

# DUTCHESS COUNTY TRANSIT DEVELOPMENT PLAN FINAL REPORT



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## OFFICIAL NOTICE

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## EXECUTIVE SUMMARY

This document represents the final report of the Dutchess County Transit Development Plan. This is a planning effort initiated by the Poughkeepsie-Dutchess County Transportation Council (PDCTC) to prepare a comprehensive document to guide transit policy in the county over the next few years. The public transportation system in Dutchess County has not been examined in a detailed and comprehensive manner since the completion of a transit development plan in 1990. In the interim, Dutchess County has experienced changes in development patterns which suggest the need for a thorough review of transit and the mobility needs of residents and employees. Dutchess County has a mix of transit services that include various modes: bus, rail, and ferry, which serve a variety of needs for trips within the county and those that extend to adjacent counties and other portions of the metropolitan area. While the study will address issues of connectivity for the overall transportation network, the focus of this examination is on the two publicly owned and operated bus systems: City of Poughkeepsie Bus System (City Bus) and the Dutchess County Division of Mass Transit (LOOP).

To prepare this public transportation master plan, a work program of several sequential tasks was undertaken. Initial efforts were oriented to developing a description of the current transit system and the setting in which it operates. An extensive data collection effort was undertaken to obtain quantitative information on the utilization of the current bus system and the characteristics of riders. Qualitative information was sought on community views of public transportation, as well as both current and future needs. Based on these inputs, various proposals were formulated ultimately which lead to the delineation of a recommended plan. The recommended plan includes proposals related to service, capital acquisitions and financing. To solicit comments throughout the study process, interim reports were prepared at key study milestones. This encouraged dialogue and discussion on study findings as they became available. Many of these interim reports have been submitted under a separate cover as appendices to this report document.

The remainder of this Executive Summary provides relevant issues and findings from the following areas:

- Current Conditions
- Planning Inputs
- Service Planning Themes
- Service Proposals
- Recommended Plan

The final report document is organized in the same manner, and includes the full report content.

## Current Conditions

An initial step in the study process was to document the existing bus service operated by LOOP and City Bus. This section provides an overview of the services operated by LOOP and City Bus. The full report describes the organization, services, financial and performance trends, and funding for the City Bus and LOOP. In addition, the report documented the services of intercounty public transportation operators that provide service in Dutchess County.

**City Bus Service Description** - City Bus operates six fixed route bus routes. The routes serve the main corridors throughout the City of Poughkeepsie. The system, however, is not strictly a municipal system. City Bus routes do serve certain major trip generators outside of the city. These include locations in the Town of Poughkeepsie and Hyde Park.

**LOOP Service Description** - Before recent service reductions, which went into effect in 2009, LOOP operated 30 fixed route bus routes. There are three categories of routes operated by LOOP. These include regular routes, express routes, and commuter train connection (CTC) services. Regular routes offer local service along specified route alignments making stops to pick up or discharge passengers at all marked stops, or at flag stops in suburban and rural areas. Express routes offer limited stop service between various destinations throughout the county. CTC routes are specifically designed to connect residential neighborhoods, as well as satellite parking lots, with the Poughkeepsie, New Hamburg, and Beacon train stations along the Metro-North Railroad's Hudson Line. Trips are timed to arrive at the stations shortly before southbound trains leave during the morning peak, and leave the stations slightly after the arrival of northbound trains in the afternoon peak. All municipalities in Dutchess County receive some level of fixed route bus service with the exception of Milan.

LOOP also operates three demand responsive services in Dutchess County which include ADA Paratransit, Dial-a-Ride, and the Rural Paratransit service.

## Planning Inputs

A number of inputs were considered in preparing the program of public transportation options for Dutchess County. They consisted of technical analyses as well as opinions and views of riders and community representatives. These quantitative and qualitative analyses each provided valuable input into the development of service improvement proposals. Together, the findings also allowed for the identification of various unifying themes that acted as central tenets of the proposals overall. Comprehensive descriptions of findings have been submitted under separate cover as appendices to this Final Report document. The six planning inputs included:

- Socioeconomic and Demographic Analysis
- Route Diagnostics Analysis
- Service Guidelines and Adequacy
- Stakeholder Interviews
- Rider Surveys
- Other Outreach Efforts, including:
  - Intercept Surveys at the Beacon Train Station

- Intercept Surveys at the Galleria Mall
- Intercept Surveys at the Main & Market transit hub in Poughkeepsie
- Walk-In Meeting at Dutchess Community College (DCC)
- Walk-In Meeting at Marist College
- Walk-In Meeting at Culinary Institute of America (CIA)
- Public Meetings
- Staff In-reach Meeting with LOOP Drivers
- Staff In-reach Meeting with City Bus Drivers

The list above indicates the extensive input to the planning process. The process included technical analyses that examined the existing bus systems in Dutchess County and the setting in which they operate. These findings were complemented with suggestions from riders, the public, drivers, the Dutchess County community, the PDCTC staff, and the management staff of both bus systems. The following section provides a description of the various service planning themes which emerged from these various inputs.

### **Service Planning Themes**

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

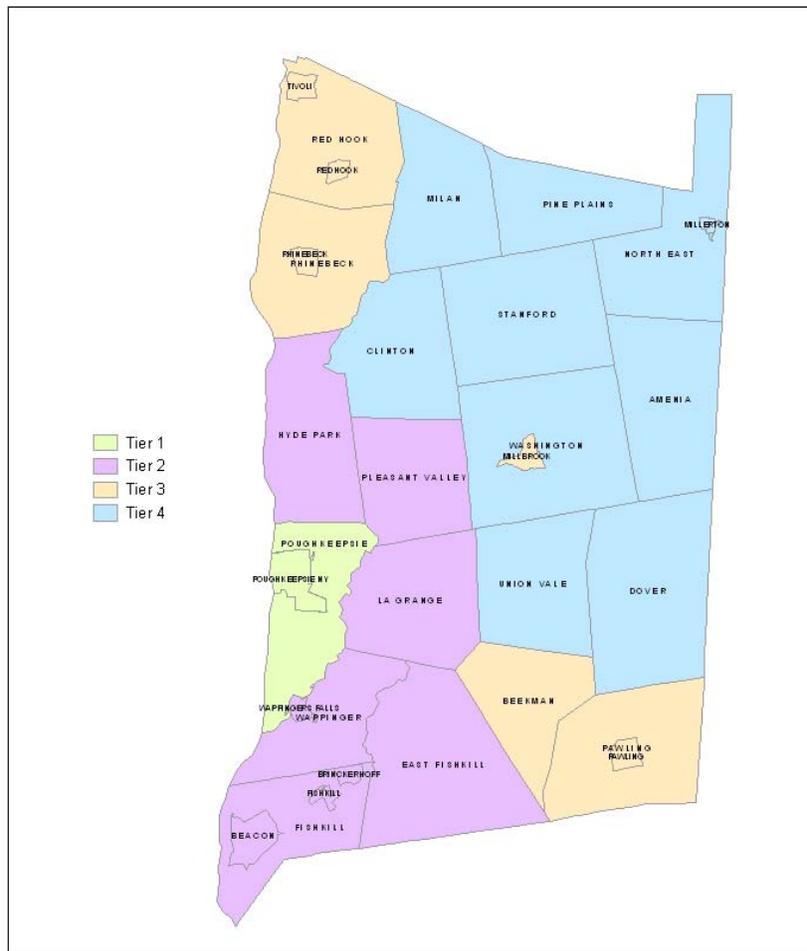
**Service Consistent with Development** – Dutchess County is characterized by dense urban cities and villages, rapidly developing suburban areas, as well as sparsely developed suburban and rural tracts. Based on the analyses performed as part of the study effort, as well as the input received from the general public, current riders, and the stakeholders, a primary planning precept for the service proposals is that transit service should be allocated in a manner that is consistent with the development pattern. The socioeconomic and demographic analysis, as well as input from the public and stakeholders, was used to develop a hierarchy of corridors/places. That hierarchy includes:

