the plan, rethinking the infrastructure along these secondary corridors will make these communities more walkable, livable and attractive for reinvestment.

Flexible curb space
Curbs can serve different purposes at different times. For instance, AVs could drop off and pick up passengers during AM and PM peak travel hours; AV and drone deliveries could be made overnight; and events could potentially be hosted on specific days of the year.

Delivering goods
During overnight and early morning hours, deliveries could be made to stores, restaurants, or directly to consumers, by trucks, AVs, delivery robots, or drones.

Moving passengers
During morning and evening weekday commute times, curbs could be dedicated to picking up and dropping off commuters riding public transit, AVs or shared vehicles.

Pedestrian activity
On certain days or times, curb space could be used as parks, to host farmers markets, or for pop-up street vendors for events.
WAYS TO GET THERE

Improving Walkability

A Pedestrian focused safety improvements
Crosswalks, bike lanes, and pedestrian-activated traffic signals make streets safe for walking and bicycling.

B Concentrated development
Focused investment and concentrated development at targeted nodes to make the street vibrant.

C Flexible curb space
Flexible use of the street and curb space to accommodate different uses throughout the day, like TNC or AV drop-off, deliveries, markets or festivals.

Integrating Technology

D Vehicle-to-infrastructure (V2I) communications
Coordinated signals help make vehicle traffic smooth and efficient.

E Vehicle charging stations
Charging stations for electric vehicles.

F AV shuttles and dedicated lanes
AV shuttles and autonomous TNC vehicles supplement traditional fixed route transit service in dedicated lanes.

G Coordinated traffic signals
Traffic signals coordinated across jurisdictions with real-time traffic information to make vehicle traffic smooth and efficient.

Enhancing Mobility

H Optimized bus routes
Optimizing fixed route bus service with support from TNC operators and autonomous vehicles.

I Mobility hubs
Mobility hubs provide access to transit, TNCs, bike routes and bike and car sharing.
Improving our smaller cities

Lackawanna, Lockport, Niagara Falls and the Tonawandas

Our region’s smaller cities of Lackawanna, Lockport, Niagara Falls, and the Cities of Tonawanda and North Tonawanda have strong neighborhoods and downtown centers, are home to a variety of important industries, have rich histories, and their proximity to the region’s waterways makes them a draw for tourists and local residents. Like many older cities, they face aging infrastructure, are overbuilt for today’s needs, and suffer from economic decline. Moving Forward 2050 aims to support the revitalization of these small cities through a number of transportation investments:

- Continue to implement complete streets in downtowns and neighborhoods, with walkable neighborhoods and downtown centers, bike lanes and other cycling amenities, green infrastructure, pedestrian and cyclist connections to waterways, and smart parking management (See page 81).

- Support Transportation Network Companies (TNCs)—and eventually autonomous circulators—to improve connectivity from neighborhoods to services and shopping areas, as well as connections among the smaller cities (See page 81).
Transportation plays a crucial role in the sustainable development of the region’s rural communities, including sovereign territories. Many rural areas are faced with mobility challenges due to a lack of transportation options. Access to healthcare and social services, employment and educational opportunities, as well as basic daily needs, is critical to enhancing the economic development, health, and quality of life in rural communities.

Providing access to recreational trails and environmental assets can enhance the quality of life for rural residents while also promoting tourism in rural communities. From ecotourism and wine trails, to agritourism and seasonal events, tourism can be a viable economic component in rural community development.

In addition to access, safety is another significant concern in rural areas. Most rural roadways are not constructed to safely accommodate the weight and width of larger farming equipment that is increasingly used on rural roadways to carry out commercial agricultural operations.

Over the next thirty years, the integration of new technology, improved access to emerging mobility services and funding for rural roadway maintenance and upgrades will improve road safety, the condition of bridges and culverts, and allow for enhanced access to multiple transportation options and services in rural communities. These and other upgrades to rural roadways will promote key sectors of the rural economy.

Supporting rural communities by upgrading rural roadways

Rural roadways will be enhanced to accommodate the unique needs of rural communities, like commercial farming, tourism and environmental preservation.

- **Incorporate new construction materials and design of culverts** to minimize infrastructure deterioration and negative impacts on the local habitat and wildlife.

- **Transportation investments that enhance connections to tourist assets in rural areas**, like the Niagara Wine Trail, can be a key component to economic development in the region’s rural communities.

