



Infrastructure

According to the American Society of Civil Engineers, “Infrastructure has a direct impact on our personal and economic health” and, “A healthy infrastructure will enable us to remain a strong and prosperous nation”. The location, capacity and condition of our infrastructure all play a critical role in shaping Broome County.

Transportation

Transportation planning has a significant impact on issues such as improving public health, preserving and improving the environment, making land use decisions, and enabling economic development. The Binghamton Metropolitan Transportation Study (BMTS) is the regional transportation planning agency which serves portions of Broome and Tioga counties. BMTS’s adopted plan for this region is *Transportation Tomorrow: 2035 - Creating a Sustainable Future*. This comprehensive look at all modes of transportation was adopted by BMTS in 2010.

The transportation plan contains these elements: Infrastructure Preservation, Transportation Safety and Security, Public Transit Service, Regional Transportation Systems Management and Operations, Freight Transportation, and Intercity Passenger Travel.

Infrastructure Preservation: According to *Transportation Tomorrow: 2035*, “preservation of our investment in transportation infrastructure remains the top priority.” Respondents to the comprehensive plan supported this priority. When asked to allocate limited resources, the number one

Transportation Tomorrow: 2035 ***The Vision***

In 2035, Greater Binghamton will be a successful, livable, and vibrant region, and its regional transportation system will have the following characteristics:

Sustainability - Community sustainability will be supported in terms of reduced energy consumption and greenhouse gas emissions; and improved public health and social equity.

Accessibility - All users will have convenient, mode-neutral access to employment, education, services, and other destinations.

Mobility - Personal travel and goods movement will be efficient, with many modes of travel and excellent connections among them.

Safety - All users will be able to travel safely and with a sense of security, regardless of which mode they choose to use.

System Preservation - Transportation infrastructure will be maintained in a state of good repair, as the foundation for providing safe, efficient mobility.



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priority of survey respondents was “maintaining our roads, bridges and infrastructure”. For this element, the plan makes the following commitments:

1. Preserving transportation infrastructure is the highest priority of the BMTS in this plan (*Transportation Tomorrow: 2035*). There is a commitment over the life of the Plan to spend 75% of the available resources on a range of system preservation projects including replacement, rehabilitation and preventative maintenance.
2. Protect urban core arterial streets. In order to support development of a sustainable region, attention will necessarily be directed to the infrastructure in the urban core communities. Rehabilitation or reconstruction of key urban arterial streets will be given a higher priority, for example, than that of a highway in an outlying location. Pavement life cycle forecasts in areas where economic development actions result in more heavy truck volume may become a special focus.
3. Maintain the Broome and Tioga County transit fleets in a state of good repair and meet life cycle replacement targets. This is equally important to meeting the system preservation goal.
4. To fund preventative maintenance of pavements, bridges and buses when such techniques are demonstrated to reduce life-cycle costs.
5. Maintain arterial pavement sufficiency at no more than 10% poor.
6. Maintain collector street pavement sufficiency at no more than 25% poor as funding permits, once arterial goals are met.
7. Reduce the number of deficient bridges by 10% and then maintain that level.

Transportation Safety and Security: According to BMTS analysis, crashes cost this community \$250 million per year on average. And safety mitigation projects are often less expensive than transportation projects that add capacity. *Transportation Tomorrow: 2035*, identifies three focus areas for safety: Improve roadway safety; Improve pedestrian safety; and Address the needs of an aging population. The plan makes these commitments to transportation safety and security:

1. Improve roadway safety through the routine use of traffic engineering methods to identify high crash locations and implement appropriate countermeasures.



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2. Continue to use the Road Safety Assessment process to identify safety deficiencies on urban arterial and collector streets.
3. Improve pedestrian safety by committing to construction of continuous sidewalk systems in key locations, including urban core neighborhoods, and in the vicinity of school and bus routes. Favor walkability on urban core arterial streets.
4. Invest in projects and programs that respond to the special needs of elderly drivers, including appropriate signing, wayfinding, and intersection design.
5. Invest in projects and programs that respond to the special needs of elderly pedestrians, including sidewalk construction, maintenance, and lighting; and accessible intersection design.

