



Newburgh Area Transportation & Land Use Study



Short Term Transit Improvement Program *Draft Service Alternatives*

Submitted to:
Orange County
Department of Planning

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October 2010

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Introduction

The Newburgh Area Transportation and Land Use Study is a response to the growth in population and jobs through in-fill and the construction of new residential and commercial development. Also influencing transportation decisions is Stewart International Airport as the fourth jetport of the New York City metropolitan area. Recognizing the importance of mobility, Orange County embarked on a comprehensive review of both transportation and land use issues facing the northeastern portion of Orange County. The study area includes the City of Newburgh and the surrounding Towns of Cornwall, Montgomery, Newburgh and New Windsor. The study is multi-modal in that it examines a wide range of public transportation systems including auto and transit as well as non motorized modes. Another dimension of the study is its focus on both near term and long range proposals to improve access.

One aspect of the study is an examination of the short range public transportation needs of the study area. A widely held view is that the current service is not adequate to meet the mobility needs of residents and support the economic development of the community. The objective of this study phase is to recommend changes to the current bus and demand responsive services offered by public agencies and private firms which rely on tax support for operating assistance and capital improvements.

To prepare this public transportation plan, a work program of several sequential tasks was undertaken. Initial efforts were directed at developing a description of the study area in terms of key demographic and socioeconomic characteristics. Of particular interest are those groups that typically rely on transit for meeting their travel needs, such as incomes at or below poverty or households with no available automobiles. Information was also obtained on the journey to work of individuals who either reside or work in the study area. An inventory of current public transportation services was also prepared and included bus, rail, ferry and demand responsive modes. Because the focus of the analysis was on the local bus service, recent trends on key operating, ridership and financial measures was presented. These results were documented in a previously prepared interim report.

Based on a review of the information in that earlier work as well as input from the public and other study participants, a series of route proposals have been prepared. They indicate suggested changes in the bus routes operated by the Newburgh Beacon Bus Corporation. The proposals vary in terms of alignment, frequency and span; although, coverage and level of service options could be combined in a variety of ways. These alternatives include service that circulates in the City of Newburgh and adjacent communities as well as a shuttle service which is primarily oriented to linking the Beacon rail station and Stewart International Airport. The proposals vary in terms of their dimensions as measured by required vehicles, which in turn influences other operating statistics as well as operating cost and subsidy.

The objective at this stage is to initiate the dialogue on the appropriate bus system for the study area. In this way, comments received now can be used to refine the most promising alternatives for evaluation. The concluding interim report will indicate the impacts of each transit alternative and through an evaluation process delineate a recommended transit program. It will include a description of service and capital improvements along with key operating, ridership and financial forecasts.

Service Alternatives

As noted previously, up to this point in the analysis, the process has involved mainly gathering data on the existing bus services and the transportation setting in which they operate. The data has consisted of quantitative items, such as ridership levels and density of senior citizens, as well as some qualitative input from existing passengers and some of the area's stakeholders. Based on the available data and the various other inputs a series of service alternatives have been presented and described in this interim report.

The service proposals range from maintaining the current transit system to greatly expanding service. More routes with increased coverage with more frequent service will attract more riders, but also generate the need for significant increases in transit funding. Clearly, the selection of a recommended plan will be influenced by the benefits of increased mobility and financial resources that will be required for operating assistance and capital expenditures.

For the local bus routes, the selection of a preferred route plan is dependent on the number of buses that can be financially supported; accordingly, the plans are for a two bus system, a three bus system or a four bus system, in addition to the Newburgh-Beacon Shuttle. Two proposals have been created for each of the three bus and four bus system alternatives, as well as two options besides the current service for the Newburgh-Beacon Shuttle. Other proposals considered were innovative strategies such as route deviation, rover bus and ride request as well as expanding demand responsive services to the general public.

Service Development Process

The analysis was based on a review of existing services and the markets served. A considerable amount of information was obtained and analyses conducted, which served as a vital input to the service development process. Further, planning precepts were put forward which provided policy inputs to the analysis. Each of these important considerations to the planning process is summarized in this section.

Service Planning Inputs - A number of inputs were considered in preparing the program of transit options for the Newburgh area. They consisted of technical analyses, as well as opinions and views of riders. Each of these inputs, many of which were documented previously, are briefly described below:

- **Service Area Characteristics** - Utilizing U.S. Census data and information provided by the Orange County Department of Planning, the service area was described in terms of population, population concentrations and the resident's characteristics (e.g., senior citizen population, zero-car households, etc.). Of particular interest were

communities where transit need was the greatest, and as such, a transit needs score was generated for each census block group. The locations of major trip generators (i.e., major employers, shopping centers, schools and hospitals) were identified, along with the appropriate measure of the generator size (e.g., beds for hospitals). Journey to work information provided data on commuting patterns in terms of their geographical distribution and mode choice.

- **Existing Transit System** - An inventory of current bus, rail and ferry services was presented in terms of alignment, frequency and span along with a description of the demand responsive services in the study area. The Newburgh Beacon Bus Corporation, the primary local fixed route bus operator and the focus of the analysis, was presented in terms of key operating, ridership and financial statistics, as well as cost effectiveness and efficiencies measures for the last five years. In addition, the funding sources were delineated for a five year period in terms of farebox revenue, contract payments and government assistance. Other analysis focused on the individual bus routes for a recent one year period.
- **On-Board Surveys** - Two surveys were conducted on the three bus routes operated by Newburgh beacon Bus Corporation. The first was a ride check count where survey personnel record the location of all passengers ons and offs by stop as well as the running times. In addition, a rider survey was conducted with customers asked to complete a survey form that solicited information on the trip that they were making, information on their characteristics and attitudes towards transit and desired improvements.
- **Route Diagnostics** - Each bus route operated by Newburgh Beacon Bus Corporation (i.e., Northside, Southside and the Newburgh-Beacon commuter shuttle) was examined in terms of key operating and financial measures with the objective of assessing relative efficiency and effectiveness. Several techniques were applied to gauge the balance between bus system supply and demand. The performance varied greatly between the bus routes with a significant difference in performance between the two local routes and the commuter shuttle.
- **Other Transit Studies** - Other transit analyses have been performed previously or are still currently underway. Previous studies include the Orange County Transit Improvement Study and the Orange County Comprehensive Plan. One ongoing project which has been coordinated with the current effort is the West of Hudson Regional Transit Access Study. The study is examining rail access to Stewart International Airport as well as other regional transit alternatives.
- **Staff Meetings** - Discussions have been held with the transit staff of the Orange County Department of Planning and New York State Department of Transportation Region 8, as well as with the owners/operators of the Newburgh Beacon Bus

Corporation. A work session was held to review initial concepts and proposals with follow up meetings after that initial work session. Other discussions were held with other fixed route providers and the agencies that administer other demand responsive services in the study area.

- **Outreach** - A key element of the overall study is to create a two-way dialogue on transportation and land use strategies. Meetings have been held with stakeholders and the general public to solicit their comments and suggestions for improving the current public transportation system. This study phase also provided valuable input from non riders on the current system and suggested improvements.
- **Field Reconnaissance** - Field trips were conducted throughout the area to gain a first-hand understanding of the existing transit operating characteristics, as well as the location and layout of present and future development. During the course of these investigations, land use, key generators, roadway characteristics and other noteworthy items were recorded.

The discussion above indicates the inputs to the planning process. It included a description of the transportation setting in which the current public transportation system operates along with an inventory of the current local transit services in the Newburgh study area,

Planning Precepts - Having assembled a comprehensive database described previously, the next step in the process was to formulate principles that would guide the development of service proposals. They provide a policy framework for the service plan and are summarized below:

- **Density of Development** - The municipalities which comprise the study area have a wide variety of land uses and development patterns which are urban, suburban and rural within a relatively small area. In terms of density, the City of Newburgh has a sufficient concentration of people to support a fixed route transit system, while many of the other areas in the study area do not. Public transportation works best with a higher density of development and linear concentrations of residential and other land uses.
- **Transit Friendly Design** - Most development outside the City of Newburg is not designed to encourage transit use. Transit friendly development would include roadway geometrics that permit bus operations, access to new developments by more than a single street, sidewalks that permit convenient access to bus stops, building frontages near streets where buses operate and installation of amenities (e.g., shelters). Many developments do not have these transit friendly attributes.
- **Dispersed Travel Patterns** - The decentralized nature of development results in travel desires which are dispersed throughout the Newburgh study area. Further,

many of the City of Newburgh residents who are transit dependent must travel to suburban areas to complete shopping and other trips. This requires the bus system to serve multiple corridors in such a way that residents can travel from their home to locations in all directions.

- **Local and External Travel** - The study area generates trips that both originate and terminate within the study area as well as travel that extends beyond the area. For the relatively short local trips, this would suggest transit trips that involve a one-seat ride or a timed transfer arrangement. External trips (e.g., Orange County to Manhattan) would involve the local bus system as one leg of a trip that involves other line haul bus or rail service.
- **Travel Modes** - There are three primary public transportation modes in the Newburgh study area. This includes bus service provided by the Newburgh Beacon Bus Corporation and others, commuter rail service offered by MTA Metro-North and ferry service that links Newburgh and Beacon. While demand responsive services are available, they are typically utilized mostly by specific groups (e.g., senior citizens and disabled residents). These services are provided under contract by Orange County and by local municipalities.
- **Taxicabs** - An unusual feature of the transportation situation in Newburgh is the large number of taxicabs and their high utilization. This reflects the comparative travel time and cost of cab and bus service. Taxicabs provide door-to-door service in a non stop fashion while bus service requires patrons to walk to and from bus stops and wait for the next bus. Taxicab fares for trips within the City of Newburgh are five dollars, regardless of the number of passengers. While this is substantially more than the adult base fare for the Newburgh local bus service, it indicates the importance people place on their time. Further, for trips with more than one person, the taxicab fare is competitive. This situation suggests that the bus system must afford an attractive service to capture people who currently patronize taxicabs.
- **Commuter Shuttle Service** - The current service between the Beacon rail station, 17K Park & Ride and Stewart International Airport should be viewed in the context of both transportation and economic development. The service provides mobility for commuters as well as a link to Stewart International Airport. Service could be oriented to strictly serving air travelers or there could be an air-rail oriented service in addition to a more commuter and local employment oriented service
- **Service Directness** - There is a trade-off between bus system coverage and the directness of the service. Bi-directional service is typically preferred over large one-way loops. While riders may have to walk longer distances to reach a bus, they do not experience a long circuitous ride, often in the opposite direction of the destination

because of large one-way loops. Clearly, a balance must be achieved between coverage and directness.

- **Transfers** - In view of the relatively short length of most local trips, the transit system should be able to provide a one seat ride to most customers. In view of the relatively wide headways of existing and likely proposed services, transferring between buses is not viewed favorably.
- **Timed Transfer** - In the event transfers are required, then they should be on a timed transfer basis. This is particularly important when headways are relatively wide which is the case with the local Newburgh bus service. Currently, the Northside and Southside schedules are coordinated so that transfers can be made at Broadway and Liberty Street. This practice should be maintained when possible.
- **User Friendly** - A desirable feature of any transit service is to offer headways and services that are easy to remember without resort to a timetable. Often, this is achieved by clockface headways where a bus passes a location on a recurring basis (e.g., 15 minutes after the hour) throughout the service day.
- **Multiple Transit Agencies** – In addition to the services offered by the Newburgh Beacon Bus Corporation, there are other area bus systems that serve different trip purposes. To the extent possible, coordination should be achieved between the services offered by the different transit carriers. These other agencies include Coach USA ShortLine, Adirondack Trailways and Ulster County’s UCAT. Additionally, there are demand responsive services operated by the Town of Newburgh, the Towns of New Windsor and Cornwall and the Towns of Montgomery and Crawford, as well as ADA service currently operated by the Newburgh Beacon Bus Corporation under contract with Orange County. As noted previously, better coordination should be considered for both rail and ferry services.
- **Supply and Demand Balance** - Transit resources are finite and decisions to provide service in one area implies less service somewhere else in the system. For this reason, transit resources should be allocated to where there are current riders and the potential to attract new riders. Another point to note is that the local fixed route bus services operated by the Newburgh Beacon Bus Corporation are underwritten with NYSDOT and FTA funds. No direct municipal or Orange County (except for ADA and Dial-A-Bus) funds are provided for fixed route services which also mandates a careful balance between the service operated and its utilization.