- **Tier 1** - Corridors/communities that should receive fixed route service at a high frequency (i.e., every 30 minutes or less). This tier would include the City of Poughkeepsie and the Town of Poughkeepsie.
- **Tier 2** - Corridors/communities that should receive fixed route bus service at a lesser frequency (i.e., every 60 minutes). This tier would include parts of the Town of Poughkeepsie, as well as the Towns of East Fishkill, Fishkill, Hyde Park, Pleasant Valley, and Wappinger; and the Villages of East Fishkill and Wappingers Falls.
- **Tier 3** - Corridors/communities that should receive fixed route bus service every 120 minutes. This tier would include the Towns of Beekman, LaGrange, Pawling, Red Hook, and Rhinebeck; and the Villages of Millbrook, Pawling, Red Hook, Rhinebeck, and Tivoli.

- **Tier 4** - Lastly, the remainder of the county only requires demand responsive service at a maximum. This tier would include the Towns of Amenia, Clinton, Dover, Milan, North East, Pine Plains, Stanford, Union Vale, and Washington; and the Village of Millerton.

This planning theme is depicted in Figure 1. It should be noted that any community may be incorporated into various tiers depending upon the diversity of development patterns in the municipality.

Figure 1



**Coordinate Transit Systems** – A second planning precept used to guide the development of the service proposals was to use the resources of both systems in a coordinated way to expand the mobility options for current and potential transit users in Dutchess County.

**Seamless Transit Policies** – To realize the benefits of the coordination of route alignments and schedules, other policies of the two systems also need to be more integrated and compatible. This includes an integrated fare structure which would allow passengers to use a

single fare media to access either system, joint public information efforts, and branding that communicates a seamless system.

**Service Coverage Expansions** – One issue that was deemed highly important by both riders and non-riders is the need for more service during weekday and Saturday evenings, as well as on Sunday. This includes service in general as well as the span of service to specific destinations, such as the Galleria Mall.

**User Friendliness** – A major planning precept followed in developing the service proposals was to simplify the route structure and introduce user friendly elements to the transit network.

**Terminals/Transfer Stations** – Another precept was to allow for timed transfer arrangements at Civic Center Plaza, or a new downtown facility if it is constructed. In addition, the plan proposes a network of suburban transfer locations throughout the county. For the most part, these hubs would be located at established retail centers or major intersections within communities.

**Service Efficiency** – The Route Diagnostic Analysis and Service Guidelines reports prepared as part of this study effort were used to identify instances in which the current services are inefficient or inadequate. In addition, the ride check data was used to analyze ridership patterns at the trip and route segment level. With this data, ride checks were used to identify segments on current fixed routes that could either be served in a different manner, or served by demand responsive services.

**Specialty Markets** – Another precept of the study proposals is to address the needs of specific markets in Dutchess County. Two major markets in the study area include colleges and universities, as well as tourism. The service proposals have been designed to improve the mobility options of area college students. In addition, the service proposals improve the connections between the train stations in the county and the major tourism destinations (e.g., Hyde Park National Historic Site).

Building upon these themes, a comprehensive set of service improvement proposals was developed to guide the development of LOOP and City Bus over the next five years, as well as system expansion options that can provide a transit vision for the area beyond the planning horizon of this document. These proposals are discussed in detail in the following chapter.

## **Service Proposals**

This section of the report describes the service improvement proposals for LOOP and City Bus services. These proposals, which build upon the planning precepts described in the previous section, were designed to increase ridership and efficiency, or improve the overall quality of transit service throughout Dutchess County, as well as to respond to growth and changing conditions. The proposals describe an initial phase of implementation, enhancements

to those proposals, and system expansion proposals designed for the longer term. The relevant elements of the proposed service plan are that the plan:

- defines roles for LOOP as assuming primary responsibility for service along major corridors in the county, with City Bus providing “infill” coverage;
- coordinates Alignments and Schedules to maximize frequencies on key corridors;
- streamlines LOOP Route Structure from 30 routes to six fixed routes and three commuter train oriented routes;
- uses timed transfer arrangements at Main and Market and other key locations;
- coordinates services to increase evening and weekend service; and
- provides for phased implementation.

Building on these elements, a set of base service proposals has been developed for both systems. In addition, potential enhancements to these base proposals have been identified. Lastly, possible transit system expansions have outlined. The details of all of these elements are provided in the following sections.

**Base Service Improvement Proposals** - The initial service options and route modification proposals for both LOOP and City Bus are presented below. Together, this group of proposals for both systems will be referred to as the Base Service Improvement Plan.

The current Poughkeepsie City Bus system consists of six bus routes which utilize the Main and Market Bus Stop (on Civic Center Plaza) as the system’s hub and primary transfer point. The proposed modified City Bus route system will continue to utilize this location as its central system hub.

Presently, the Dutchess County LOOP system consists of a series of several different types of bus routes which vary in terms of the areas served, the extent of the service areas, the days of operation, the frequencies of operation (with some routes only operating one or two trips per day) and other factors. As currently configured, the Dutchess County LOOP system is very complex and difficult for occasional or first-time riders to comprehend.

Due to these factors, this plan proposes a new approach for the Dutchess County LOOP system, consisting of six bus routes that are simpler, more straightforward and more easily understood. One important element of the plan is that it will significantly increase the availability of one-seat connections along the Route 9 corridor between Hyde Park and Beacon or Fishkill. In addition, under the proposed plan, LOOP will provide expanded curb-to-curb services to the general public. It should also be noted that bus stops should be placed along the proposed route alignments in a manner consistent with the bus stop spacing guideline developed as part of this Transit Development Plan.

Table 1 and Table 2 list the routes that would be operated under the Base Service Improvement Plan, as well as the level of service that would be provided. Figure 2 and Figure 3 depict the routes that would be operated by City Bus and LOOP under this scenario, respectively.