Public Transit Service: Public transit is a vital element of the region's transportation system because it provides mobility to residents who do not have access to a car due to affordability, physical limitations or choice. However, the transportation plan recommends expanding beyond this captive audience in order to be of greater benefit to the community. In order to become the mode of choice for residents with transportation options, public transit must provide a high level of convenience and safety. For public transit, the BMTS plan recommends the following:

1. Enhance fixed route bus service. BC Transit should evolve to 15 minute headways on all routes, which will greatly enhance convenience and make transit a more attractive mode to choice riders. Ride Tioga Public Transit should evolve its fixed route schedule to hourly service, and serve more transfer locations in Broome County including the Greater Binghamton Transportation Center. Ultimately the need to modify the intermunicipal agreement between the counties will be superseded by the previously recommended consolidation into a single transit operation. The proposed consolidation will also facilitate schedule coordination.
2. Provide transit amenities. A relatively low cost improvement that creates a significant benefit in terms of making transit more attractive is the construction of bus shelters and information kiosks. Shelters should be placed at higher volume bus stops first, but also considered for more isolated locations. Kiosks may be considered for high traffic locations like shopping malls.



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3. Enhance regional paratransit services. Paratransit service must grow to meet demand, which is forecasted to increase throughout the Plan period due to an aging population. A robust rural transportation service promotes the goal of sustainability by allowing people to conveniently travel to the metropolitan area for jobs and services without relying on a car. BC Country and Ride Tioga services must be redeveloped over the life of the Plan to provide for safe and convenient travel by public transit throughout Greater Binghamton. Further evaluation is necessary to determine the value of retaining a separate rural paratransit service, or to providing service with a combination of paratransit feeder service to rural villages and express bus service from those locations to the metropolitan area.
4. Support travel demand management strategies. Construction of park & ride lots is of value to all shared ride modes, including transit, and carpool/vanpool. Opportunities must be identified for the construction of new lots in outlying areas of the region not currently served.
5. Consolidation. Develop a fully integrated Broome and Tioga County transit service, which would allow people to more easily use transit to travel throughout the region, creating a positive impact on green house gas emissions and broader regional sustainability.

Regional Transportation Systems Management and Operations: Accidents, work zones, weather conditions and special events can all negatively impact traffic. But a robust operations strategy can lessen these impacts by detecting and clearing incidents quickly, limiting the number and duration of work zones, responding well to weather conditions and planning for special events. For this region, the *Transportation Tomorrow: 2035* plan makes two system management and operations recommendations:

1. Traffic signal improvement. Using Intelligent Transportation Systems (ITS) Advanced Traffic Signal System technology to optimize traffic signal timing and operations. Over the life of the Plan, this is expected to evolve from time based coordination and closed-loop systems to fully traffic adaptive systems that can optimize signal operations in real time.
2. Additional ITS deployment. In the context of reviewing and updating the ITS Regional Architecture, new functions like IntelliDrive applications may be determined that have a positive benefit in the Binghamton region. Others may be deployed on a statewide basis, like commercial vehicle operations



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applications. BMTS should be prepared to implement appropriate management and operations strategies.

Freight Transportation: Despite our location at a nexus of four freight railroads (two Class 1 national lines, one regional carrier, and one short line), only a handful of local companies utilize rail shipping. Across upstate, nearly all (84%) of freight moves by truck. However, the vision of the *New York State Rail Plan* completed in 2009 sees the future rail system to be “green” and “support sustainable economic development” and which would strengthen New York’s “premier position in a rapidly changing global economy.” For these reasons, the *Transportation Tomorrow: 2035* plan makes the following recommendations for freight transportation:

1. Identify and prioritize for project development connections from the National Highway System principal arterial highways to significant local freight destinations that require infrastructure upgrades to facilitate truck movement; including those that support specific development proposals.
2. Collaborate with local governments to resolve issue of curbside delivery and truck parking in key areas including the core community downtowns and Main Street. Do so creatively in the context of Complete Streets design.
3. Cooperate with New York State and Pennsylvania in the implementation of ITS commercial vehicle operation initiatives.
4. Support public-private partnerships for the development of rail projects only when the public benefit can support the public investment. Initial focus is on the Norfolk Southern Portageville Bridge replacement project, and on the NYS&W Syracuse Branch.

Intercity Passenger Travel: Typically, a plan like *Transportation Tomorrow: 2035* only covers surface transportation within a region. However, as BMTS prepared the plan, the public raised questions and concerns about travel to other regions and its importance to sustainability. Because issues related to intercity travel is beyond the





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scope of BMTS, the plan does not make specific recommendations. However, it makes findings related to bus service, passenger rail, and air service.

In late 1966, the *Phoebe Snow* made its last passenger rail run from Buffalo through Binghamton and ending in Hoboken, New Jersey. The demise of passenger rail between Binghamton and the Metro New York City area was the result of the cost structure of rail and the convenience of automobile travel. Since then, the reinstatement of passenger rail has been a perennial topic of interest. In 2002, the feasibility of passenger rail from Binghamton to New York City was studied and the only potentially feasible route was determined to be via Scranton, Pennsylvania. In 2008, Amtrak initiated a new passenger rail study at the request of New York State Department of Transportation. The results of that study have not been released.