Service Alternatives

The discussion above indicates a variety of considerations in the development of service proposals. At this stage of the analysis, the objective is not to select a single preferred plan, but to present alternatives and solicit comments on the options. In this way, proposals can be refined in terms of coverage, frequency and span. The remainder of this report presents the alternatives for consideration. The first group of alternatives covers the local service (i.e., Northside and Southside routes), which is then followed by alternatives for the shuttle route. Finally, other alternatives are presented for the outlying and less dense areas of the Newburgh study area.

Local Service - Several alternatives for the local service are presented which includes no action (i.e., retain current route structure) and the proposal developed by management of the Newburgh Beacon Bus Corporation. Other proposed local options include alternatives that require two, three or four buses to operate that service. They differ by the extent of the geographical coverage and the frequency of service. Typically, proposals that serve more communities and generators require more buses to maintain coverage. Similarly, proposals that call for more frequent service require more buses to be placed in service. It should be recognized that the number of buses in service is a surrogate measure of operating costs and necessary subsidy. The availability of buses and their capital costs is not viewed as a major impediment. This reflects the economic life of buses, the more generous capital funding programs in comparison to operating assistance and the labor intensive nature of public transportation.

In fact using the American Recovery and Reinvestment Act ("Stimulus") transit funding, Orange County will purchase an entirely new fleet of hybrid-electric buses for both the Newburgh area local service and the Newburgh-Beacon Shuttle. While not in this study area, the County will use the same funding to purchase hybrid-electric buses for the Middletown and Kiryas Joel local fixed route bus service.

While a suggested span of service is included with each alternative, the hours and days of operations could be varied within each of the alternatives. Currently, the local bus routes operate during the day on both weekdays and Saturdays with no Sunday service. Several markets were considered for service, some of which are currently served and others which are not. The markets which were considered for the Newburgh local service include:

- Broadway in the City of Newburgh and the neighborhoods directly to the north and south of the corridor;
- The 17K Park & Ride lot;
- The Newburgh Mall, the Walmart and the New York State Route 300 Corridor;
- Stewart International Airport;
- U.S. Route 9W/Robinson Avenue;
- Vails Gate and the surrounding shopping options;
- St. Luke's Cornwall Hospital Newburgh Campus;
- St. Luke's Cornwall Hospital Cornwall Campus;

- Mid-Valley Mall/Shoprite on North Plank Road;
- Target/Associates Market;
- Newburgh-Beacon Ferry/Hudson Riverfront/Water Street;
- New York State Route 94/Quassaick Avenue/Blooming Grove Turnpike; and
- New York State Route 32/Lake Street/Windsor Highway.

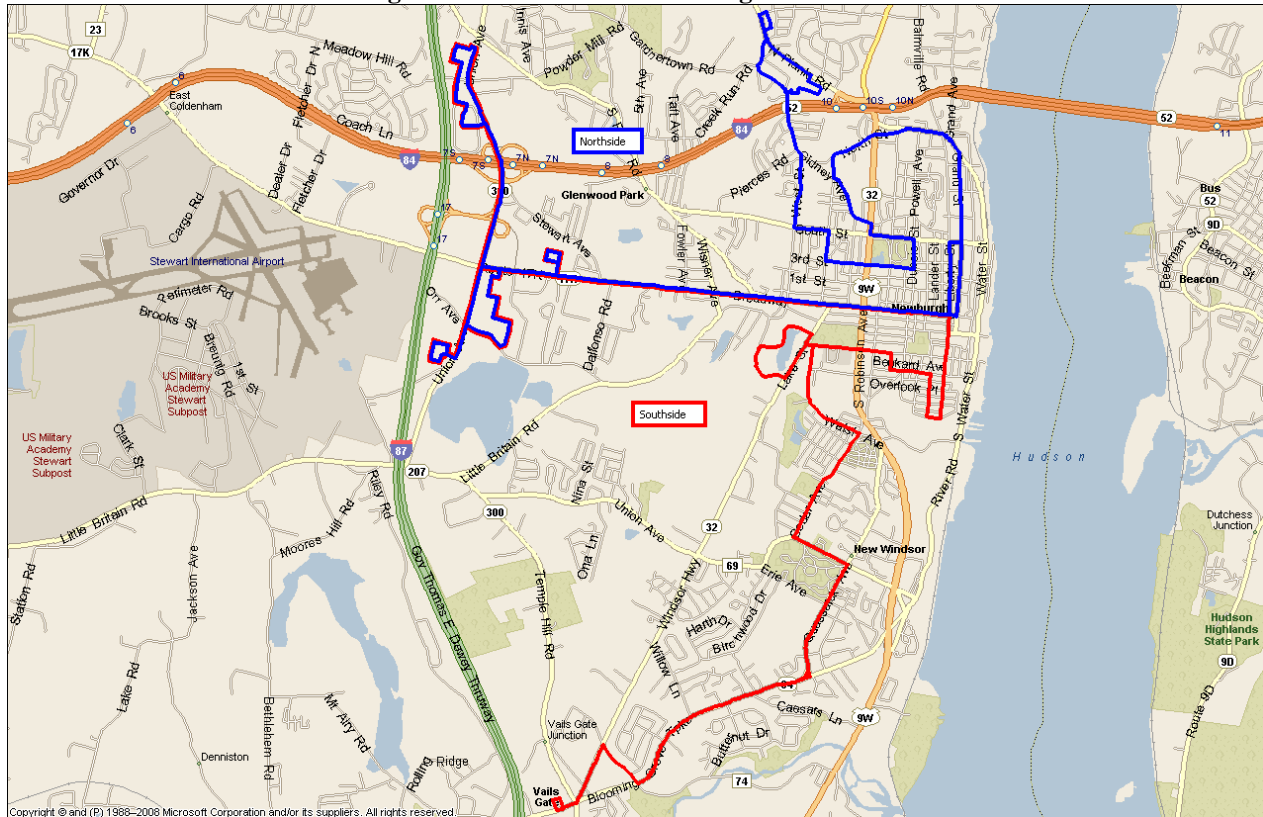
These markets are each represented in at least one of the system alternatives. It is important to note that these routes could be further refined to best meet the needs of the potential passengers within the study area. Additionally, each proposed route can exist outside of the plan that it has been put into (i.e., a route being proposed in the four bus plan could be instead operated along with the three bus plan).

Other things to keep in mind at this stage of the planning process are that the running times presented here are only estimates and would require further refinement, possibly through test trips with a bus, particularly in areas where service is not currently operated. Additionally, different elements of more than one of the alternatives could be combined to create a new routing scheme.

Alternative 1A: Existing Local Routes - Should the decision be made that no action be taken in regards to the local transit service in the Newburgh area, the current system would remain in place as it operates currently. Figure 1 presents the current routing of the Northside and Southside bus lines. This option represents the baseline condition for assessing the relative strengths and weaknesses of the other alternatives. Similar to the route alignments, the frequency and span of service would remain at existing levels with two buses placed in service during the day.

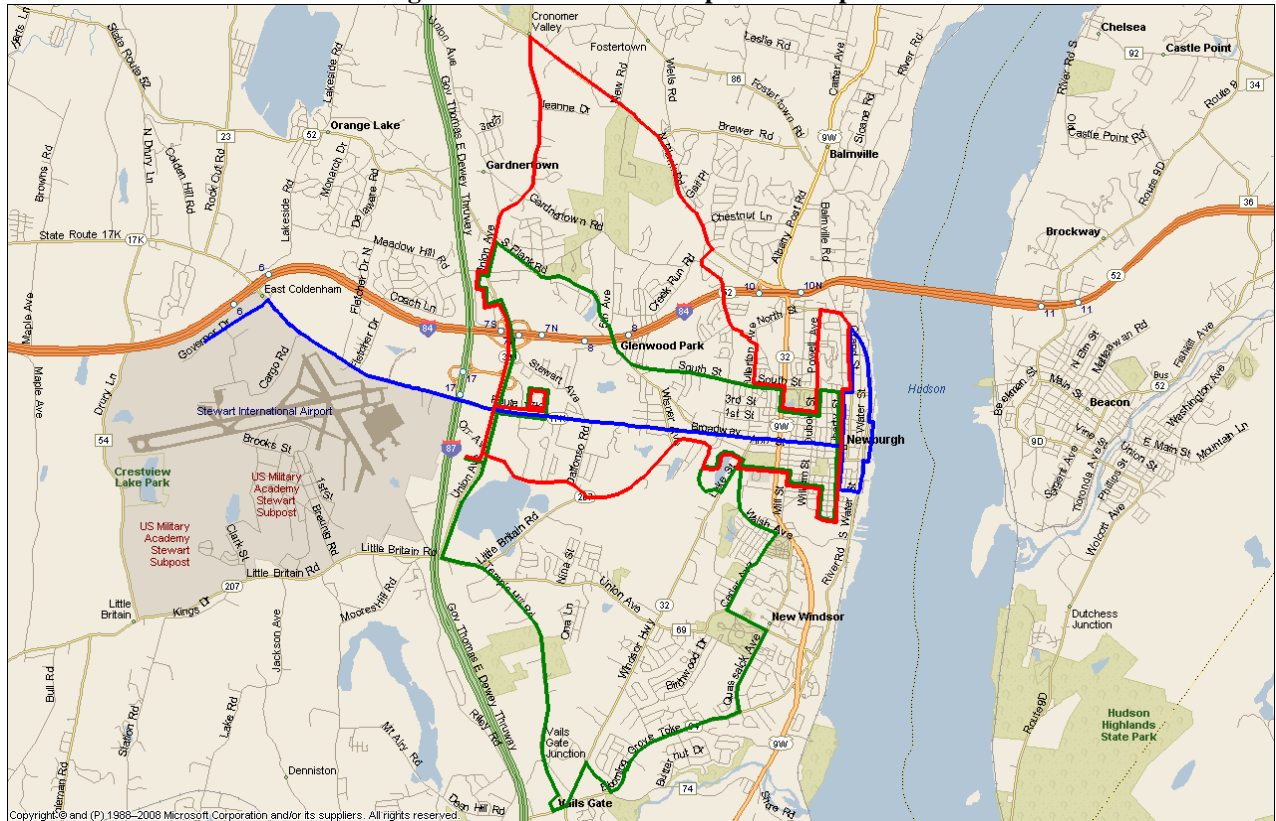
Currently, the Northside route operates between the Mid-Valley Mall/Shop-Rite and the Newburgh Mall/Walmart. Service is offered Monday through Saturday with weekday service operating between 6:55 AM and 5:30 PM, while Saturday service operates between 8:30 AM and 5:30 PM. The Southside route operates Monday through Saturday between the Price Chopper in Vails Gate and the Newburgh Mall/Walmart, between the hours of 7:30 AM and 6:00 PM on weekdays and 8:50 AM and 6:00 PM on Saturdays. Both services take 120 minutes to complete one full round trip, which affords 60 minute service on Broadway, and NY State Routes 17K and 300 - the shared portion of the two routes.

Figure 1- Alternative 1A: Existing Local Routes



Alternative 1B: Operator Proposal - A few years ago, owners of the Newburgh Beacon Bus Corporation presented their ideas for an improved system, calling for four buses with an expanded service area (Figure 2). Two vehicles would operate along Broadway from the business park on Governor Drive to the Hudson River waterfront (shown in blue). The second route (shown in green) would operate with one vehicle as a large one-way loop, offering service to Vails Gate, through the Town of New Windsor, through the City of Newburgh on both sides of Broadway to the Newburgh Mall, the 17K Park & Ride lot and Walmart. The third route (shown on red) would also operate as a large one-way loop, offering service through parts of the Town of Newburgh, through the City of Newburgh on both sides of Broadway to Walmart, the 17K Park & Ride lot and the Newburgh Mall.