**Table 1**  
**Proposed Route Descriptions - Base Service Improvement Plan**

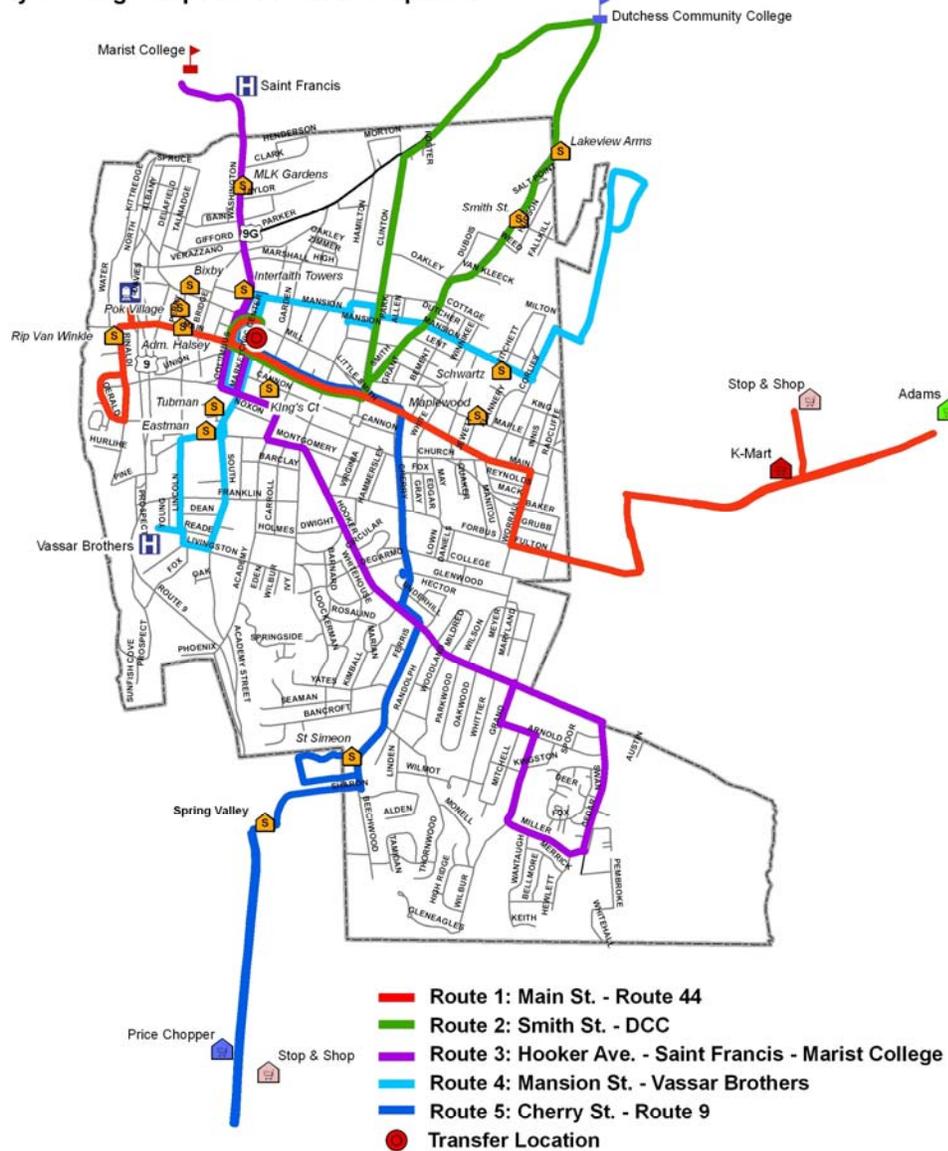
Route	Description
<b>City Routes</b>	
1	Main Street
2	Smith Street/Dutchess Community College
3	Hooker Avenue/Saint Francis Hospital
4	Mansion Street/Vassar Brothers Medical Center
5	Cherry Street
6	Special
<b>LOOP Routes</b>	
A	Poughkeepsie-Fishkill & Home Depot-Fishkill via Route 9
B	Poughkeepsie-Beacon via Route 9 and Route 9D
C	Poughkeepsie-Hyde Park/Tivoli via Dutchess Community College and Route 9G
D	Poughkeepsie-Pleasant Valley/Millbrook via Route 44
E	Poughkeepsie-Freedom Plains/Pawling via Route 55
F	Beacon-Hopewell Junction via Fishkill/Home Depot & Hudson Valley Research Park
<b>Rail Link</b>	
Beacon	Current Beacon CTC route
Poughkeepsie	Current Apple Valley CTC route
New Hamburg	Galleria - New Hamburg Station via Wappingers Falls
<b>Flex Service (Curb-to-Curb)</b>	
Curb-to-curb, reservation based, Flex Service will operate two weekdays per week in each of the identified zones	

**Table 2**  
**Proposed Frequency and Span of Service- Base Service Improvement Plan**

Route	Frequency (minutes)	Span of Service		
		Weekday	Saturday	Sunday
<b>City Routes</b>				
1	60	7:00AM-5:30PM	8:00AM-4:00PM	No Service
2	30	6:30AM-6:30PM	8:00AM-4:00PM	No Service
3	60	6:30AM-6:30PM	8:00AM-4:00PM	No Service
4	60	7:00AM-6:00PM	8:00AM-4:00PM	No Service
5	60	7:00AM-5:00PM	No Service	No Service
6		As needed		
<b>LOOP Routes</b>				
A	60	7:00AM-11:00PM	7:00AM-11:00PM	9:00AM-7:00PM
B	60	7:00AM-11:00PM	7:00AM-11:00PM	No Service
C	30	7:00AM-7:00PM	7:00AM-5:00PM	No Service
D	60	7:00AM-11:00PM	7:00AM-7:00PM	9:00AM-7:00PM
E	60	7:00AM-7:00PM	7:00AM-7:00PM	No Service
F	120	7:00AM-7:00PM	7:00AM-7:00PM	No Service
<b>Rail Link</b>				
Designed to provide service to and from designated commuter trains Monday through Friday				
<b>Flex Service</b>				
Operates between 8:00 AM and 4:00 PM wherever it is made available.				