Aviation

In 1945, construction of a new airport began on Mount Ettrick in the Town of Maine. Need for a new airport to replace the Tri-Cities Airport in Endicott was necessitated when the Civil Aeronautics Authority (the forerunner of the Federal Aviation Administration) ruled that the Tri-Cities Airport would only be able to accept commercial flights during the day when conditions were clear due to its location and topography. The new Broome County Airport was dedicated in 1951. The airport was renamed Binghamton Regional Airport in the 1990's and renamed 'Greater Binghamton Airport' in 2003. This reflects the kick off of a rebranding campaign that was initiated by the BCPlan which was adopted the previous year.

Greater Binghamton Airport:

- The Greater Binghamton Airport generates \$52m in annual economic impact to the community
- The airport is our portal to the global economy. Having a successful airport is considered part of business retention and expansion. Local employers like Lockheed Martin and BAE rely on the airport for their business travel

The Greater Binghamton Airport is owned by Broome County. The airport is self-sufficient and pays local, school, town and county taxes. It is a public-use, commercial service airport that serves the southern tier of New York and portions of northeastern Pennsylvania.

The Greater Binghamton Airport is a non-hub commercial service airport and the sole access point of scheduled air service in Broome County. It is considered by the FAA to be a 'primary airport'. The Airport is serviced by US Airways, Delta, and United Airlines. Non-stop flights are available to Washington DC (Dulles International Airport via United Airlines, Philadelphia, thru Philadelphia International Airport via US



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Airways, Detroit, thru Detroit Metro Airport via Delta Air Lines. These airlines offer a combined total of 22 daily arrivals and departures. It is estimated that Two-thirds of the passengers in/out of BGM are business travelers. In addition to commercial air travel, the Greater Binghamton Airport accommodates general aviation and charter services as well.

The newly renovated passenger terminal building offers amenities such as wireless internet access, a business center workplace, a conference center meeting room and electronic airline check-in kiosks. There is also a Subway restaurant, a lounge, and a gift shop located in the terminal building.

Transportation Tomorrow: 2035 looked at a persistent aviation related issue: local residents travel to Syracuse, Albany or New York City because of the perception of cheaper flights and better air service. This was raised at several stakeholder meetings for the comprehensive plan as well. One suggested solution to this is to replace Greater Binghamton, Ithaca/Tompkins County and Elmira-Corning airports with a new Southern Tier Regional Airport. The analysis in *Transportation Tomorrow: 2035* concludes that a consolidation of the three airports would not yield a significant improvement in air service. In 2011, the three airports combined generated

2011 Enplanements (according to the FAA)	
Greater Binghamton	108,172
Elmira/Corning	152,582
Ithaca Tompkins	121,733
Syracuse	982,709
Albany	1,216,626

approximately 1/3 of the enplanements of Syracuse or Albany. Enplanements include scheduled and non-scheduled boardings, stopovers, and transfers. Therefore, combining the three regional airports would not lead to a significant increase in air service, because the new facility would still be far smaller than competing airports. In addition, the cost of new airport would stretch into the hundreds of millions.

In 2009, the Broome County Department of Aviation completed an Airport Master Plan Update to determine, “the airport’s potential for serving the community and enhancing revenue, evaluate the needs of current and future airport users, and to identify specific opportunities for improving airport facilities.” The Airport Master Plan update lays out three long-term goals for Greater Binghamton Airport:

- Goal 1: Meet the air travel needs of the citizens and businesses in the airport’s service area
- Goal 2: Maintain airport facilities in a manner that is consistent with a first-class operation
- Goal 3: Identify opportunities to enhance the economic viability of the airport through a “business planning” component



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To meet these goals, the Airport Master Plan layouts out 23 needed upgrades proposed in three phases. The status of these projects is as follows:

Airport Upgrades Project Phasing Plan	
Phase 1	Status
I-1 Runway 34 Engineered Materials Arresting System Replacement	Complete
I-2 Relocate Runway 16 Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights and relocate glideslope to reduce threshold displacement	Projected for 2014
I-3 Air carrier Apron rehabilitation	Complete
I-3 Glycol capture drainage system	50% Complete
I-4 Construct private hangar (23,800 square feet)	On hold
I-5 Reconstruct sand storage building	Projected for 2014
I-6 Demolish former airfield maintenance building	On hold
I-7 Connecting link in Runway 10-28 parallel taxiway (1,700' x 50')	Projected for 2015
I-8 Relocate electrical vault & ground vehicle fuel farm	On hold
I-9 Construct terminal de-icing area	Projected for 2016
Phase 2	Status
II-1 Design & Construct fueling & de-icing vehicle spill containment & parking area	Pending
II-2 Construct private hangar (20,000 square feet)	Pending
II-3 Expand West Apron (2,590 square yards)	Pending
II-4 Consolidate General Aviation parking	Pending
II-5 Demolish Air Cargo building	Pending
II-6 Design & Construct North Apron roadway	Pending
II-7 Design private hangar (22,500 square feet)	Pending
II-8 Expand North Apron (5,310 square yards)	Pending
II-9 Runway 10 extension	Pending
II-10 Runway 28 extension	Pending
II-11 Construct T. Hangers	Projected for 2013
Phase 3	Status
III-1 Acquire land use control Runway 28 Runway Protection Zone	Pending
III-2 Design & Construct South Apron (32,000 square yards)	Pending
III-3 Design & Construct rental car ready/return	Pending
III-4 Expand terminal parking (6,640 square yards)	Pending
III-5 Install runway centerline lights – Runway 16-34	Pending
III-6 Conduct terminal space allocation study	Pending
III-7 Construct South Apron Hangars	Pending



Bicycle/Pedestrian Network

One of the recommendations of *Transportation Tomorrow: 2035* plan was the need to update the 1996 BMTS Pedestrian & Bicycle Plan. Because those modes of transportation have unique needs, BMTS decided to produce two separate plans. A draft of the new Pedestrian Plan is now available, and an update to the Bicycle Plan will follow.

Although bicycle and pedestrian infrastructure has received more attention since the 1996 BMTS Pedestrian and Bicycle Plan was adopted, facilities for these modes of travel are still typically the first ones targeted for elimination to reduce project costs. This is unfortunate because there is considerable demand for pedestrian facilities in the BMTS region. The most recent American Community Survey (2006-2010) finds that over 10% of households in the region do not own a car. In the Broome Community Health Assessment from 2010-2013, nearly 70 percent of survey respondents voiced a need for more recreational spaces, such as parks and walking trails, as well as more connected and better maintained sidewalks. For the comprehensive plan survey, pedestrian and bicycle amenities such as bike racks, benches, and sidewalks was the number one priority for elements residents want to see as part of new development. In addition to growing demand, pedestrian facilities have many non-transportation related benefits to the community. These include:



Health Benefits: Walking and biking helps residents meet physical activity goals. Regular physical activity has been shown to reduce obesity, increase lifespan, and lower the risks for heart disease, stroke, Type 2 diabetes, depression and certain cancers. In one study, for every kilometer (0.62 miles) walked there was nearly a 5% decrease in obesity, while every hour spent in a car was associated with a 6% increase in being obese. The Centers for Disease Control and Prevention has estimated that physical inactivity costs the United States 75 billion dollars in annual medical costs. This is close to 10% of all medical costs.

Cost of Transportation: Americans living in compact, mixed-use communities typically drive about 20 to 40 percent less than those in the suburbs and this saves on gasoline and vehicle maintenance. The American Automobile