Figure 2 - Alternative 1B: Operator Proposal

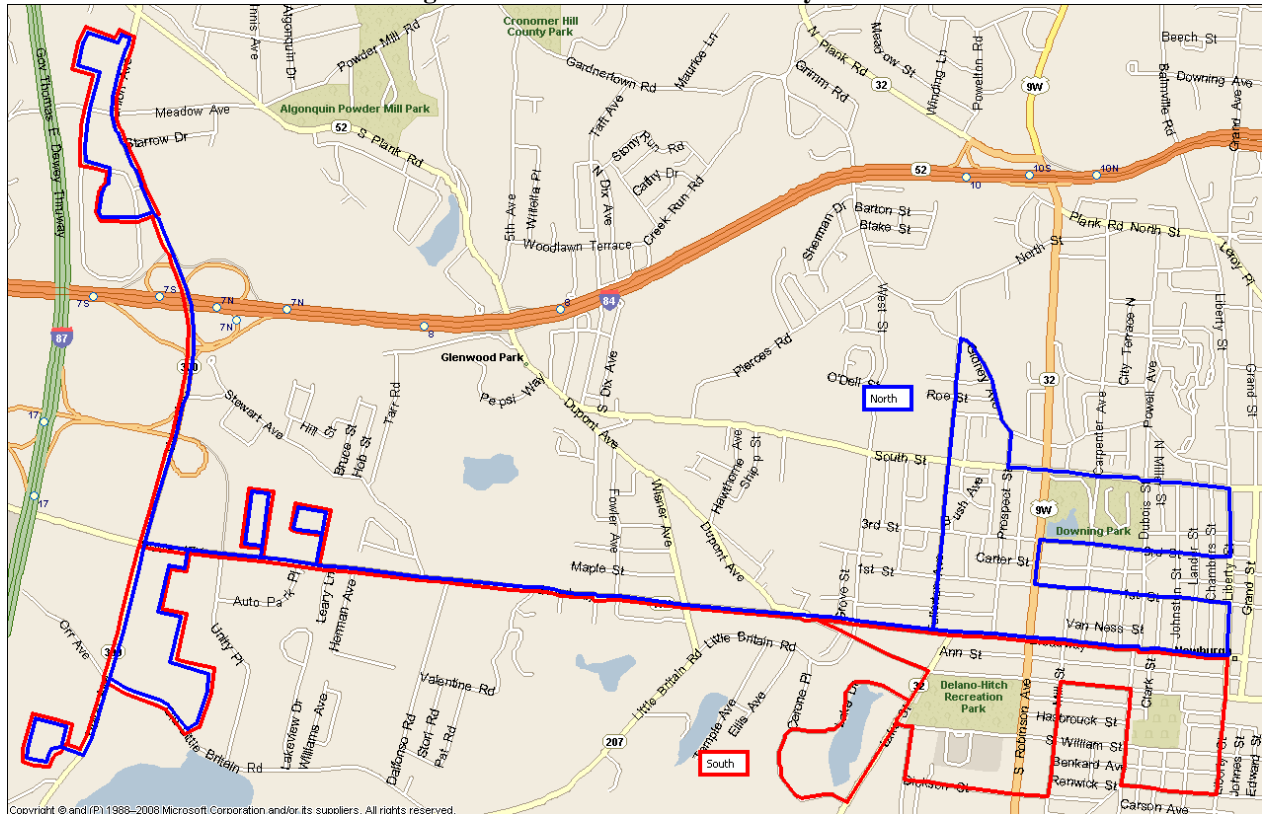


The Newburgh Beacon Bus Corporation proposed that the Broadway service offer 30 minute headways which would require two buses assuming a 60-minute cycle time. The two loop routes would operate at hourly headways based on a cycle time of one hour and the assignment of one bus to each loop. This plan would increase the service on Broadway by 50 percent and expand the service area. To the extent that the cycle times could not be achieved, the headways on the proposed routes would be higher and afford less frequent service.

Alternative 2: Two Bus System - Currently, the Newburgh Beacon Bus Corporation requires two vehicles to operate local fixed route service in the Newburgh area. A two bus system would eliminate service to much of the areas not in the City of Newburgh; however, the headways would be reduced and riders offered more frequent and direct service than the current system. Another positive feature of this plan is that it more directly penetrates many neighborhoods in the City of Newburgh and would reduce walking distance to and from the bus.

This option points out some of the trade-offs between coverage and service directness and frequency. Clearly, not serving areas such as Vails Gate and the Mid-Valley Mall is a disadvantage of this plan. The benefit of the proposal is that it can be operated with two buses and concentrates service in the area of greatest need as well as actual and potential use (i.e., City of Newburgh). Figure 3 presents the alignment for the two proposed routes with this alternative.

Figure 3 - Alternative 2: Two Bus System



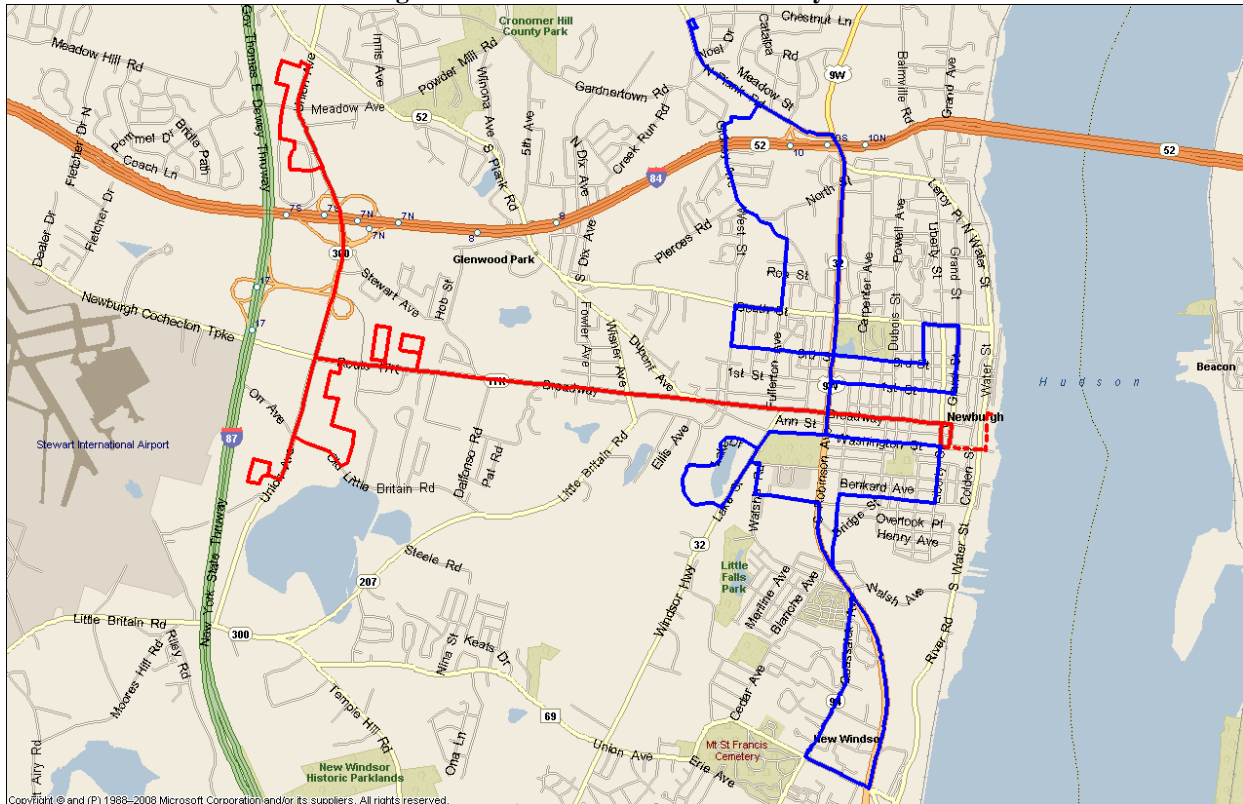
The proposed Northside route would operate as it does today through the Newburgh Mall, the Walmart and the other shopping centers areas along New York State Route 300, to the 17K Park & Ride, to the Target and then continue on Broadway into the City of Newburgh. Once in Newburgh the vehicle would turn left onto Fullerton Avenue, proceed past the Newburgh Free Academy High School and turn right onto Gidney Avenue. The bus would then turn left onto South Street and remain on this road until it reaches Liberty Street. The bus would then turn right onto 3rd Street and serve the St. Luke's Cornwall Hospital at Dubois Street and continue on 3rd Street. The vehicle would then turn left onto Robinson Avenue followed by another left onto 1st Street. The service would then return to Liberty Street, followed by a right onto Broadway, where it would return to the beginning of the route. One round trip would be 16.2 miles and have an estimated round trip cycle time of about 60 minutes. This route should operate between the hours of 7:00 AM and 7:00 PM on weekdays and between 10:00 AM and 9:00 PM on Saturdays.

The alternative for the Southside route would also operate as it does today from the shopping locations along New York State Route 300, to the 17K Park & Ride, to the Target and then to the City of Newburgh. In Newburgh, the vehicle would turn right onto Washington Terrace followed by a right onto Lake Street. The bus would then turn right onto Lake Drive before making a right back onto Lake Street. The vehicle would then turn left onto South

William Street followed by a quick right onto Walsh's Road. The route would then operate via Dickson Street, Mill Street, Washington Street, Williams Street, Renwick Street and Liberty Street to return to Broadway and the beginning of the route. This route would also take 60 minutes to complete one round trip, which is 16.1 miles long. As with the Northside route, this bus route would operate hourly headways. Service could be operated the current weekday and Saturday span. Another possibility would be to extend service hours from about 7:00 AM to 7:00 PM on weekdays and between 9:00 AM and 5:00 PM on Saturdays.

Alternative 3A: Three Bus System - This alternative is the first of two that would require three buses to maintain service levels. Having three buses available for use with appropriate funding secured for operating expenses would allow the system to have increased frequency on Broadway, as well as increase the transit system coverage. This alternative has two distinct routes. However, instead of both routes operating on Broadway, as the current system does, one route would operate on Broadway, while the other would operate north-south through the City of Newburgh. This is in contrast to the current system in which both local routes have a common segment on Broadway. It is recognized that this alternative would force some riders to transfer to complete their trips. However, the trip time of both routes should allow for a timed-transfer at Broadway and Robinson Avenue. Figure 4 illustrates this alternative which consists of both a north-south and an east-west route.