**Figure 2**  
**Proposed City Bus Route Structure**

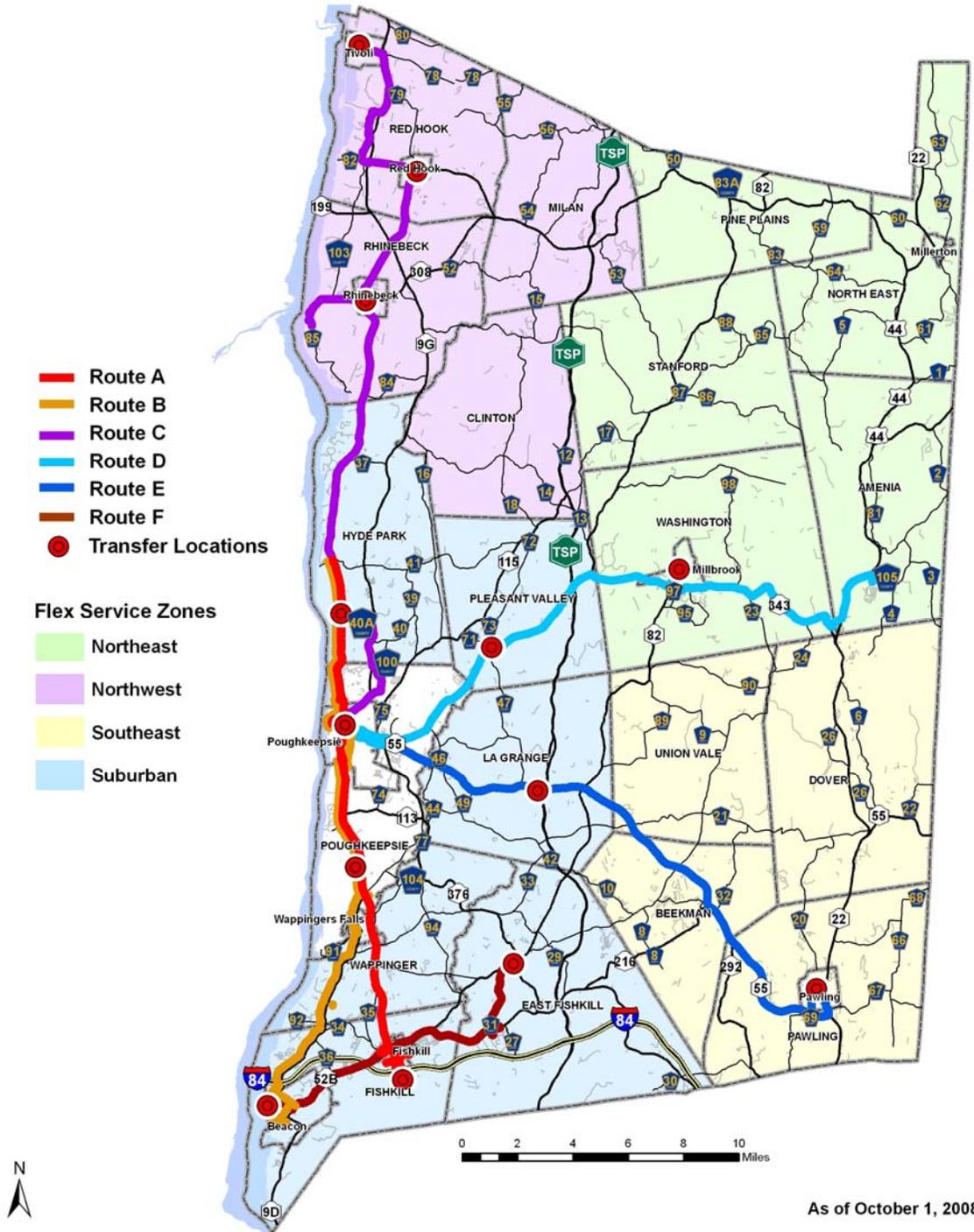
**Dutchess County Transit Development Plan:  
 City of Poughkeepsie Bus Route Proposals**



Source: Poughkeepsie-Dutchess County Transportation Council and City of Poughkeepsie

As of March 3, 2009

**Figure 3**  
**Proposed LOOP Service Network**  
**Base Service Improvement Plan**



Under the Base Service Improvement Plan, the six LOOP fixed routes would be complemented by an expansion of the Dutchess County LOOP curb to curb services available to the general public (i.e., an expansion of the current Rural Paratransit service). Under this service, passengers wishing to make a trip within designated service zones (i.e., groups or municipalities) will be afforded curb-to-curb service. For those passengers traveling beyond the defined service zone, they will be brought to one of the suburban transfer points noted above where they can transfer to the fixed route network to complete their trip. The first item to note would be that the name of the current program would be changed to Flex Service.

The proposal for Flex Service breaks Dutchess County into various zones. Passengers traveling within that zone would be afforded curb-to-curb service. Passengers traveling outside of the zone would be brought to a location where they could transfer to fixed route services. Table 3 lists the zones and the location at which passengers could transfer to proposed fixed route services. In addition, the table lists the number of days per week when Flex Service would be made available in the zones upon full implementation of the program. As the table shows, each zone will be afforded service on two days per week. Table 3 also separates the various zones into four categories: Northwest Zones, Northeast Zones, Southeast Zones, and Suburban Zones.

**Table 3**

<b>Zone</b>	<b>Fixed Route Transfer Point</b>	<b>Days per week</b>
<b>Northwest Zones</b>		
Town of Red Hook, Village of Red Hook, Village of Tivoli, Town of Milan	Red Hook	2
Town of Rhinebeck, Village of Rhinebeck, Town of Clinton	Rhinebeck or Hyde Park	2
Town of Washington, Village of Millbrook	Millbrook	2
<b>Northeast Zones</b>		
Town of Pine Plains, Town of Stanford	Millbrook	2
Town of North East, Town of Amenia, Village of Millerton	Millbrook	2
<b>Southeast Zones</b>		
Town of Union Vale, Town of Beekman	Beekman	2
Town of Dover, Town of Pawling, Village of Pawling	Pawling	2
<b>Suburban Zones</b>		
Town of Wappinger, Village of Wappingers Falls	Various locations	2
Town of Fishkill, Town of East Fishkill, Village of Fishkill	Various locations	2
Town of Pleasant Valley, Town of LaGrange	Various locations	2
Town of Hyde Park	Various locations	2

It is proposed that the Flex Service Program be coordinated with existing Dial-a-Ride vehicle runs. Excess capacity on these runs could be used to meet the demand of the Flex Service. The study process included a detailed analysis of how Flex Service could be

implemented in conjunction with the Dial-a-Ride program. The results are provided in the Flex Service Implementation Plan report. Additional implementation details are provided in the Recommended Plan chapter. One important development to note is that, as of 2009, the town of Dover and the Town of Union Vale are no longer participating in the Dial-a-Ride program.

In the initial phase I of implementation, Flex Service would be made available over the current span of service of the Dial-a-Ride program (8:00AM – 4:00PM). Future phases of the Flex Service program would extend the span of Flex Service later into the evening, Monday through Friday, where demand warrants.

The Flex Service model could also be used to extend service to specific locations such as schools or employment sites. These Flex Service runs could meet fixed route services at a particular transfer location and provide connections to the specified destination at particular times of the day. This model could be used for a destination such as Lourdes High School in the Town of Poughkeepsie, which would no longer be served by fixed route service under the proposals described above. One way to restore service would be to make a Flex Service run available at the downtown Poughkeepsie transit hub at certain times in the morning. Students could then use LOOP or City Bus routes to travel to the transit hub and then transfer to the Flex Service run. A return trip could be provided in the afternoon. Under this model, a cost sharing arrangement could be pursued with the school, employer, or other institution requesting this service.

**Enhanced Service Improvement Plan** – The service plan also identifies certain enhancements to the Base Service Improvement Plan that could be made over the planning horizon of this document. Table 4 lists these proposed enhancements.