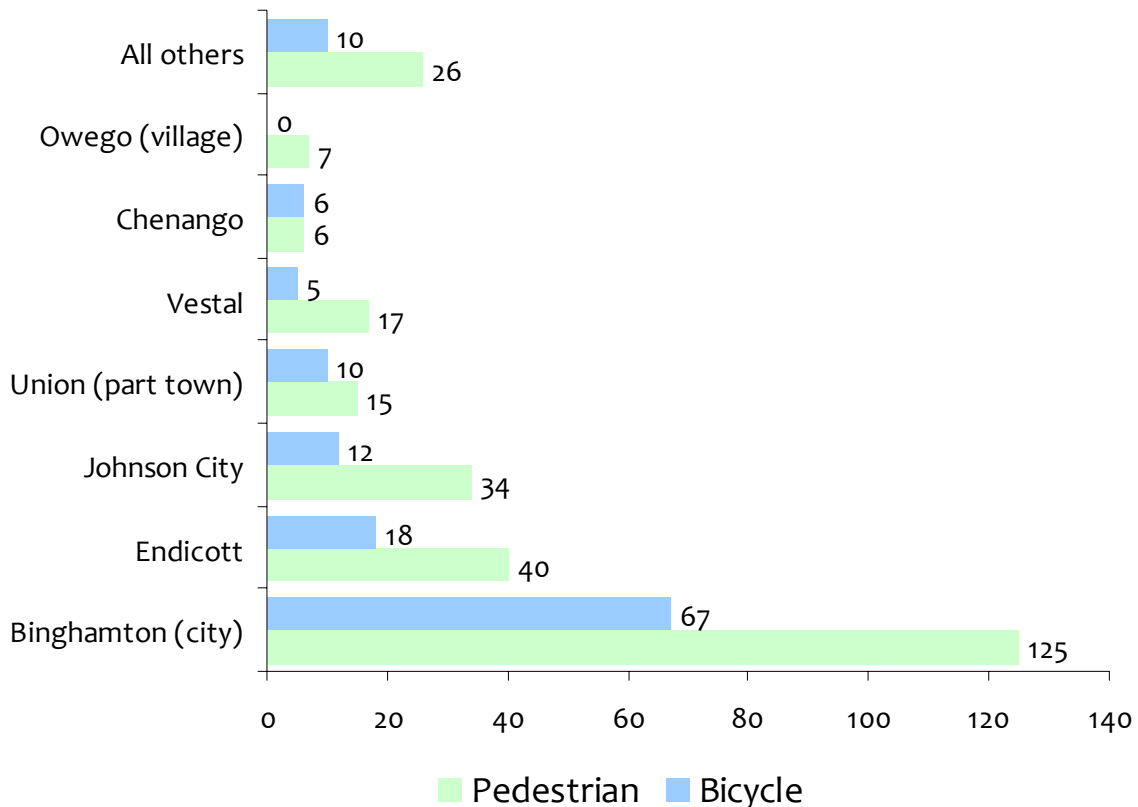


Association calculated that for 2012, the annual cost to own and operate an average sedan was \$8,946. This is compared to walking being essentially free.

Economic Benefits: Increasingly, residents look for pedestrian and bicycle amenities when buying a home or locating a business. According to a study by the National Association of Home Builders, 88% of Millennial's, or those born from 1980 to 2000, want to live in a smart growth community. Smart growth is a planning philosophy which encourages walkable design. Related to this was a nearly 30% drop in driving miles between 2001 and 2009 by this younger generation. Another study found that walkable communities had higher home values.

Unfortunately, there are areas of Broome County that are too stressful or unsafe to encourage walking or biking. According to Transportation for America 2008 report, the Binghamton Metropolitan area has the second highest pedestrian danger index

Pedestrian and Bicycle Accidents 2009-2011 BMTS Planning Area





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in the state of New York, right below the Buffalo-Niagara Falls region. It is essential that these deficits are corrected for people to feel safe using alternative transportation.

Sidewalks and Roadway System

The urban core and central business districts have the highest number of roadways with sidewalks. Even in these areas, however, gaps in the sidewalk network exist. And the further from the municipal center, the gaps are more significant. Most suburban areas in the County lack sidewalks, or they do not have a continuous sidewalk network. Also, some existing sidewalks are in poor condition and/or do not meet the guidelines of the Americans with Disabilities Act (ADA).

Sidewalks can be expensive for municipalities to install, especially if it is not part of a larger street project. Property owners frequently do not want the legal responsibility for maintaining sidewalks and snow removal. On paper, many subdivision ordinances allow the municipality to request a developer to construct sidewalks. However, these provisions are rarely used to require sidewalks to be constructed in new developments.

Two Rivers Greenway

Multi-use trails are an important supplement to sidewalks and roadway pedestrian facilities. Trails provide additional connections to destinations, and in some cases, provide pedestrian access where sidewalks do not go. In 1999, the *Binghamton Metropolitan Greenway Study* was completed. The greenway study, and the 2000 *Greenway Implementation Plan*, lay out a trail system for the BMTS region. To date, almost 40% of the proposed ‘Two Rivers Greenway’ is either built or funded.

EXISTING TWO RIVERS GREENWAY TRAILS		
Trail Segment Name	Municipality	Length (Miles)
Owego Riverwalk	Owego (Tioga County)	0.25
Chugnut Trail – River Terrace to Riverview Dr	Village of Endicott	0.70
Vestal Rail Trail - Main St to African Rd	Town of Vestal	2.09
South Washington Street Pedestrian & Bicycle Bridge	City of Binghamton	0.10
Confluence Park	City of Binghamton	0.10
Chenango Riverwalk - Confluence Park to Court St	City of Binghamton	0.39
Chenango Riverwalk - Court St to East Clinton St	City of Binghamton	0.28
Chenango Riverwalk - Water St to Eldredge St	City of Binghamton	0.40
Chenango Riverwalk - Eldredge St to Cheri Lindsey Park	City of Binghamton	0.50
Otsiningo Park/Otsiningo Park Extension	Broome County	3.50
Port Dickinson Community Park	Village of Port Dickinson	0.75
Total Miles:		9.06