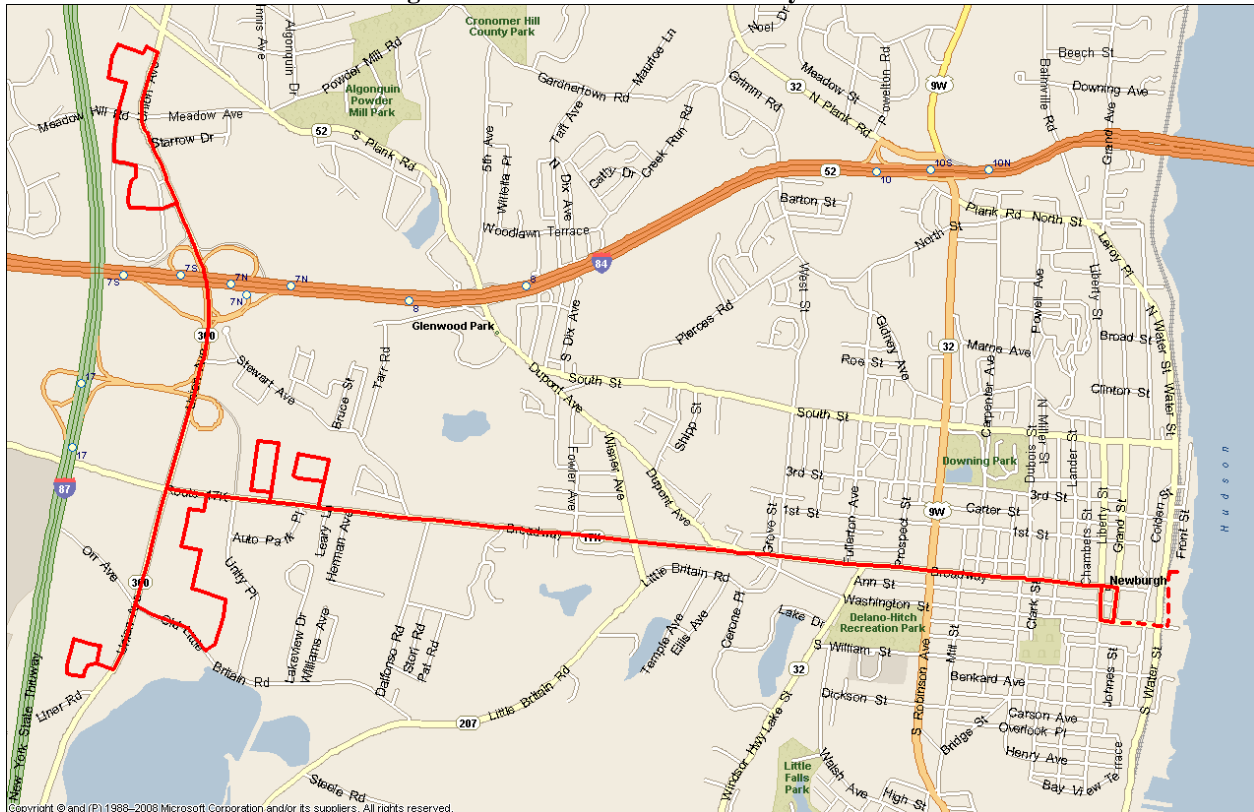
Figure 4 - Alternative 3A: Three Bus System



As shown in Figure 5, the Broadway route would operate in a T-configuration and serve the shopping locations along New York State Route 300, including the Newburgh Mall and Walmart, then would go through the 17K Park & Ride lot and the Target before traveling to the City of Newburgh via Broadway. The vehicle would remain on Broadway to Grand Street where it would turn right and turn around via Washington Street and Liberty Street. During the hours when the Newburgh-Beacon Ferry is operating, the bus would also serve the ferry dock, creating a connection to the Beacon rail station.

One round trip would be 13.8 miles and take about 60 minutes to complete a round trip, which includes layover time. With two vehicles assigned to this route, a 30-minute service could be operated on Broadway and New York State Routes 17k and 300. This route should operate between the hours of 7:00 AM and 7:00 PM on weekdays and from 9:00 AM to 5:00 PM on Saturdays. As noted previously, the hours of service could be adjusted to provide a more lengthy span. Since the Newburgh-Beacon Ferry has a few trips before 7:00 AM, not all of the ferry trips would be met, although the span could be adjusted for earlier arrivals.

Figure 5 - Alternative 3A: Broadway Route



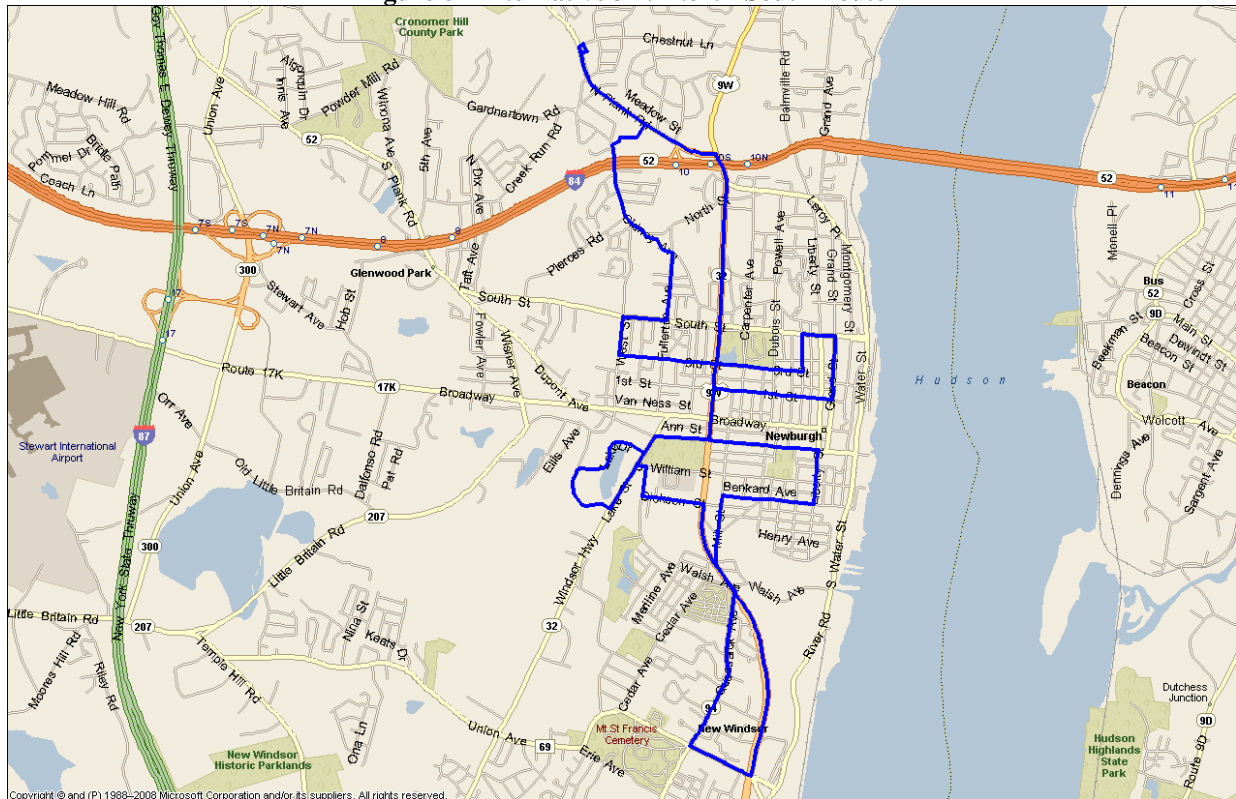
The other route in this alternative would offer service to the north and south of Broadway and would offer connections to the Broadway route at Broadway and Robinson Avenue. This route operates two loops, one to the north of Broadway and one to the south. Each loop would take approximately 30 minutes to complete, which would allow this service to meet the Broadway route and provide a link to the shopping options along New York State Route 300.

Starting at Broadway and Robinson Avenue/U.S. Route 9W, the vehicle would proceed north and turn right onto 1st Street and continue to Grand Street. The vehicle would then turn left onto South Street followed by another left onto Lander Street. The bus would turn right onto 3rd Street and offer service to the St. Luke's Cornwall Hospital at 3rd and DuBois Streets. The bus would remain on 3rd Street until West Street, where it would turn right, followed by a right onto South Street and a left onto Fullerton Avenue. The vehicle would operate to the Mid-Valley Mall via Gidney Avenue and to the Shop-Rite via North Plank Road.

The bus would then turn around and operate back into the City of Newburgh via North Plank Road and Robinson Avenue. Once past Broadway, the vehicle would turn right onto Washington Street and left onto Lake Street. The bus would then turn right onto Lake Drive and then right to return to Lake Street. The vehicle would take the next left onto South Williams Street followed by a right onto Walsh's Road and a left onto Dickson Street. The route would

then turn right onto Robinson Avenue followed by a right onto Quassaick Avenue/New York State Route 94. At Union Avenue the bus would turn left, followed by a left onto U.S. Route 9W. At Bridge Street/Mill Street the vehicle would turn right, followed by a right onto Renwick Street. The bus would remain on Renwick Street until turning left onto Liberty Street, followed by a left onto Washington Street. The bus would complete the southern loop by turning right onto Robinson Avenue/U.S. Route 9W. This route is depicted on Figure 6.

Figure 6 - Alternative 3A: North-South Route

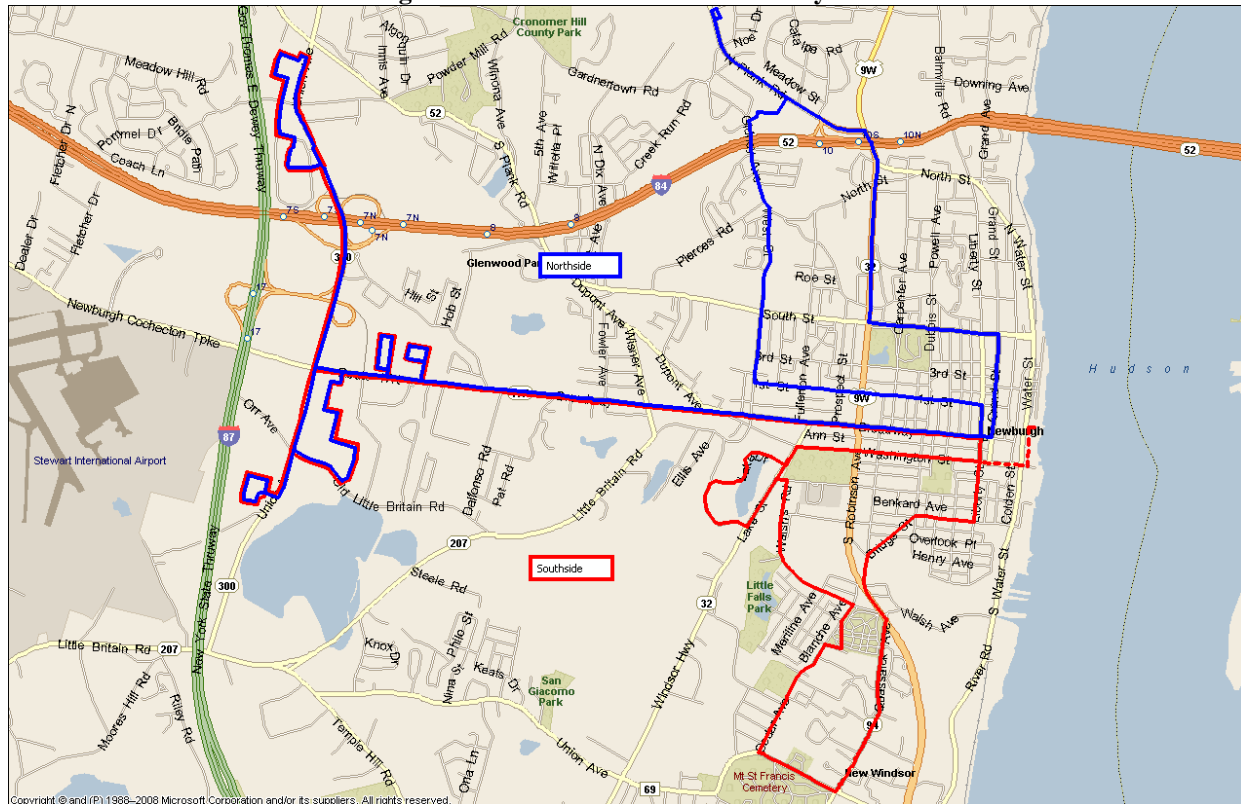


This route is 13.7 miles long and would take about 60 minutes to complete a round trip. The northern loop and the southern loop would each take about 30 minutes with residents having hourly service on each side of Broadway. This arrangement would permit a timed-transfer with the Broadway bus route. As with the Broadway route, this service should operate between 7:00 AM and 7:00 PM on weekdays, and between 9:00 AM and 5:00 PM on Saturdays.