**Longer Term System Expansion Proposals** - Along with the enhancements described above, the plan identifies various system expansion proposals which may be implemented during the planning horizon of this document (five years), or over a longer term. Available resources and perceived demand will guide the decision as to whether and when these proposals would be implemented.

**Table 4**  
**Enhanced Service Improvement Plan Details**  
**(Enhancements are Bold and Underlined)**

Route	Frequency (minutes)	Span of Service		
		Weekday	Saturday	Sunday
<b>City Routes</b>				
1	60	7:00AM- <b><u>7:00PM</u></b>	8:00AM-4:00PM	No Service
2	30	6:30AM-6:30PM	8:00AM-4:00PM	No Service
3	60	6:30AM-6:30PM	8:00AM-4:00PM	No Service
4	60	7:00AM- <b><u>7:00PM</u></b>	8:00AM-4:00PM	No Service
5	60	7:00AM- <b><u>7:00PM</u></b>	<b><u>8:00AM-4:00PM</u></b>	No Service
6		As needed		
<b>LOOP Routes</b>				
A	60	7:00AM-11:00PM	7:00AM-11:00PM	<b><u>8:00AM-10:00PM</u></b>
B	60	7:00AM-11:00PM	7:00AM-11:00PM	<b><u>9:00AM-7:00PM</u></b>
C	30	7:00AM-11:00PM	7:00AM-5:00PM	No Service
D	60	7:00AM-11:00PM	7:00AM- <b><u>11:00PM</u></b>	9:00AM-7:00PM
E	60	7:00AM-7:00PM	7:00AM-7:00PM	No Service
F	<b><u>60</u></b>	7:00AM-7:00PM	7:00AM-7:00PM	No Service
<b>Rail Link</b>				
The span and frequency of all RailLink services will be designed to provide service to and from designated commuter trains Monday through Friday				
<b>Flex Service</b>				
Curb-to-Curb service will operate between 8:00AM and 4:00 PM wherever it is made available. <b><u>Span of service of Flex Service in certain zones could be enhanced based on observed demand.</u></b>				

**Recommended Plan**

The Recommended Plan section provides a recommended schedule for the implementation of the service improvement proposals described in the Service Proposals chapter. The Recommended Plan also address issues which support and enhance transit services in Dutchess County. This includes such issues as a capital improvement program that provides recommendations for vehicles and other capital items needed to support the operation of services which can assist with the preparation of the Transportation Improvement Program (TIP) document for the region. Other issues addressed by the recommendations involve marketing, fare structure, land use/development considerations.

**Recommended Implementation Schedule** - Provided below is a potential five-year implementation schedule for the recommendations described in the Base Service Improvement Plan and the Enhanced Service Improvement Plan.

This recommended implementation schedule is referred to in this report as the Recommended Plan. The actual date of implementation of the Year 1 recommendations will be dependent upon local conditions and decision making. However, since the Base Service Improvement Plan represents a complete redesign of LOOP’s route structure in Dutchess County, the complete package must be implemented together. While it is not necessary for the proposed changes to the City Bus routes to be implemented at the same time as the changes to

LOOP, coordinated implementation would provide the greatest benefit to the rider. It should also be noted that, while the proposed changes to LOOP could be implemented prior to the proposed changes for City Bus, the proposed changes to City Bus services could not be implemented until the proposed LOOP changes are put in place. This is due to the fact that service changes proposed for City Bus would remove City Bus service from certain corridors and destinations, with the intent that they would be served by redesigned LOOP routes.

**Table 5**  
**Recommended Implementation Schedule**

Period	Service Improvement Implemented
<b>LOOP</b>	
Year 1	<ul style="list-style-type: none"> <li>• Base Service Improvement Plan is implemented as a complete package</li> </ul>
Year 2	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>• Sunday service is added to Route B</li> <li>• Sunday span of service is extended on Route A</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>• Saturday evening service to Pleasant Valley is introduced on Route D</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Weekday and Saturday frequency of service is enhanced on Route F</li> </ul>
<b>City Bus</b>	
Year 1	<ul style="list-style-type: none"> <li>• Base Service Improvement Plan is implemented as a complete package</li> </ul>
Year 2	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Weekday span of service is extended to 12 hours on Route 1, Route 4, and Route 5</li> <li>• Saturday service is introduced on Route 5</li> </ul>

The implementation of the Recommended Plan will require a significant planning, marketing, and public awareness effort. This process will include the following steps:

- County approval
- Operations preparation
  - Running time checks of proposed route alignments
  - Building schedules
  - Building vehicle blocks and assigning driver runs
- Designate and mark bus stops along route alignments
- Design and print new schedules and system maps
- Conduct marketing and public outreach activities

To allow current passengers and the general public to become accustomed to the new route structure, no further service changes or enhancements are recommended for a two-year period following the initial implementation of the Base Service Improvement Plan other than fine tuning adjustments. After the initial two-year period, the Recommended Plan calls for the implementation of new services or service enhancements once per year for the remainder of the five year period. Recommended changes are limited to once per year to minimize the number of times that public information and marketing material regarding the system need to be updated, reprinted, and distributed. It should also be noted that the same process as outlined above will need to be followed for the implementation of each service change and enhancement.

None of the proposals outlined as part of the Longer Term System Expansion Plan have been included in the five year implementation schedule. It is envisioned that these proposals would be implemented either beyond the five year horizon of this study or as specific financial resources are identified to support their implementation. A subsequent section of this report does provide resource requirement projections for each element of the Longer Term System Expansion Plan.

The following sections provide the projected impacts on LOOP and City Bus for fixed route and Flex Services.

### **Projected Impacts for Fixed Route Services**

This section contains five year financial projections for the Recommendation Plan for annual periods beginning with Year 1 for the fixed route network. Projections for level of service, operating costs, ridership, farebox revenue as well as operating deficits are presented for both LOOP and City Bus. For each of the projections, a baseline year of 2007 has been used for comparison purposes for LOOP and City Bus. These figures were the most recent complete year data available at the time of this report. The following table provides projected calculations for various measures based on the recommended implementation schedule above and the calculated impacts of the various proposals presented in the Base Service Improvement Plan and the Enhanced Service Improvement Plan. While the results are provided in this summary, the full description of the analysis, along with the assumptions and models used, are provided in the full report.

One point to note is that under the Recommended Plan, it is projected that ridership on the City Bus system would actually decrease. This is due to the fact that a major destination route, the Galleria route, would no longer be operated. Instead, City Bus would be operating more neighborhood-oriented services, which would garner lower productivity rates than the Galleria route. It should be noted, however, that overall public transportation ridership (i.e., combined LOOP and City Bus ridership) is projected to increase throughout the service area from 958,260 passenger trips annually to 1,098,790 annually in Year 1 and to 1,279,030 in Year 5. This represents an overall increase in public transportation ridership in the service area of 33.5 percent in Year 5 over the baseline year.