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FUNDED TWO RIVERS GREENWAY TRAILS				
Trail Segment Name	Municipality	Estimated Schedule	Cost Estimate (Millions)	Length (Miles)
Vestal Rail Trail – Phase 2 Castle Gardens to North Main St	Town of Vestal	Construction 2013	\$1.637	1.62
University Trail - Bing U. East to South Washington St. Bridge	NYS DOT	In Design	\$2.522 (Design only)	1.91
Susquehanna North Trail - Confluence Park to Exchange St	City of Binghamton	Construction 2013	\$0.668	0.40
Chenango Riverwalk – Cheri Lindsey Park to Bevier St	City of Binghamton	Construction April 2013	\$0.971	0.41
Prospect St to Bevier St	NYS DOT	Phase 2 Prospect Mt.	Part of Prospect Mt	0.68
Conklin Multi-use Trail	Broome County/ Town of Conklin	Construction May 2013	\$0.590	1.40
Total Miles:				6.42

As segments of the trail system begin to connect, and to span municipal borders, it is necessary to provide uniform wayfinding, regulatory, warning and interpretive signage. To accomplish this, in 2012 BMTS hired a consultant to produce a *Sign Plan and Design Guide* for the greenway. Part of this process was branding the trail system as the ‘Two Rivers Greenway’ and preparing a logo to promote trail usage.

The full extent of the existing and funded trails is shown on the *Greater Binghamton Area Bicycle Route Map*. Printed maps are available for free from BMTS, and the map can be downloaded at <http://www.bmtsonline.com/bmts/map>.

The Two Rivers Greenway Trail continues to expand. The Village of Endicott is using Local Waterfront Revitalization Program (LWRP) funding to plan trails on the north banks of the Susquehanna River, extending the Chugnut Trail westward and providing connections to several parks including Mersereau Park, Roundtop Park, Grippen Park, the Tri-Cities Airport, Route 17C Sports Facility, and Glendale Park. Conceptual locations for trail projects have been developed at several sites. This proposed greenway expansion is identified as high priority trail in the Four Rivers LWRP for Broome County. A Request for Proposals for the study was issued during November 2012. The Broome County LWRP is discussed further in the Open Space chapter of the comprehensive plan.





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BMTS and its local and regional partners are continuing to seek funding for trail projects in an effort to complete, enhance and expand the Two Rivers Greenway system.

The phased implementation for pedestrian plan is as follows:

High Priority/Short Range Actions

Pedestrian:

- Evaluate all hazardous intersections, based on accident report analysis. Based on accepted traffic engineering principles, develop and implement appropriate countermeasures.
- Construct sidewalks to provide access to all schools, including institutions of higher education, not currently served.
- Construct sidewalks along and providing access to all BC Transit bus routes.
- Complete the Two Rivers Greenway trail system.



General:

- Strengthen and expand multidisciplinary partnerships.
- Develop projects as candidates for Federal Transportation funding.
- Develop and implement a public education program emphasizing safe pedestrian and motorist interaction.
- Include appropriate pedestrian design elements in all currently programmed projects to construct, reconstruct, rehabilitate, improve, or preserve State and local highways, streets, and bridges.
- Coordinate with the New York State Department of Transportation's regional and statewide pedestrian and bicycle plans.
- Continue to collect information about the local use of the transportation system by pedestrians.
- Collect information necessary to perform annual Pedestrian Plan evaluation.
- Continue research into best practices which demonstrate enhanced safety for pedestrians.
- Promote pilot projects and special events to increase interest in walking.



Medium Priority/Mid Range Actions

Pedestrian:

- Evaluate all signalized intersections not addressed as high priority. Modify signal timing as necessary to provide adequate pedestrian green time; install pedestrian signal indications as needed per the Federal Manual on Uniform Traffic Devices; install pedestrian actuation and pedestrian phases, as well as Accessible Pedestrian Signals where needed to accommodate safe pedestrian crossing.
- Construct sidewalks to provide access to major employment centers, shopping malls and other commercial districts, parks and recreational facilities not currently served.
- Construct/install pedestrian amenities at high passenger volume bus stops.
- Create a plan for a network of riverbank/greenway paths. - **COMPLETED**

Lower Priority/Long Range Actions

Pedestrian:

- Construct sidewalks where they do not exist in high to medium density residential areas.
- Construct/install pedestrian amenities at intervening bus stops.
- Expand the Two Rivers Greenway trail system beyond the recommended trails.
- Identify a system of dedicated bicycle/pedestrian paths, including linkage of existing park and river bank facilities and rail-to-trail conversions. – **COMPLETED**

Wastewater

Approximately 70% of residences and businesses in the county are served by one of 10 public sewer plants. Wastewater capacity has long been seen as a limiting factor for development in Broome County. The perceived lack of capacity and other issues at the Binghamton Johnson City Joint Sewage Treatment plant was raised as a weakness of the county at several stakeholder meetings.