Alternative 3B: Three Bus System - A second alternative for a three bus plan was developed which combines features of the previously discussed alternatives. This option is similar to the Two Bus System discussed earlier in that both Northside and Southside routes would operate along Broadway to the shopping centers along New York State Route 300. One route would serve areas to the north of Broadway in the City of Newburgh and the other offering service south of Broadway. It is anticipated that each route would have a cycle time of about 90 minutes or a combined round trip time for both the Northside and Southside routes of 180

minutes. With a planned hourly service, this option would require three buses. Each bus will operate on both routes. After each bus completes one of the routes it would then begin the other. This service proposal is shown in Figure 7.

Figure 7 - Alternative 3B: Three Bus System



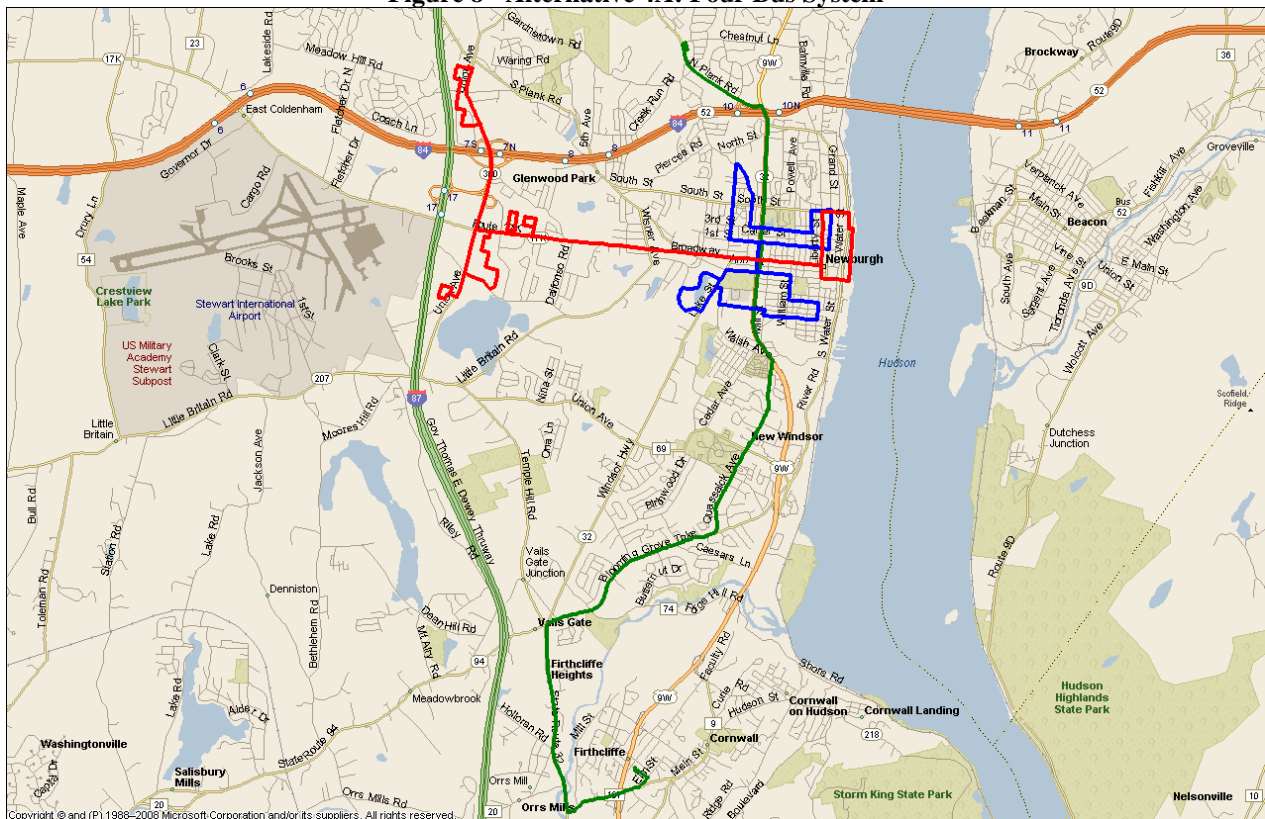
The Northside route would operate from the Newburgh Mall and Walmart to the 17K Park & Ride lot and the Target before entering the city of Newburgh via Broadway. The route would remain on Broadway through the City, before turning right onto Grand Street. From Grand Street, the bus would turn left onto South Street followed by a right onto Robinson Avenue/U.S. Route 9W. The vehicle would remain on this road until reaching North Plank Road, where it would turn left and offer service to the Shop-Rite. The bus would then turn around and go to the Mid-Valley Mall. The bus would leave through the rear entrance of the mall's property and use Gidney Avenue, West Street and 1st Street before turning right onto Liberty Street to return to Broadway and the beginning of the route. This route is 19.7 miles in length and would take approximately 90 minutes to complete.

The Southside route would operate in the same fashion as the Northside route between the shopping locations along New York State Route 300, the 17K Park & Ride, the Target and through downtown Newburgh. From Broadway, the vehicle would turn right onto Liberty Street, followed by a right onto Washington Street. The bus would then turn left onto Lake Street and right onto Lake Drive, followed by a right back onto Lake Street and a left onto South Williams

Street. Next, the vehicle would turn right onto Walsh’s Avenue and right onto Cedar Avenue. Then the bus would turn left onto Union Avenue followed by a left onto Quassaick Avenue/New York State Route 94 and another left onto Robinson Avenue/U.S. Route 9W. From there the bus will turn right onto Bridge Street and remain on Bridge Street until turning right onto Renwick Street. The vehicle would then turn left onto Liberty Street and return to Broadway and the beginning of the route. During the morning and afternoon peak periods, when the Newburgh-Beacon Ferry is operating, this route would offer service to the ferry dock. This route is 19.7 miles long and would take about 90 minutes to complete one round trip. The service should operate between the hours of 7:00 AM and 7:00 PM on weekdays and from 9:00 AM and 5:00 PM on Saturdays.

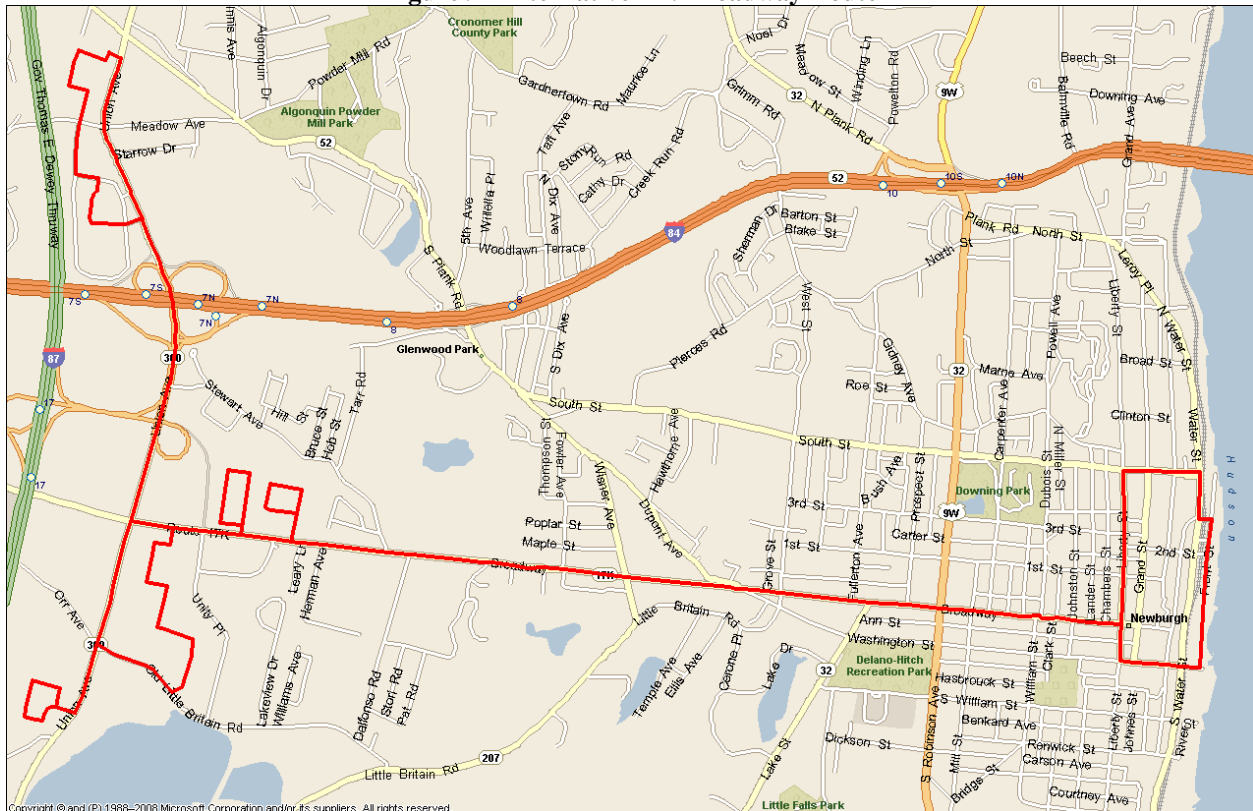
Alternative 4A: Four Bus System - This alternative is the first of two options that require four buses to provide the specified coverage and frequency. This alternative, along with Alternative 4B, offer the largest coverage area of the service proposals considered with the exception of the plan suggested by the Newburgh Beacon Bus Corporation. This service would be comprised of three routes: a Broadway route; a route operating from St. Luke’s Cornwall Hospital’s Cornwall Campus and Vails Gate to the Mid-Valley Mall/Shop-Rite; and a community loop operating in downtown Newburgh and adjacent neighborhoods. Figure 8 presents the three bus routes comprising this alternative.

Figure 8 - Alternative 4A: Four Bus System



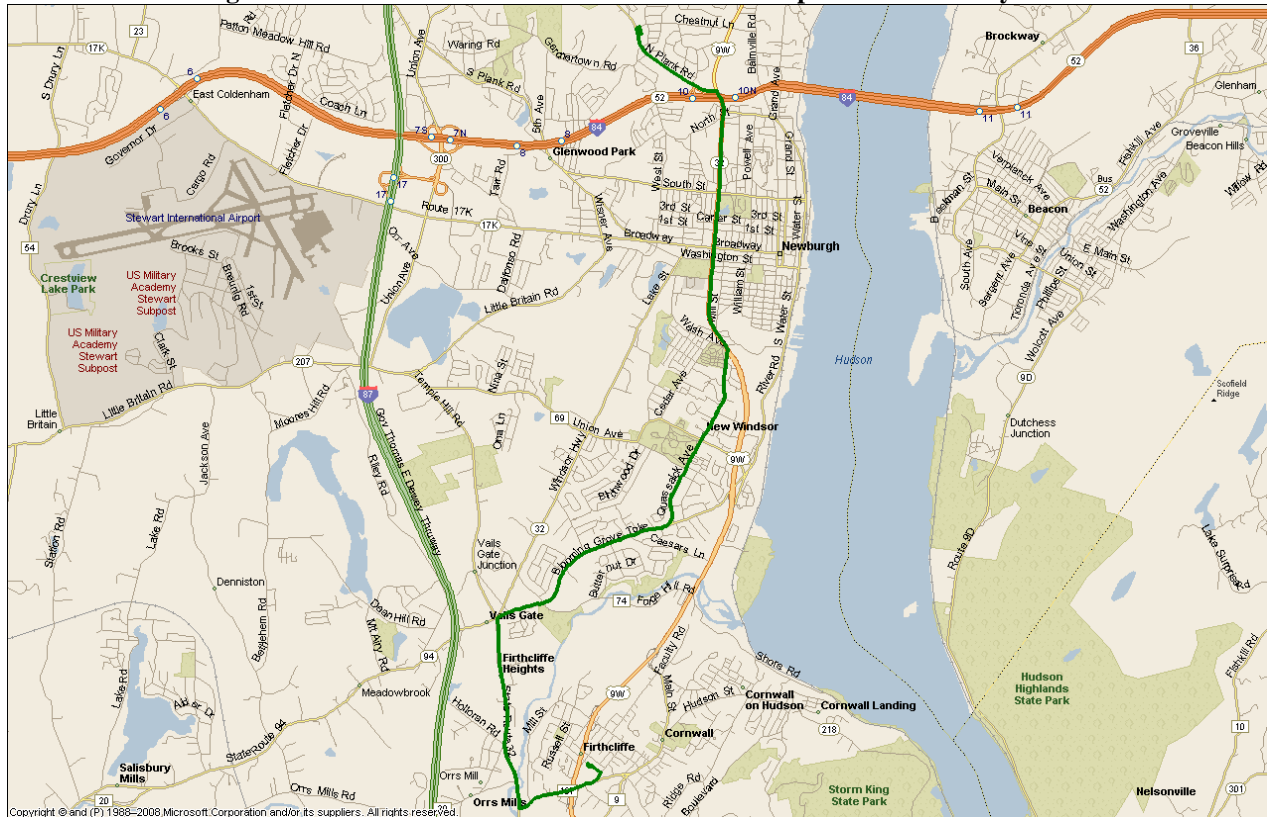
The primary spine of this alternative is the Broadway service, which is slightly different than the route being proposed in Alternative 3A, since service will operate to the ferry dock and the riverfront attractions on every trip. This is an area that is currently not served and would warrant service with a doubling of bus service. Two vehicles would operate between the shopping options along New York State Route 300 and downtown Newburgh to permit a headway of 40 minutes. The vehicle would turn right onto Liberty Street, followed by a left onto Washington Street, which allows access to the dock area and the waterfront attractions. From the waterfront, the vehicle would turn left onto 4th Street, right onto Water Street and left onto South Street. From South Street the bus would turn left onto Liberty and then return to Broadway. This route, which is depicted in Figure 9, is 15.2 miles long and will take about 80 minutes to complete a round trip.