**Table 6**  
**Projections – Fixed Route Recommended Plan Compared to Baseline**

Measure	Baseline Year	Year 5 Fully Implemented	Change from Baseline (%)
LOOP			
Annual Vehicle Hours	58,910	82,640	40.3
Annual Vehicle Miles	1,192,400	1,341,000	12.5
Annual Ridership	590,150	914,500	55.0
Passengers per Vehicle Hour	10.0	11.1	11.0
Passengers per Vehicle Mile	0.49	0.68	38.8
Annual Operating Costs <sup>1</sup>	\$3,333,900	\$4,173,900	25.2
Annual Passenger Revenue <sup>2</sup>	\$364,300	\$564,500	55.0
Farebox Recovery	10.9%	10.3%	(5.5)
Annual Operating Deficit <sup>1</sup>	\$2,969,600	\$3,609,400	21.5
Cost per Passenger	\$5.65	\$4.56	(19.3)
Deficit per Passenger	\$5.03	\$3.95	(21.5)
City Bus			
Annual Vehicle Hours	16,160	18,030	11.6
Annual Vehicle Miles	201,600	158,600	(21.3)
Annual Ridership	375,700	364,530	(3.0)
Passengers per Vehicle Hour	23.2	20.2	(12.9)
Passengers per Vehicle Mile	1.86	2.30	23.7
Annual Operating Costs <sup>1</sup>	\$1,320,200	\$1,319,800	(0.1)
Annual Passenger Revenue <sup>2</sup>	\$282,000	\$268,800	(4.7)
Farebox Recovery	21.4%	15.5%	(27.6)
Annual Operating Deficit <sup>1</sup>	\$1,038,200	\$1,051,000	1.2
Cost per Passenger	\$3.51	\$3.62	3.1
Deficit per Passenger	\$2.76	\$2.88	4.3

1 - Not adjusted for inflation

2 - Assumes no change to fare structure

**Comparison of Impacts to a “No Action” Scenario** – The projected operating and performance statistics for the area-wide fixed route network under the recommended plan (i.e., combined LOOP and City Bus fixed route services) have been compared to a scenario in which no service improvements are implemented. The no action scenario assumes that no changes will be made to the services offered by either system. That is, the same route structure will be operated at the same level as is currently. Table 7 presents the results of these trends at the end of the planning horizon (Year 5) for the recommended and the “no action” scenarios.

The annual operating costs in Year 5 would be approximately \$1,110,000 higher (or 19.4 percent) under the Recommended Plan than under the “no action” scenario. However, the fixed route transit network in Dutchess County would carry more than 425,000 additional passengers and obtain a higher farebox recovery rate under the Recommended Plan. Dutchess County’s fixed route service network would also attain higher productivity and cost effectiveness under the Recommended Plan scenario measured in terms of passengers per vehicle hour, cost per passenger and deficit per passenger.

**Table 7**  
**Projections – Fixed Route Recommended Plan Compared to No Action Scenario**  
**LOOP and City Bus Combined**

Measure	No Action Scenario Year 5	Recommended Plan Year 5
Annual Vehicle Hours	75,060	100,660
Annual Vehicle Miles	1,394,000	1,499,600
Annual Ridership	855,370	1,279,030
Passengers per Vehicle Hour	11.4	12.7
Passengers per Vehicle Mile	0.61	0.85
Annual Operating Costs	\$6,095,700	\$7,205,200
Annual Passenger Revenue	\$572,400	\$833,300
Farebox Recovery	9.4%	11.6%
Annual Operating Deficit	\$5,523,300	\$6,371,900
Cost per Passenger	\$7.13	\$5.63
Deficit per Passenger	\$6.46	\$4.98

**Projected Impacts for Flex Service** - A detailed Flex Service Implementation Plan report was completed as part of this planning effort, and submitted under a separate cover. The report examined the organizational capacity of LOOP to address the implementation of Flex Service, and analyzed the most appropriate implementation strategy. As a result of the analysis, it was recommended that the Flex Service be provided, to the greatest extent possible, using current Dial-a-Ride vehicle runs. The following impacts were calculated using the assumption that this implementation model will be utilized in providing the Flex Service outlined in the Recommended Plan.

It is also recommended that a premium fare that is 50 to 100 percent higher than LOOP’s base cash fare be charged for the use of the Flex Service. In exchange for the premium fare, passengers should be allowed to reserve a trip up to the day prior to the desired date of travel; and, on a space available basis, on the desired date of travel.

The following table provides projected impacts for vehicle hours, vehicle miles, and cost per each daily Flex Service vehicle run. The costs per unit calculations are described in the full report.

**Table 8**  
**Flex Service Cost Estimate per Additional Vehicle Run**

Unit	Amount	Cost per Unit (\$)	Cost (\$)
Vehicle Hours	10	40.24	386
Vehicle Miles	157	1.17	183
<b>Total</b>	-	-	<b>570</b>

It is recommended that with the implementation of Flex Service, the Dial-a-Ride program be discontinued as a distinct transportation service. Instead, Flex Service would be the only reservation-based, curb-to-curb service available in the county. This model would make it easier

for LOOP to communicate the public information regarding the network of services available. This would allow for the use of the Trapeze scheduling software, currently used by LOOP for its demand responsive services, to combine communities and pools of passengers to use the vehicle runs in the most efficient manner.

Since Dial-a-Ride would no longer exist as a distinct service, the county could develop a cost sharing model utilizing county transportation funding, Dutchess County Office for the Aging funding, along with funding from participating communities to fund the single program. In addition, communities could choose to provide a subsidized fare for their senior residents through additional municipal funding. Communities could also purchase additional days of service based on the cost model described earlier. The City of Poughkeepsie and Town of Poughkeepsie would continue to receive Dial-a-Ride service.

**Long Term System Expansion Proposals** - The Service Improvement Proposals report described four new routes or route expansions options that were not included in the Recommended Plan. It was envisioned that these expansion proposals would be implemented if resources were made available or new conditions warrant implementation. Table 9 provides the impacts of the five proposals.

**Table 9  
Projected Impacts of System Expansion Proposals**

Route	Net Impacts			
	Annual Vehicle Hours	Annual Vehicle Miles	Annual Operating Costs	Peak Vehicle Requirement
LOOP				
C: DCC via 9G	5,820	27,800	198,900	1
G: Harlem Valley via 22	6,730	118,700	301,000	2
H: Galleria – Hopewell Jct.	4,000	103,500	205,800	1
J: Cross-County North	6,730	112,130	295,700	2
New Hamburg Rail Link B	3,930	31,500	144,700	2
City Bus				
Route 3 to Galleria	8,100	139,000	654,500	1

**Fare Policy Recommendations** - Fare policy is an important element of the Recommended Plan in that aspects of the fare program can improve the accessibility and convenience of the system, while promoting ridership overall and among particular groups. Fare policy for LOOP and City Bus should incorporate the following elements:

- consistent and coordinated fare structures;
- the fare media products to be made available to riders and sales outlets; and
- specialty fare arrangements (i.e., UPass arrangements with local colleges) and media.