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Maximizing access and mobility in village centers

While our region’s village centers range in size, they all share a desire to be the focal point for local residents, businesses and other services, and to remain safe, walkable and easily accessible. Moving Forward 2050 will help support the region’s villages through a variety of transportation initiatives:

- Where appropriate, retrofit and redesign State and county roads that run through villages to become safer, more walkable, and comfortable for biking
- Sidewalk plans and improved pedestrian street crossings
- Bike lanes and amenities where appropriate
- Parking management with smart parking, signage, and striping
- Local circulators (eventually including autonomous vehicles) with regular service or for special events
- Smaller mobility hubs in key locations that link together multiple transportation options
WAYS TO GET THERE

Increasing mobility with active transportation

A Multi-use trails

Multi-use, recreational trails connected to smaller cities, rural towns and village centers to enhance access to recreational opportunities and enable bicycling for daily trips.

B Bike amenities

Bike amenities, like bike racks and bike share stations, and accommodations for electric, or pedal-assist bikes, to make bicycling more convenient in rural communities.

C Pedestrian amenities

Pedestrian amenities, like benches, crosswalks, sidewalks and pedestrian activated signals, to make streets safer and more welcoming for pedestrians in smaller cities, rural towns and village centers.

Improving access

D Expanded Transportation Network Company service

TNCs can partner with local volunteer organizations and municipalities to fill service gaps in rural communities.

E Mobility hubs

Mobility hubs where multiple transportation options link together at key points in smaller cities, villages and rural communities.

F Electric vehicle charging stations

Electric vehicle charging stations in rural communities so electric vehicle drivers can travel farther without fossil fuels.

G New development

New businesses and housing along Main Streets in smaller cities, rural towns and village centers, supported by infrastructure investments and streetscape improvements.
Our region’s current network of bicycle infrastructure is suitable for confident and fearless cyclists, but typical riders tend to feel bicycling for daily travel is unsafe and inconvenient. Although we are adding more bike trails and lanes every year, most remain disconnected from one another and from other transportation options and services.

Moving forward to our vision will require a modernized regional cycle network marked by a Next Generation Shoreline Trail to provide seamless connections to bicycling opportunities within the region and across the border. This network will also build out bike pathways for commuters to get to jobs and educational opportunities in the City of Buffalo and first-ring suburbs along with additions and upgrades to bicycle and pedestrian networks in smaller cities, towns and village centers.

Completing the commuter and recreational cycling networks

Making bicycling a viable transportation option for the region starts with carrying out the plans we have in place while exploring other ways to connect more communities and destinations with the regional bicycle network.

Linking together trail systems

Shoreline Trail  Empire State Trail  Buffalo Blueway

Implementing existing plans

Buffalo Bike Master Plan  The Olmsted City

Exploring other ways to complete the bicycle network

Underused infrastructure can be re-purposed for bicycles. Former railways can be converted to multi-use trails and bike lanes can be added on underutilized roadways with excess capacity.

Bicycle lanes and other amenities at international bridges can create safe border-crossing connections and bi-national bicycling opportunities.
Linking bikes with other options

Bicyclists, connected to the Internet through mobile devices or connected bicycles themselves, can plan multi-modal trips that link with other modes at mobility hubs.

Adding bike amenities and upgrading bike infrastructure

Developing a modern regional cycle network will require updated infrastructure, more bike amenities and new technologies that make it easier for bicyclists to get around and connect with other options.

- **Bike storage facilities**
  - Secure, sheltered bike racks and other amenities, like changing rooms, lockers and showers.

- **Landscaping and green infrastructure**
  - Can be used to separate bike lanes from vehicle traffic while beautifying streetscapes.

- **Electric bike charging stations**
  - For pedal assist and electric powered bikes to enable longer trips for bicyclists.

- **Bike amenities and bike sharing near transit stops**
  - With dedicated space for bikes on trains and buses so bicyclists can easily access public transit.

- **Electronic route maps, timetables and trip planners**
  - To give bicyclists flexibility in planning trips at mobility hubs or through their mobile devices.

- **Rest areas**
  - With lighting, seating, bike repair equipment, mobile charging stations, or other amenities throughout the network and along the Next Generation Shoreline Trail to make bicycling more convenient.
STRATEGIES TO MOVE US FORWARD

Strengthening our economy with a smart, efficient and diverse freight network

New technologies, emerging transportation services and shifting consumer preferences are changing how goods get to market. Our regional freight network will have to anticipate and adapt to these shifts in order for the region to remain competitive in an increasingly global marketplace. In doing so, our regional freight system will become more diverse, integrating more facilities, like package pick-up lockers on local streets, and delivery modes, like drones and autonomous vehicle fleets, into the network.