Figure 9 - Alternative 4A: Broadway Route



The route operating between St. Luke's Cornwall Hospital's Cornwall Campus and the Mid-Valley/Shop-Rite would begin at the hospital and operate via Laurel Avenue and Elm Street to access Quake Avenue/County Route 107. The bus would then turn right onto New York State Route 32 and offer service through Vails Gate. From Vails Gate the vehicle would take Blooming Gove Turnpike/New York State Route 94 to Robinson Avenue/U.S. Route 9W, where it would remain until turning left onto North Plank Road and turn around at the Mid-Valley Mall. This route is illustrated in Figure 10. The route is 19 miles long and would take approximately 80 minutes to complete one trip and service would operate every 80 minutes on this bus line.

Figure 10 - Alternative 4A: St. Luke's Cornwall Hospital to Mid-Valley Mall

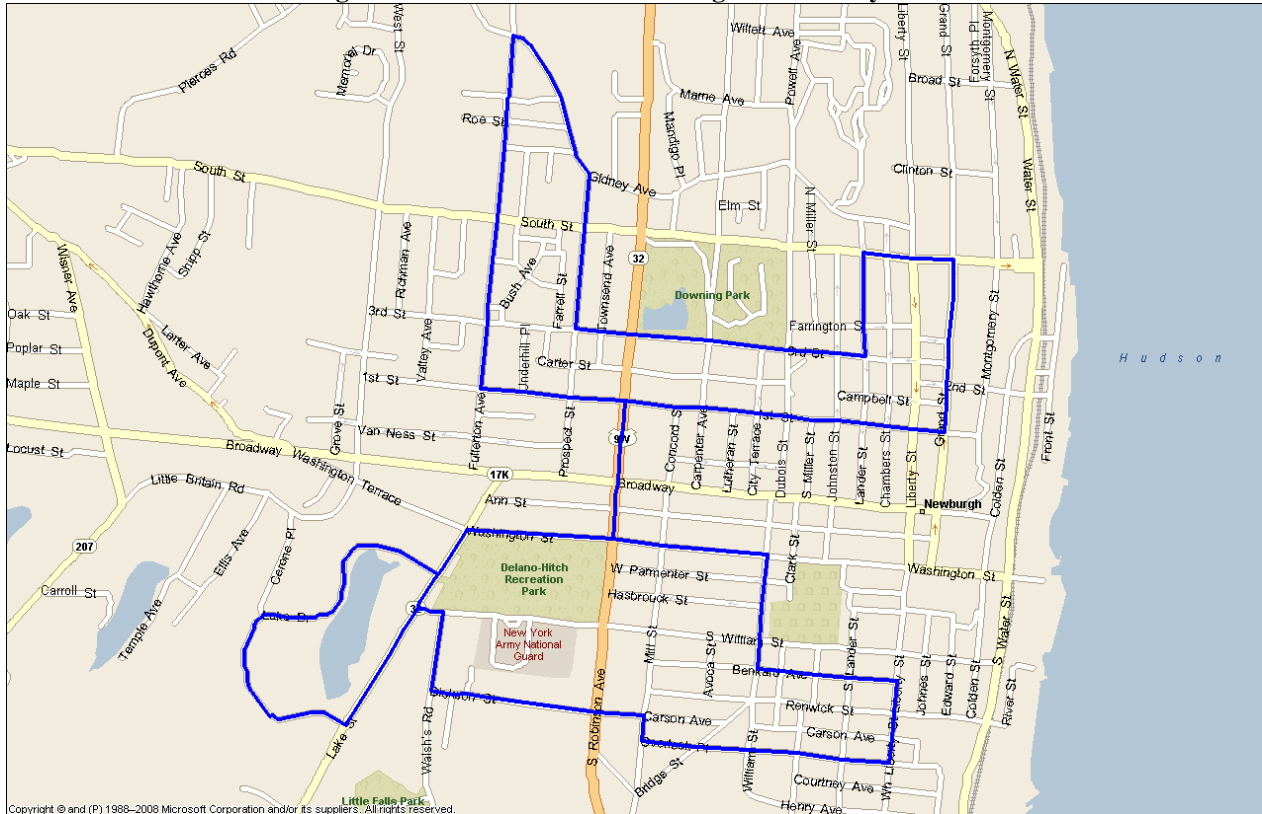


The final element of this alternative is the community service which would operate in the City of Newburgh. This route would operate two loops, one to the north of Broadway and one to the south. Transfers from this route to either of the other routes could be made at Broadway and Robinson Avenue/U.S. Route 9W. The loop north of Broadway would operate via 1st Street to Grand Street, where the bus would turn left, followed by another left onto South Street. The bus would then turn left onto Lander Street and right onto 3rd Street, where it would remain until taking a right onto Prospect Street. The vehicle would then turn left onto Gidney Avenue and left onto West Street.

The bus would return to Robinson Avenue via 1st Street, and cross Broadway to operate the southern loop of this route. From Broadway the bus would operate via Robinson Avenue to Washington Street, where it would turn left, followed by a left onto Lake Street. The bus would then turn right onto Lake Drive and right to return to Lake Street. Next the bus would turn left onto South William Street and right onto Walsh's Road, followed by a left onto Dickson Street. The route would then turn right onto Mill Street, left onto Overlook Place and left onto Liberty Street, followed by another left onto Bernard Avenue. The vehicle would return to Robinson Avenue via Williams Street and Washington Street.

Each round trip would cover approximately seven and half miles and take about 40 minutes to complete (20 minutes for the northern loop and 20 minutes for the southern loop). Figure 11 details this Newburgh community route.

Figure 11- Alternative 4A: Newburgh Community Route

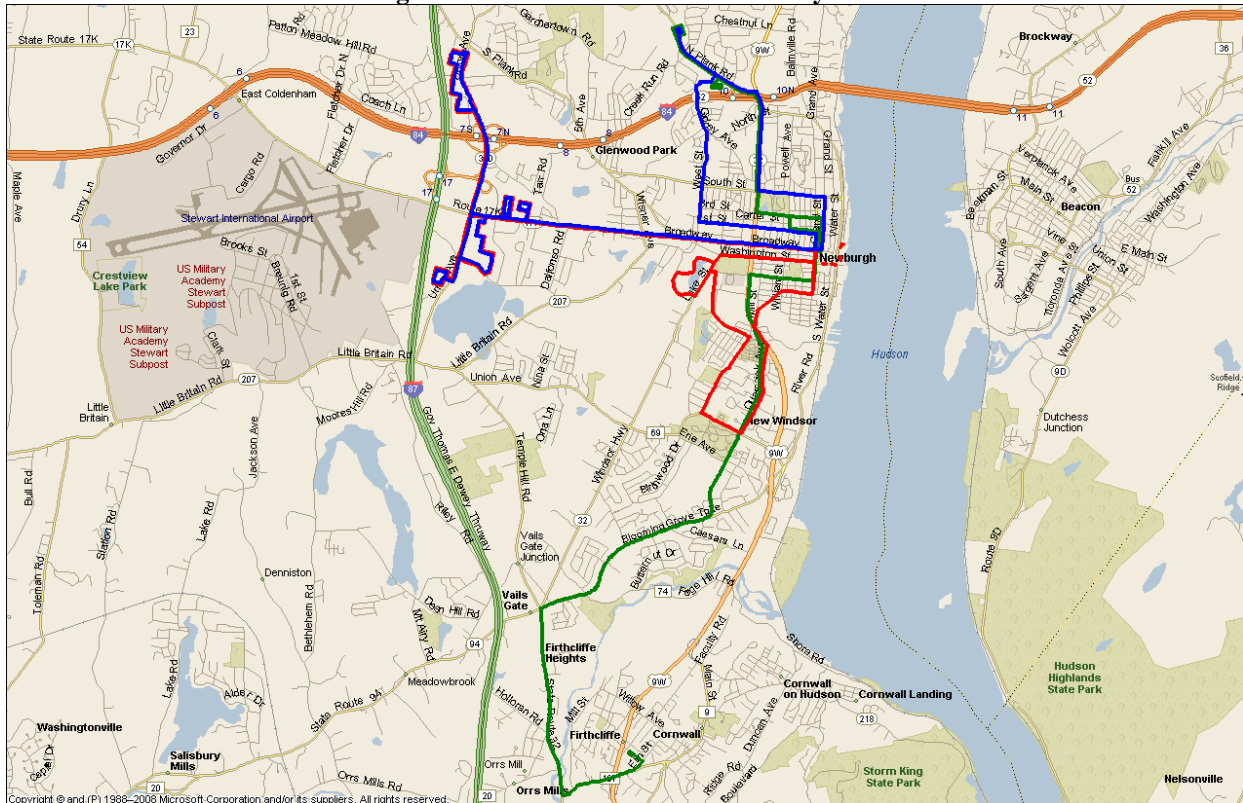


Based on preliminary estimates of round trip times for each route, service would be operated at headways of either 40 or 80 minutes which would permit timed-transfers in the City of Newburgh. This would not represent clockface headways (e.g., recurring times such as 20 minutes after the hour) and patrons would need a timetable to determine when the next bus would arrive at their stop. Similar to Alternative 3A, some riders might be required to transfer to complete their trips. One advantage of the plan is that it extends the coverage of the bus system. It is suggested that all of the routes for this alternative operate between the hours of 6:00 AM and 7:00 PM on the weekdays and 9:00 AM and 5:00 PM on Saturdays. This represents a somewhat longer span of service on both weekdays and weekends.

Alternative 4B: Four Bus System - This final alternative for the local service in the Newburgh study area combines route proposals from the previous options. The routes proposed in alternative 3B will be complemented by a route similar to the service operating between St. Luke's Cornwall Hospital's Cornwall Campus and the Mid-Valley Mall/Shop-Rite as described in Alternative 4A. As shown in Figure 12, the Northside and Southside routes would circulate in the City of Newburgh and adjacent areas and then continue out Broadway to New York State

Route 300. This would permit a one-seat ride for many residents and more frequent service on the common segments.