**Marketing/Public Information Recommendations** - As noted earlier, the implementation of the Recommended Plan will require a significant and continuous marketing and public awareness effort. An effective marketing and public awareness program will be necessary to keep current riders informed of planned service changes, as well as to attract new

riders to the system. To attract new riders, the system must be easily accessed and recognizable. Also, public information regarding the system must be prevalent throughout the community and comprehensible to the first time or infrequent user. Information that allows regular users to learn of other trips they can make on the area transit system must also be readily available. The program should incorporate the following elements:

- **Image** – Develop an umbrella brand such as “Dutchess Transit” or “Hudson Valley Transit” which would encompass LOOP and City Bus; but would not require an organizational merger.
- **System Map/Public Timetables** – Initiate a planned effort to redesign the current material and develop a new strategy for the distribution of that information.
- **Other Printed Information** - Before the implementation of major service changes, LOOP and City Bus should develop a single booklet that describes all of the service changes along with maps depicting new route alignments.
- **Internet Website** – Develop a new website with a direct url; ideally using the new umbrella brand.
- **Targeted Marketing** – Develop a marketing program to target specialty markets such as college students or tourists.

**Capital Improvement Recommendations** - Along with service design and policies, the improvement of service delivery is dependent upon the capital assets used by LOOP and City Bus. This section provides various recommendations for how capital asset investments could be used to further enhance the Dutchess County transit system.

- **Revenue Vehicles** –The Recommended Plan for LOOP would increase the peak vehicle need for fixed route services by one vehicle to 18 vehicles. The recommended implementation model for Flex Service would increase the demand responsive peak vehicle need by one vehicle to 21 vehicles. This represents a total system peak vehicle need of 39 vehicles.

It should also be noted that fixed route system expansion options could add as many as nine additional peak vehicles. Also, if communities request additional Flex Service vehicle runs beyond the level identified in the Recommended Plan, this could impact the number of peak vehicles required to operate the service. The capital cost ramifications of these changes should be taken into consideration when deciding the timeline for the implementation of the various expansion options. Again, this may require the expansion of the revenue fleet with additional small transit vehicles.

- **Bus Stops and Bus Stop Signage** – Another important aspect of the public information and public awareness efforts is the need for consistently designated and marked bus stops. Neither LOOP nor City Bus currently marks their bus stops with bus stop signs in a consistent manner. Both LOOP and City Bus should undertake an effort to specifically

identify the locations of each of their bus stops. All bus stops in the urban and suburban areas should be marked with a bus stop sign. Bus stop signs should include: the logo, telephone information number, and website address of the umbrella brand and system which serves the stop; the international symbol for a bus stop; and possibly the route numbers which serve the stop. Flag stops could continue to be used in the rural areas of the county.

- **Passenger Amenities** – LOOP and City Bus should implement a program to install 20 bus waiting shelters at major transit stops throughout the service area.
- **Park n Ride Lots** – Another capital improvement that LOOP will need to address is the identification of park and ride locations. The need for such arrangement may develop in the Hyde Park area for commuters using the Poughkeepsie Railroad station. The location and timing of these lots will depend on parking conditions and demand at the rail stations.

Table 10 provides a summary of the capital program for the Dutchess County transit system which would result from the recommendations included in this report.

**Table 10**  
**Capital Program**

Budget Item	Description	Estimated Cost (\$)
Planned LOOP Fleet Replacement	40 transit vehicles	6,545,000
Potential Fleet Expansion	8 transit vehicles	1,000,000
Bus Stop Signage Program	Print and install 850 bus stop signs	102,000
Bus Shelter Installation Program	Purchase and install 20 waiting shelters	160,000
<b>Total</b>		<b>7,807,000</b>

### Land Use/Development Policy Considerations

While all of the above recommendations will improve transit service in Dutchess County, it must be noted that the two transit systems operate in an environment over which they have little control. There are various policies which Dutchess County, and the land-use decision making bodies of the various municipalities, can pursue to further facilitate and promote the use of transit. Three such policy areas are described below.

- **Pedestrian Infrastructure** – Results of the rider survey conducted as part of this planning effort showed that over 90 percent of LOOP and City Bus riders walk to complete some portion of their trip. This suggests that overall transit ridership in Dutchess County cannot be maintained or expanded without proper attention to the needs of pedestrians.
- **Site Design** – Related to the pedestrian infrastructure is the issue of site design. The municipalities, and the county to the greatest extent possible, should require transit

consideration in site plans of major new retail or other developments.

- **Transit First Improvements** – A third policy that could be pursued by Dutchess County and the municipalities would be to institute a transit first improvement program.

Any of these policies could be pursued at any time during the implementation of the Recommended Plan. Any one, or a combination of these policies, could add to the convenience and reliability of the system resulting in further ridership increases.

## CHAPTER 1 CURRENT CONDITIONS

An initial step in the current analysis is to document the existing bus service operated by Dutchess County Division of Mass Transit (LOOP) and the City of Poughkeepsie City Bus (City Bus). In addition, this report documents the services of intercounty public transportation operators that provide service in Dutchess County.

This chapter describes the organization, services, financial and performance trends, and funding for the City Bus and LOOP. This is followed by a description of the intercounty services and their connectivity with one another.

### City Bus Organization

This section provides an overview of the organization of City Bus. Aspects of the staff resources and capital assets used to operate City Bus service are described. This includes staffing, facilities, and the revenue fleet. Table 1.1 and Table 1.2 provide details of the City Bus organization. Noteworthy points regarding these aspects of City Bus include:

- **Staffing** - City Bus is part of the City of Poughkeepsie Department of Public Works. All City Bus employees are employees of the city. An Assistant Superintendent of the Department of Public Works is responsible for the day to day administration of the system. This staff person is not assigned full-time to the transit system. Only 25 percent of his time is dedicated to City Bus administration. Other city employees dedicate approximately 104 labor hours to the administration of the City Bus system annually. This equates to 0.05 full-time equivalent employees. The city also employs two dispatchers and eight vehicle operators. All of these employees are full time employees. The City Bus fleet is maintained by the City of Poughkeepsie Department of Public Works maintenance staff. An equivalent of one full-time mechanic is dedicated to the maintenance of the transit fleet. Overall, 11.3 full-time equivalent employees are dedicated to the City Bus function.
- **Facilities** - City Bus is operated out of the City of Poughkeepsie Department of Public Works facility on Howard Street in Poughkeepsie. All operators report for, and end their shifts at this facility. The Department of Public Works performs all routine servicing (e.g., washing and fueling) and maintenance (e.g., preventive maintenance checks and repairs) on the revenue fleet at this location. The facility has recently been rehabilitated and expanded. In addition, the current Transportation Improvement Program (TIP) for the Poughkeepsie-Dutchess County metropolitan area includes funding for a shared vehicle wash facility for City Bus.