While looking to the future, we also need to pursue short-term actions that improve the movement of goods through the roadways, ports and railroads that make up our regional freight network and inter-modal facilities (where truck, rail and ships meet). Recently developed freight plans for the region, state and nation lay the groundwork for these actions, including strategies for physical system upgrades, financing mechanisms and collaborative governance arrangements. Moving forward, we will need to continually reassess and adapt our plans for the regional freight system as we learn more about how these changes can benefit our regional economy.

Where to Implement this Strategy

The future regional freight system will transform how the railroads, shipping ports, transfer stations, inter-modal facilities, international bridges and airports that make up our freight network operate. To accommodate new services and local delivery methods, our freight network is also likely to expand to include more local streets.

FUTURE FREIGHT NETWORK

WAYS TO GET THERE

Bi-national Autonomous Green Freight Corridor

A significant volume of U.S.-Canada trade crosses the border in the Buffalo Niagara region. Advances in technology will help support a designated freight corridor. Autonomous freight vehicles, next generation border technology, electric vehicles and other alternative fuels, and green infrastructure will all work to improve efficient bi-national trade.

Green Freight Corridor

Alternative fuel stations and EV lanes

AV lanes

Integrated Corridor Traffic Management

Faster border crossings with e-tolls and pre-clearance
Local “last mile” deliveries
Our freight network will need to diversify to accommodate new services and expand so that deliveries can be made safely and efficiently on local streets using drones, delivery bots and package pick-up lockers.

Supply Chain Optimization
A supply chain is a system of organizations, people, activities, information, and resources involved in moving a product or service from first supplier to customer. Supply Chain Optimization makes this system more efficient by producing the right quantities and distributing at the right time to minimize cost while continuing to meet service requirements. The reduction of freight infrastructure bottlenecks and implementation of new technologies is a critical element.

AV truck platoons on highways
Upgrades that facilitate AV truck platoons, like dedicated lanes and vehicle-to-infrastructure communications, can make our freight system more efficient.

Freight Hubs
Freight hubs bring together multiple transportation modes and logistical services to connect local businesses and consumers with markets across the nation and the globe.

Local businesses and other suppliers could ship products or components to freight hubs via rail, truck, air, or other modes.

Using services located at freight hubs, suppliers can ship products to domestic and international markets more efficiently.
Adapting underutilized infrastructure

Taking a critical look at some of the region’s roadways—how much they cost to maintain and how much traffic they typically carry today compared to the volume of traffic they were originally built for—reveals opportunities to reduce existing infrastructure to accommodate future land use and travel patterns. Reconfiguring some portions of the system will reduce the costs of maintaining and repairing our infrastructure while still enhancing mobility and the overall efficiency of our transportation system.

Infrastructure for reconsideration include major roads and freeway segments that may exhibit some of the following characteristics:

• Built based on previous forecasts of significant growth and travel demand in an area where those forecasts have not been reached.
• Traffic levels below what would justify the size and nature of the existing road.
• Areas where travel patterns have shifted resulting in less reliance on the road.
• Out of context with their surrounding land uses.

The recent transformation of the Robert Moses Parkway along the Niagara River Gorge into the Niagara Scenic Parkway illustrates how existing roadways can be reused for other purposes, like green space and trails, that provide recreational opportunities and incentives for private development while reducing unneeded pavement and limiting infrastructure maintenance costs.
STRATEGIES TO MOVE US FORWARD

External Opportunities

Capitalizing on our strategic location with external opportunities

Apart from strengthening the region’s internal transportation system, a key to Buffalo Niagara’s future lies in leveraging its position as an American hub within the Greater Golden Horseshoe and Great Lakes Megaregion, as well as our proximity to the Northeast Megaregion.

In the global playing field where value is created by time savings, efficient mobility gives a competitive advantage. The capacity for our economy to expand and prosper depends on the rapid, predictable and safe movement of people and goods into, within and out of the region. Capitalizing on our strategic location with enhanced regional linkages can improve the flow of workers, business and recreational travelers, information, and goods between Buffalo Niagara and other hubs.

Building on these economic linkages requires the establishment of an integrated, multi-modal transportation network that maximizes the movement of goods and people through the region and beyond. It will also depend on greater collaboration, flexibility, and innovation. Taking advantage of future external opportunities will bolster our economy by enabling safe, predictable and efficient trips across the region for people and goods.

Economic linkages for Buffalo Niagara to build off of:

Trade within the Greater Golden Horseshoe
Our region is the second largest port of entry along the U.S. northern border, accounting for 15% of all trade between the U.S. and Canada. Canadian shoppers are one of the prime customer bases for malls and retail outlets in our region.