Figure 12 - Alternative 4B: Four Bus System

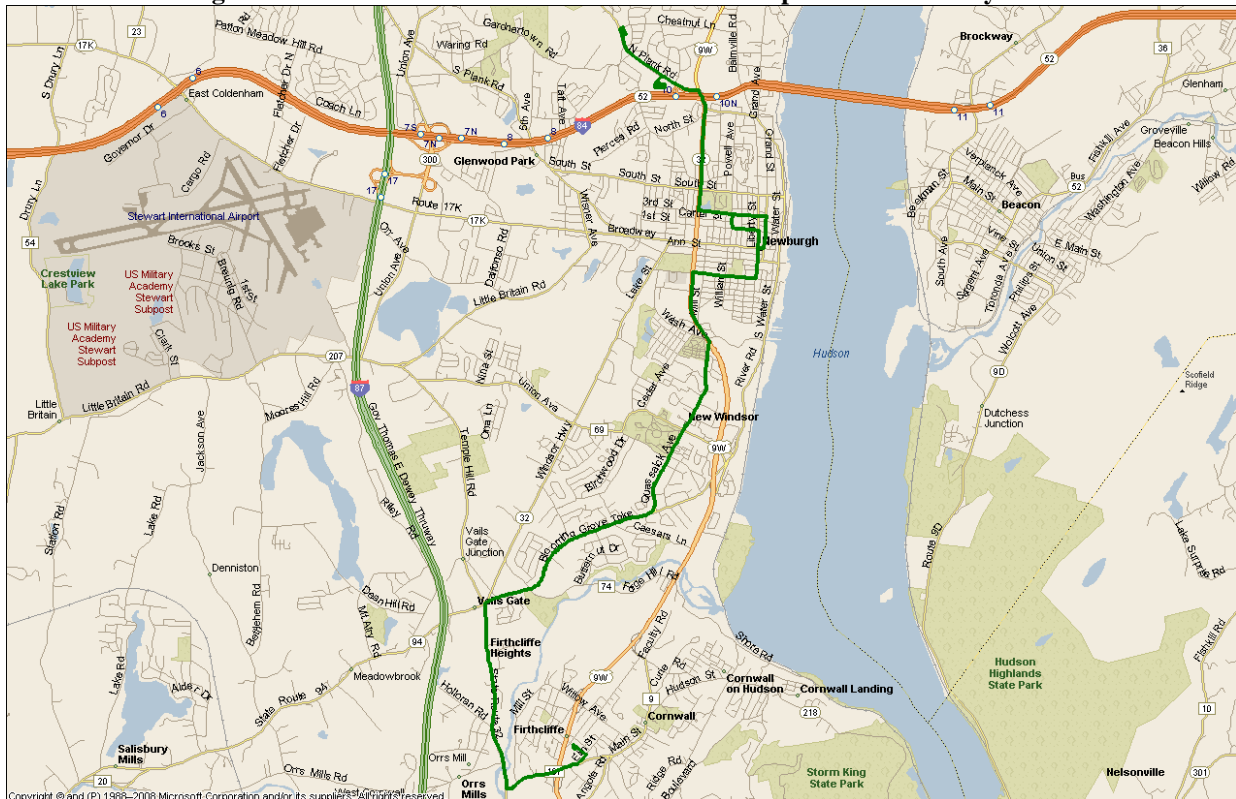


As mentioned, the two routes that operate from the shopping locations along New York State Route 300, into Newburgh via Broadway and serve to the north and south of Broadway are identical to routes proposed in Alternative 3B. As with that proposal, these two routes will be operated by three vehicles and offer a 60 minute frequency. The Southside route would operate to the ferry dock during the morning and afternoon peak periods to create a connection with the Beacon rail station.

The bus line operating between the St. Luke’s Cornwall Hospital’s Cornwall Campus and the Mid-Valley Mall/Shop-Rite would operate via Laurel Avenue and Elm Street to access Quake Avenue/County Route 107 and would then turn right onto New York State Route 32 to offer service to Vails Gate. From Vails Gate the bus would operate on Blooming Grove Turnpike/New York State Route 94 and turn left onto Quassaick Avenue, followed by another left onto Robinson Avenue. The bus would then turn right onto South Williams Street and left onto Liberty Street. Transfers between this route and the two other routes can be made at Broadway and Liberty Street.

At Broadway the vehicle would turn right, followed by a left onto Grand Street and another left onto 3rd Street, offering service to St. Luke’s Hospital’s Newburgh Campus. The route would continue to the Mid-Valley Mall via Robinson Avenue and North Plank Road and to the Shop-Rite via North Plan Road. On the return trip the vehicle would operate from the Mid-Valley mall via North Plank Road, Robinson Avenue and 3rd Street before turning right onto Dubois Street, left onto 1st Street and right onto Liberty Street, where it would return to the alignment operated in the opposite direction. Figure 13 illustrates this route. The route is 21.7 miles per trip and will take approximately 90 minutes to complete.

Figure 13 - Alternative 4B: St. Luke’s Cornwall Hospital to Mid-Valley Mall



Similar to the other four bus alternative, it is suggested that all of the routes for this alternative operate between the hours of 6:00 AM and 7:00 PM on the weekdays and 9:00 AM and 7:00 PM on Saturdays. This represents a somewhat longer span of service on both weekdays and weekends.

Newburgh-Beacon Shuttle - In addition to the local bus route, service is also operated between the Beacon rail station and Stewart International Airport with some service to the City of Newburgh, the 17K Park & Ride and connections to ShortLine which allows trips to be made to the south and Manhattan. The shuttle service has a two-fold purpose: provide mobility for commuters and a convenient link to Stewart International Airport. In addition to government subsidies, payments are made by PANYNJ and NYSDOT to the operator (i.e., Newburgh

Beacon Bus Corporation) to underwrite the cost of the service. The utilization of the service is to some extent dependent on the number of air carriers, the level of flight activity and the number of air travelers.

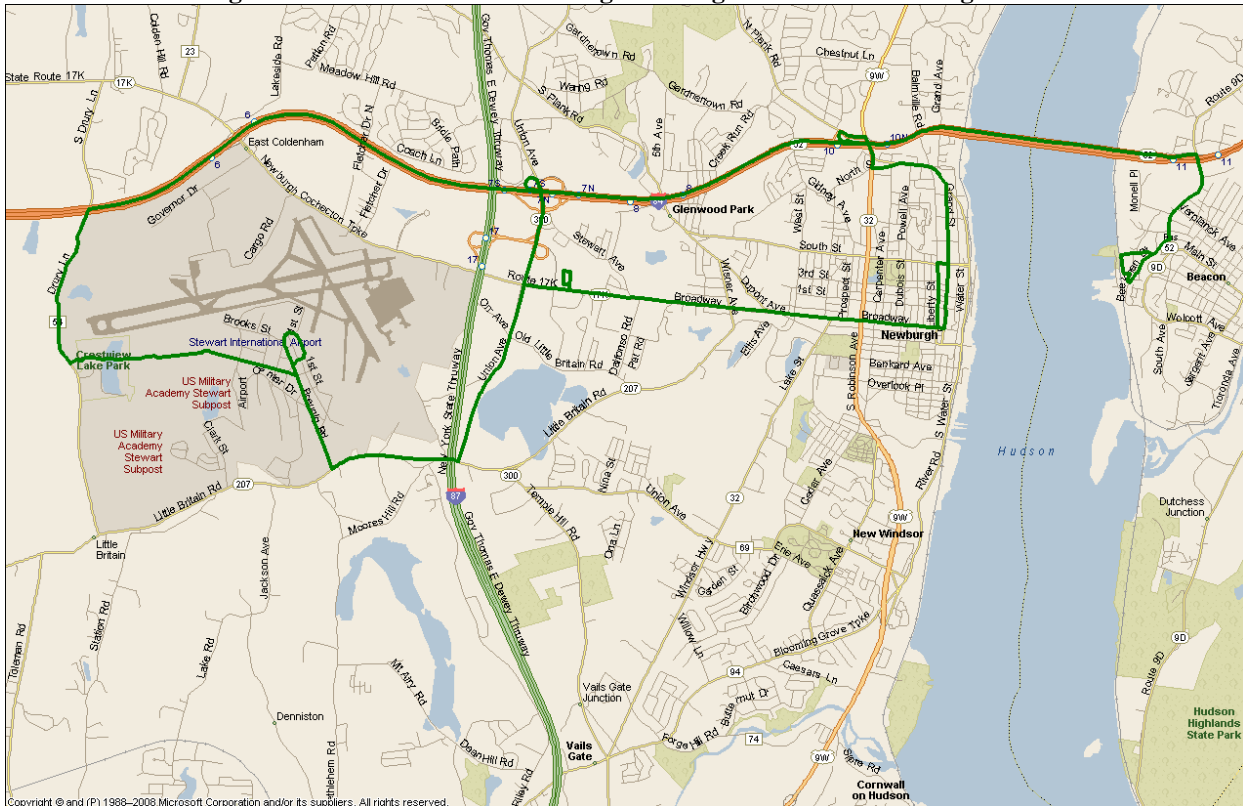
Three alternatives for the shuttle service are presented which includes no action (i.e., retain current route) and two options that call for changes. The route diagnostic analysis, presented in the previous report, detailed the relative performance that the current shuttle route experienced in terms of productivity, cost effectiveness and its contribution to the deficit, among other measures. The ride check data revealed that during the morning and afternoon peak periods the service records acceptable passenger load; however, during the non-peak periods both vehicles assigned to the service had very few patrons. A relatively rich level of service is offered in spite of relatively low ridership. This transportation performance must be considered in light of future planning at Stewart International Airport. Moreover, any proposals should be viewed from the viewpoint of mobility, economic development and the desire of both funding agencies.

As noted above, the shuttle ridership is dependent on activity at Stewart International Airport. With the loss of a discount carrier, current flight and air passenger activity is low which accounts for its current performance. The route does perform a useful transportation function since it connects with ShortLine and provides service to the Beacon rail station. Also, the bus route can provide mobility for residents in the study area to various destinations.

Three alternatives are presented in this chapter which links the City of Newburgh, the 17K Park & Ride lot, Stewart International Airport and the Beacon rail station. They include the existing system and two proposals to modify service.

Alternative 5A: Existing Newburgh-Beacon Shuttle - The first alternative would continue the current alignment and service. Figure 14 displays this current alignment of the Newburgh-Beacon Shuttle. This service would continue to operate with its current span of service, beginning at 4:55 AM and continuing to 11:05 PM during weekdays and from 8:12 AM to 10:25 PM on Saturdays and Sundays. Every inbound and outbound train would have connecting service to the airport during this relatively lengthy span. As noted above, this would support activity at Stewart International Airport for both aviation economic development. The issue with current route is the service it affords local residents.