Broome County has prepared two countywide studies of this issue in the past 10 years: 'Broome County Wastewater Management' in 2002 and 'Broome County Wastewater Systems Financial Feasibility Study' in 2007. Both of those reports are available online at: gobroomecounty.com/planning/pubs In addition, the County has prepared an engineering study of wastewater issues at the Greater Binghamton Airport and the Broome County Landfill. Profiles of the two largest wastewater treatment plants and a synopsis of the engineering study of Airport Corridor are provided below:



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Binghamton Johnson City Joint Sewage Treatment Plant (BJCJSTP): In 1958, the Binghamton-Johnson City Joint Sewage Treatment Plant was constructed in Vestal to serve as a primary treatment facility for the City of Binghamton. In 1963, the capacity of the plant was expanded to handle wastewater from the Village of Johnson City. Since then, various improvements have been made to the plant, mostly related to solids handling and odor control. The Joint Sewage Treatment Plant is owned by the City of Binghamton and the Village of Johnson City and it is managed by a Sewer Board which consists of representatives of these two municipalities. Currently, there are approximately 27,000 connections to the plant from users in 10 different municipalities. The distribution of connections is as follows:

Binghamton Johnson City Joint Sewage Treatment Plant Service Areas	Number of Sewer Connections
Binghamton (City)	13,975
Johnson City	5,300
Port Dickinson	724
Binghamton (Town)	831
Conklin	298
Dickinson	1,100
Fenton	351
Kirkwood	581
Union	150
Vestal (including BU)	3,558
<i>Total</i>	26,868

After large storm events, the system is burdened by large increases in inflow. During these times, storm water threatens to overwhelm the plant due to combined sewers and infiltration and inflow into the sanitary sewers. The result is discharges of untreated sewage into the Susquehanna and Chenango Rivers. In 2007, the BJCJSTP entered into a modified consent order with the New York State Department of Environmental Conservation which required the preparation of a Flow Management Evaluation Report and a Flow Management Plan. The Flow Management Plan is now in place.

The goal of a Flow Management Plan is to identify sources and reduce the quantity of flow into the wastewater system. By reducing inflow, the plant operators hope to stabilize the flow volume below the capacity of the system to minimize overflows and back ups. Plant operators expect that successful implementation of the Flow Management Plan will promote more efficient operations, reduce operational costs over time and will reduce combined sewer overflow discharges into the river thereby improving water quality.

The key component of the Flow Management Plan is the new *Modified Sewer Connection Approval Program* and related *Infiltration/Inflow Offset Bank*. Beginning January 1, 2013, any project that needs a sewer connection must apply to the local



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municipality for a ‘Sewer Capacity Analysis’ and then the Sewer Treatment Board performs ‘Treatment Facilities Flow and Pollutant Load Capacity Analysis’. Projects must offset expected increases in sewer demand with an equal reduction in Infiltration/Inflow to the plant. The Sewer Board has set up an Infiltration/Inflow Offset Bank where the participating municipalities own ‘credits’ that can be allocated to new development projects. Infiltration/Inflow Offset Credits will be required for all sewer extensions. Infiltration/Inflow reduction projects can be privately or publically funded. Examples include things like green roofs and rainwater recycling which reduce storm water discharges to installing new plumbing fixtures which reduce sewer demand.

Village of Endicott Wastewater Treatment Plant: The Village of Endicott owns and operates the Endicott Wastewater Treatment Plant on Anson Road in the village. The plant was constructed in 1966 and upgraded in 1973 and 2002. It serves Endicott, and portions of Vestal and the Town of Union. There are approximately 14,200 connections in Endicott and Union and another 3,170 connections in Vestal. The Endicott plant is currently operating at approximately 80% of its design flow capacity. However, when it reaches 95% capacity it will be required by the New York State Department of Environmental Conservation to prepare a flow management plan and possibly a facility upgrade plan.

Although not under a Flow Management Plan at this time, the Endicott plant also faces Inflow/Infiltration challenges. The plant can provide more than 30 million gallons per day of primary treatment but only 16 million gallons of secondary treatment. When they receive peak flows above this 16 million gallon mark the overage bypasses the secondary treatment process and is discharged to the Susquehanna River with only primary treatment and disinfection. The plant operators are beginning to address this issue by identifying the sources of Infiltration/Inflow through an engineering analysis.