Global trade
U.S. and Canadian firms increasingly partner to produce quality goods and services for global markets. For instance, auto parts cross the border 11 times when building a car. Our region is also within “One day’s trip” of East Coast ports.

Tourism
The bi-national region offers a wide range of attractions for domestic and international tourists, including history, arts and culture, a cross-border wine region, and of course, Niagara Falls. The region can position itself in the middle of tourist trips to Niagara Falls and New York City.

Education
Buffalo Niagara is home to 60 colleges and universities with aggregate enrollment around 300,000 students. Local universities are growing support for related sectors of logistics, supply chain and data management systems.

Sports
Our region ranks as the number 11 television market for sports in North America. Thirty percent of NFL game day attendance is from Ontario and the Rochester metro area.

Unmatched “soft” infrastructure for trade
A strong base of logistics and advanced manufacturing companies, a highly skilled workforce, a network of workforce trainers and a budding entrepreneurial environment offer strategic advantages for the region.
Rethinking Route 5 and Main Street

“Route 5” or “Main Street” runs across our region and through a variety of places, each with unique assets and challenges. Moving Forward 2050 is an opportunity to rethink how this roadway connects and supports our economy, communities, and environment.

Route 5: Hamburg to Lackawanna
(Hamburg Beach to Ridge Road)

This section of Route 5 passes through many different places, including neighborhoods and small communities, freight and other industries, and beaches and parks. It faces a number of challenges:

Ensuring pedestrian, cyclist and driver safety
Maintaining efficient flow of people and goods
Offering residents easy access to neighborhoods and services
Ensuring access to parks and beaches by walking or cycling
Some sections are overbuilt and expensive to maintain, and may not be suitable for the surrounding areas
Portions of the road experience flooding regularly

Moving Forward 2050 will look at ways to:

Redesign Route 5 to safely accommodate pedestrians, cyclists, drivers, and freight
Implement some SEMA elements where appropriate, like coordinated signals, mobility hubs, EV charging stations, and flexible curb space
Support economic and community development through transportation investments
Promote environmental health by utilizing sustainable materials and minimizing runoff into local waterways
Integrate freight hubs at existing industrial locations like the Bethlehem Steel site
Improve pedestrian and cyclist access to Lake Erie, especially for local residents
Enhance the resiliency of infrastructure to climate and extreme weather events
Shoreline Trail
Bethlehem Steel Site
Woodlawn Beach State Park
Hamburg Beach and Town Park
Rail lines
Shoreline Trail
Hamburg Beach and Town Park
This section of Main St. passes through the densely populated City of Buffalo as well as suburban communities with some concentrations of commercial development. It also connects major educational institutions, including Erie Community College, the University at Buffalo, Medaille College, Canisius College, and Daemen College. In addition, Transit Oriented Development (TOD) plans near light rail stations along Main St. are expected to spur economic growth and community development.

The City of Buffalo and the BNMC, which is home to the University at Buffalo’s medical and health sciences, are developing a Smart Corridor to incorporate smart transportation infrastructure and technology, and energy efficiency into the campus. The Knowledge Corridor builds off of these efforts to connect multiple educational institutions, neighborhoods and jurisdictions to create a complete corridor.

In the Knowledge Corridor, research lives alongside transportation planning, where local governments, universities, colleges, communities and businesses all benefit from cutting edge research applications. The Knowledge Corridor can elevate the Buffalo Niagara region to become a leader in transportation that uses technology to improve our economy, community and environment.

Main Street Knowledge Corridor:
Buffalo Niagara Medical Campus (BNMC) to Erie Community College North

**TAKING ACTION**

Leverage university and college connections to act as a “living lab” for transportation innovations like:

- **Vehicle to Infrastructure technology**
- **Connected Vehicles**
- **Autonomous Vehicles (particularly in snow)**
- **Data collection and management**
- **Equity and technology**
- **Mobility hubs**
- **Electric Vehicle charging**
- **Smart lighting**
- **Smart sensors to detect pedestrian, cyclists, vehicles and real-time road conditions**
- **Testing sustainable materials**
- **Coordinated and priority signals for transit, pedestrians and cyclists**

Integrate Smart Enhanced Multi-modal Arterial elements to:

- Support economic and community development—especially in sections of disinvestment or declining commercial activity
- Offer multi-modal options in addition to the light rail
- Improve pedestrian, cyclist and driver safety along the corridor

Demonstrate new partnerships across different governments, educational institutions, and other organizations
Autonomous vehicle circulator to be piloted at BNMC.