Figure 14 - Alternative 5A: Existing Newburgh-Beacon Shuttle Alignment



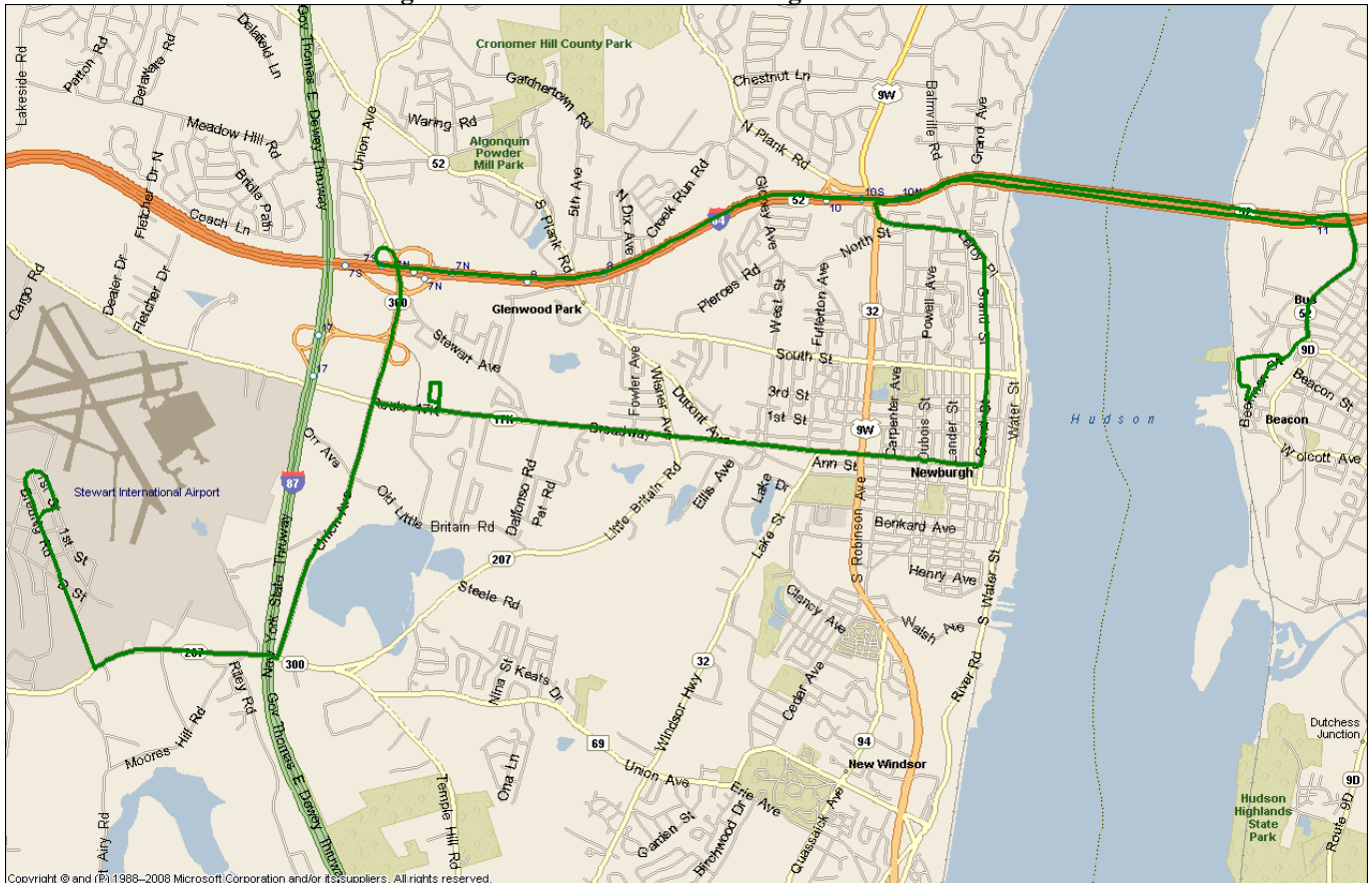
Alternative 5B: Newburgh-Beacon Shuttle - Alternative 5B does not change the alignment of the route as much as helps alleviate much of the confusion that the current routing has created. It has been mentioned by a number of passengers that it is difficult to understand which way the vehicle is going and by which roadways when picking up the service at a stop in the City of Newburgh, the 17K Park & Ride and at Stewart International Airport because of the various different alignments that the service operates throughout its day. A consistent alignment or one that is easy to understand would be preferred.

To improve this, the morning the service would operate through the City of Newburgh on Broadway, then to the 17K Park & Ride and to the Beacon rail station via Interstate 84 before returning to downtown Newburgh. In the early afternoon the route should change directions, with service starting at the Beacon rail station and operating to the 17K Park & Ride lot via Interstate 84, then operating to downtown Newburgh via Broadway. Trips to Stewart International Airport should either be on every trip or not at all. Additionally, access to and from the airport should be from the 17K Park & Ride lot via Union Avenue, Little Britain Road/New York State Route 207 and Breunig Road.

This service would continue to operate with its current span of service, beginning at 4:55 AM and continuing to 11:05 PM during weekdays and from 8:12 AM to 10:25 PM on Saturdays

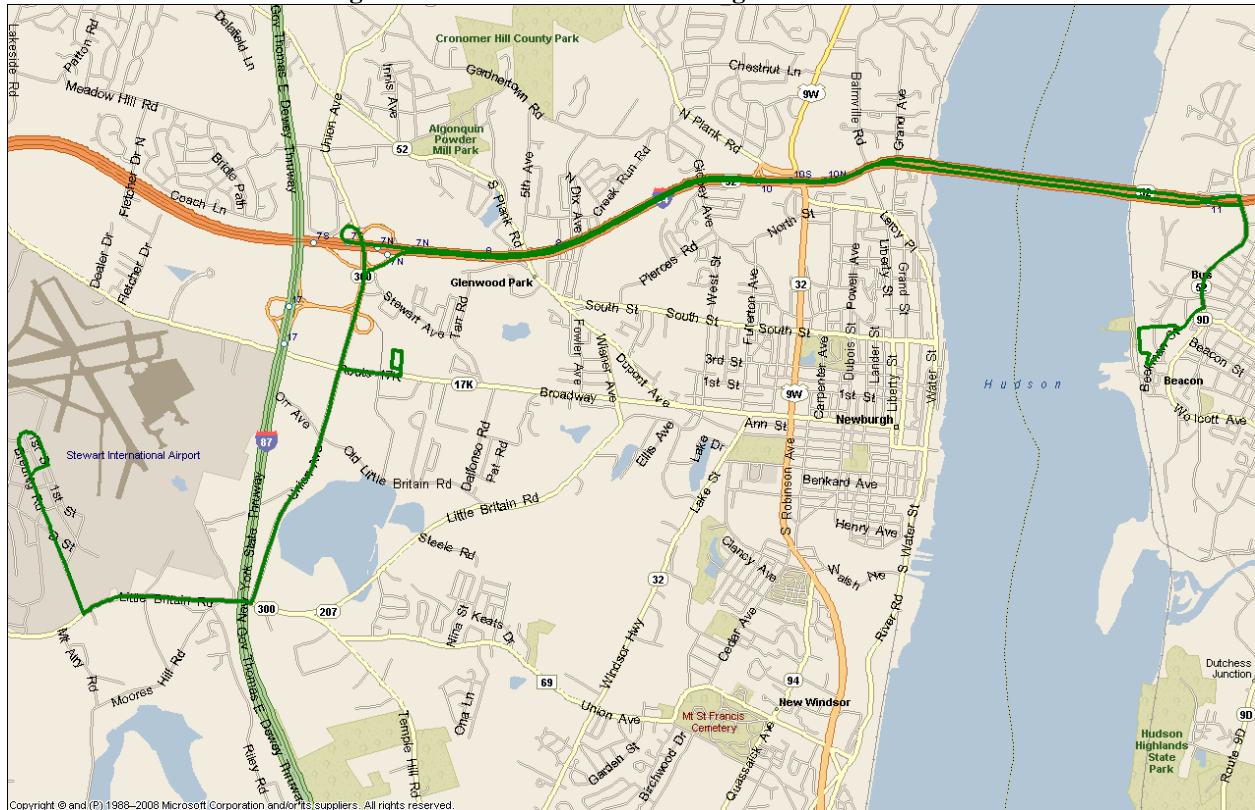
and Sundays. The route would continue to meet every inbound and outbound train through that duration. Figure 15 presents this option.

Figure 15— Alternative 5B: Newburgh-Beacon Shuttle



Alternative 5C: Newburgh-Beacon Shuttle - The final alternative being presented is for a streamlined Newburgh-Beacon Shuttle, which would operate between Stewart International Airport and the Beacon rail station with an intermediate stop at the 17K Park & Ride lot. Unlike the previous two alternatives, no connections would be provided to the City of Newburgh and the adjacent areas. In essence, the proposal calls for an express bus link which would take advantage of the new interchange of I-84 and the New York State Thruway (I-87). Figure 16 presents the alignment of this alternative. As with the previous alternative, this route should serve Beacon rail station during the same hours that the service currently operates, as well as serving every inbound and outbound train during those hours. The advantage of this service is that the trip to and from Beacon rail station would be more direct; however, this comes at the expense of having the commuter shuttle operate through the City of Newburgh and supplement the two local routes.

Figure 16 - Alternative 5C: Newburgh-Beacon Shuttle



Other Proposals - The previous discussion presented a series of proposals that focused on the City of Newburgh and the adjacent areas since they have characteristics typically associated with transit need. Much of the study area is characterized by low density development patterns and high auto ownership rates which do not suggest fixed route bus service. In addition, the municipalities outside the City of Newburgh provide dial-a-ride service which affords door-to-door service for those with the greatest need (e.g., senior citizens).

In examining the study area, the only other areas with transit potential are the four Villages of Cornwell-on-Hudson, Maybrook, Montgomery and Walden. They represent relatively high density communities which were considered for new transit services; however, factors that would not favor transit service are as follows:

- **Area** - The four villages are small with respect to the overall dimensions with many trips well within reasonable walking distance. Also, fixed route bus service is at a disadvantage in comparison to driving for relatively short trips.
- **Population** - The total travel market within the villages is relatively limited since population is low. With the exception of the Village of Walden with a population of about 6,200, the other villages only have between 3,100 and 3,600 residents. In view

of per capita trip activity and likely transit capture rates, this does not translate into transit ridership levels that would support fixed route service. While not part of this study, rail extensions are being examined from the Villages of Walden and Montgomery to the Port Jervis line at Campbell Hall

- **Distance** - All four villages are some distance from the urban core area and the major suburban generators such as the WalMart and Newburgh Mall. Buses would be required to travel considerable distances through low density areas which would not generate transit riders. Further buses would have to operate considerable distances through sparsely developed areas for relatively few riders in each of the villages.
- **Service** - Currently, there is some limited bus service between the villages and the more densely developed portions of the study area. Coach USA/ShortLine Local Route 2 serves the Villages of Montgomery and Walden, while Cornwall-on-Hudson has service provided by Coach USA/ShortLine Local Route 5. Both bus lines offer relatively limited service with only a few trips a day. The Village of Maybrook has no fixed route bus service.

In light of these considerations, new or expanded local bus routes are not suggested as part of this short term plan. More frequent service with uniform headways along with an expanded span of service might be a consideration for longer term service changes. Other service options are as follows:

- **Rover** - With this option, service would be shared among several communities to reduce operating cost and still afford a lifeline service. For example, four separate routes could be devised each serving a particular village. The service would be operated on a rotating basis and people would plan their trips accordingly. The service would not be useful for daily commuting, but would be helpful in serving shopping, medical and personal business trips. This approach is similar to the “senior buses” operated in some communities.
- **Flex Routing** - This alternative combines features of fixed route and demand responsive services. The bus follows a set route, but is permitted to deviate from the alignment in response to specific requests of customers. This is a useful approach where there are no sidewalks and the distance to the bus route is not within reasonable walking distance. The schedule is prepared to allow adequate time to permit the bus to deviate from the normal route. Typically, a premium fare is charged to the rider each time the bus deviates (i.e., origin and/or destination).
- **Ride Request** - This is another alternative that combines features of both the fixed route and demand responsive services, although completing a trip would require a transfer. This service, termed Ride Request, would pick up riders at their home and take them to the nearest bus stop where they would board the bus and complete their

- trip. For the return trip, a demand responsive vehicle would meet them at the bus stop and then take them back to their home. The service would be available to residents and locations no further than two or three miles from the bus stop. This option would require extension of bus service to the feeder demand responsive areas.
- **Dial-A-Ride** - As noted previously, Dial-A-Bus service is available to residents of the study area outside the City of Newburgh. With this alternative, the service area would be expanded beyond the municipal boundaries to serve the core area and major generators. Given the current approach to each municipality having its own service, an expanded coverage area would require new institutional arrangements.

The discussion above indicates potential strategies for improved public transportation in outlying areas. Because of the relatively limited ridership potential and necessary subsidy, they are not suggested as a first priority of any short range transit program.

Summary

This interim report presents alternatives for improving the current public transportation system which vary in terms of route alignments, frequency of service, directness or need to transfer to complete a trip and the necessary resources to implement the alternatives. At this stage of the study process, the objective is to facilitate a dialogue on key public transportation issues. Based on discussion of these alternatives, they will be refined and their impacts assessed with the ultimate goal of developing a recommend short range transit plan.