The Endicott plant will also have to address the impending Chesapeake Bay Total Maximum Daily Load (TMDL) standards for phosphorus and nitrogen discharges. The New York State Department of Environmental Conservation will soon begin reviewing discharge permits to ensure compliance with the TMDL standards. The capital cost to upgrade the plant to comply with the new standards compliance may be very high, especially to reduce nitrogen levels. The TMDL standards are discussed in greater detail in the *Water Resources* chapter.

Airport and Landfill Utility Corridor Study: Broome County owns and operates the Greater Binghamton Airport and the Nanticoke Landfill which are located in close proximity to each other in the Towns of Maine and Nanticoke. The landfill generates



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an average leachate flow of approximately 40,000 gallons per day. Currently, this leachate is pre-treated onsite and trucked offsite to various wastewater treatment plants. The leachate pre-treatment, trucking and disposal costs the County approximately \$600,000 per year. The airport's onsite septic system was built in the 1960's and 1970's and is well beyond its useful life. Failure of this system would shut down the airport. In addition, the airport campus has approximately 280 acres available for development if public sewer could be provided. In 2011, the County hired O'Brien and Gere to undertake an engineering study entitled 'Airport and Landfill Utility Corridor Study' to address these issues.

Through this study, the County assessed ten options for providing wastewater treatment at these two key facilities. Two of these options were then selected for further study and refinement. Option 2B conveys combined leachate and sanitary discharges to the Endicott Wastewater Treatment Plant via Farm-To-Market Road. Option 3.1B constructs an onsite treatment facility at the Airport to handle sanitary sewer and leachate from the Landfill.

Both options handle the wastewater needs of the Airport and Landfill. However, based on life cycle costs, Option 2B is more expensive. In terms of net present worth over a 20 year time horizon, doing nothing will cost the County \$10M, Option 3.1B would be \$8M and Option 2B is \$11.4M. This includes capital costs, acquisition of necessary easements and operating costs for each options. However, Option 2B has the potential to offer wastewater treatment for parcels located along the conveyance route from the Airport to the Endicott Wastewater Treatment Plant.

Wastewater is also discussed in the *Water Resources* chapter of the comprehensive plan.

Drinking Water

Drinking water is supplied to homes and businesses via private wells or public water supplies. According to the USEPA, nationwide approximately 90% of residents receive their drinking water via a public water supply. Within Broome County, community water suppliers serve approximately 164,500 residents, or roughly 73% of the county's population. Suppliers range from individual wells for apartment buildings or mobile home parks with as few as 25 residents, up to the City of Binghamton and the Village of Endicott systems which each serve over 45,000 residents.

Community water supplies that have more than 5 service connections or regularly serves at least 25 year round residents are subject to inspection and oversight by the Broome County Division of Environmental Health in accordance with New York State



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Sanitary Code. Any plans for construction, addition or modification of public water are reviewed to ensure compliance with state and federal regulations. The Division of Environmental Health monitors 187 active facilities and performs over 200 inspections annually.

There is no countywide study of drinking water needs in Broome County, but the Division of Environmental Health has prepared an informal assessment of the drinking water system for the comprehensive plan.

In the near future, new potable water wells are planned for the Village of Endicott which also serves Town of Union. Vestal and Chenango are also considering new potable wells. Longer term improvements that the Division of Environmental Health suggest including the following:

Countywide Improvements

- Require emergency generator capability at all permitted mobile home parks
- Create a County-wide water authority to have authority over community water supplies
- Require mandatory continuous disinfection at all public water supplies. Some of the smaller systems receive a waiver from the requirement for mandatory continuous disinfection.

System Specific Improvements

- Install an emergency generator at the South Street Well in Endicott
- Reestablish the interconnection between the Vestal and Endicott systems
- Create a water district for Harpursville area in the Town of Colesville
- Create a Water district on Airport Road in the Town of Maine
- Replace two potable water storage tanks in the Town of Vestal
- Install an emergency generator for Town of Union Booster Station
- Construct an additional potable water storage tank for the Village of Windsor
- Raise the village of Windsor potable water well vaults above flood level
- Add second potable water storage tank at Highland Heights in Town of Kirkwood
- Install a new water main on Dean and Wheeler Streets and new System Control Data Acquisition (SCADA) system combining water system and sewage plant in Village of Deposit
- Rebuild Johnson City main potable water wells and water plant buildings flooded during 2011



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- Hillcrest: Replace back-up generator and install new pump and well motor on well #3. Install Security gate for wells. Cleaning and inspections of both potable water storage tanks. Install security cameras and lighting at wells and storage tanks.
- Town of Binghamton: Install back-up emergency generators for booster stations at Felters Road and Powers Road