The current main passenger stop for the City Bus system is located at the intersection of Main Street and Market Street in downtown Poughkeepsie. This stop is furnished with bus stop waiting shelters. However, there is no indoor waiting facility, restroom

facilities, or space for service information or ticket vending. The current TIP includes funding for a new transit center in downtown Poughkeepsie at the intersection of Cannon Street and Academy Street. The new facility will provide an indoor waiting location as well as space for public information and ticket vending. This project is currently in the design phase. City Bus, Dutchess County LOOP, and various intercounty transportation providers will make use of the facility upon completion.

- **Revenue Fleet** - City Bus uses a revenue fleet of eight transit buses. This includes seven full sized transit vehicles with seating capacities of at least 35 passengers, and one mid-sized transit bus with a seating capacity of 24 passengers. The average age of the current fleet is 9.1 years. The Federal Transit Administration (FTA) suggests the average age of a revenue fleet should not exceed one-half the average economic useful life of the fleet. Six vehicles in the City Bus fleet have economic useful lives of twelve years. The remaining two have useful lives of ten years. This indicates that the average age should be no more than 5.75 years. The current TIP includes the purchase of four new replacement transit buses and one new trolley replica bus. These vehicles will replace the current vehicles that have met or exceeded their useful lives. After the incorporation of these new vehicles into the revenue fleet, the average age will be 1.25 years during the first year. The 2008-2012 TIP also includes funding for replacement vehicles to maintain the average fleet age at or below the suggested level.
- **Relevant Issues** - Service improvement recommendations will need to take into consideration the relocation of the main transit hub in downtown Poughkeepsie. The new location is in close proximity to the current hub at Main Street and Market Street so there should not be significant impacts. However, downtown alignments for bus routes may be affected. Also, the recent expansion of the City Bus operating facility indicates that there will be adequate facilities to accommodate a potential expansion of service if one is recommended. Any expansion would need to be incremental given the small size of the fleet.

**Table 1.1**  
**City Bus Staffing**

<b>Function</b>	<b>Annual Work Hours</b>	<b>Full Time Equivalent Employees</b>
Administration	520	0.3
Vehicle Operations	25,228	10.0
Vehicle Maintenance	2,294	1.0
<b>Total</b>	<b>28,042</b>	<b>11.3</b>

**Table 1.2  
City Bus Revenue Fleet**

Manufacturer	Model Year	Number	Length	Seats
Gillig	1994	4	35	36
Chance	1996	1	30	24
TMC	2003	1	40	35
Gillig	2004	2	35	36
	<b>Total</b>	<b>8</b>	-	-
Average Age	<b>9.1</b>			
Suggested Avg.	<b>5.75</b>			

### City Bus Fixed Route Bus Network

This section provides a description of the fixed route bus services offered by City Bus. This includes a description of the routes as well as the level of service provided. Noteworthy aspects of the current route network include:

- Service Description** - City Bus operates six fixed route bus routes. The routes serve the main corridors throughout the City of Poughkeepsie. The system, however, is not strictly a municipal system. City Bus routes do serve certain major trip generators outside of the city. These include locations in the Town of Poughkeepsie and Hyde Park. Table 1.3 lists these routes and Figure 1.1 provides a map of the current route network.
- Service Levels** - Table 1.4 and Table 1.5 provide details of the span of service (the hours during which service is made available) and the frequency (how often bus trips are provided) for the six City Bus routes. Most City Bus routes begin service on weekdays and Saturdays between 6:30 AM and 7:00 AM. All routes end service by 6:30 PM on weekdays. Therefore, there is no evening service on the City Bus system. The Shopper’s Special begins weekday operation after the AM peak period is over. This reflects the nature of the service as oriented more towards recreational travel rather than for employment purposes. On Saturday, City Bus routes operate the weekday schedule with the exception of the last one or two round trips. Under this schedule, all routes end by 3:30 PM on Saturday. No Sunday service is provided on any of the City Bus routes.

In terms of frequency, the Southside and Northside routes provide service every 30 and 45 minutes, respectively, during the AM peak, and at a frequency of every 60 minutes throughout the remainder of the day. All other routes provide service every 60 minutes throughout the day. The one exception is the Special. This is a route specifically designed to address capacity issues resulting from school students. Only one round trip is provided on this route throughout the day. The route is open to the public and is published in the system’s public timetable.

- **Scheduling** - The City Bus system employs what is referred to as pulse scheduling. That is, numerous bus routes leave from a common bus stop at the same times throughout the day. This allows for convenient transferring between routes and also provides a user friendly framework for the system. The Main Street, Southside and Northside routes pulse at Main and Market every 60 minutes on the hour. Galleria and Shopper's Special pulse at Main and Market every 60 minutes on the half hour. In some instances, transit systems will employ a staggered pulse such as this to provide service at a higher frequency along certain corridors or to particular major generators. The staggered pulse of the City Bus system only provides enhanced frequencies along streets close in to downtown Poughkeepsie. Generators that are afforded enhanced service under the current schedule include the K-Mart on Route 44 and the Stop and Shop on Tucker Drive in the Town of Poughkeepsie which are served every 30 minutes between the Main Street and Shopper's Special routes. Also, the Price Chopper and the Stop and Shop along Route 9 in the Town of Poughkeepsie are served every 30 minutes between the Galleria and the Southside routes.
- **Relevant Issues** - The examination of the current route structure and schedule provide some indication of issues that will need to be addressed during the planning process. The need for weekday evening service on city routes will need to be analyzed. Also, the current Saturday schedules may not be the most effective way to meet Saturday demand. It may be possible to start Saturday service later in the morning and extend it later in the afternoon. The need for more weekend service, including Saturday evenings and Sunday service will also need to be examined.

The current pulse scheduling structure will also be an issue for analysis. While pulse scheduling provides benefits in terms of convenient transfers and user friendliness, it can also create inefficiencies in the system. This is due to the fact that some routes are longer than others. Therefore, the shorter routes must often wait for extended periods of time at the pulse schedule stop for the longer routes. It may be possible to employ other route alignment configurations such as through-routing buses through downtown. It may also be determined that the pulse schedule format is the best model for the City of Poughkeepsie and that all routes should be pulsed at the same time. Another potential recommendation is to continue a staggered pulse but to modify the pulse combinations. The current staggered pulse does not provide higher frequency service on major corridors or to major generators such as the Galleria Mall or area colleges. These issues will be addressed using information gathered through the various route analyses, rider surveys, ride check data, stakeholder interviews, and input from the City Bus staff. All of these inputs are part of this current transit planning effort.

**Table 1.3  
City Bus Route Description**

Route	Between	And
Galleria	Downtown Poughkeepsie (Main & Market)	Galleria Mall/South Hills Mall
Main Street	Downtown Poughkeepsie (Main & Market)	Vassar/K-Mart - Town of Poughkeepsie
Northside	Downtown Poughkeepsie (Main & Market)	Stop & Shop - Hyde Park or Dutchess Community College
Shopper's Special	Downtown Poughkeepsie (Main & Market)	K-Mart - Town of Poughkeepsie
Southside	Downtown Poughkeepsie (Main & Market)	Price Chopper (Route 9) or Jewish Community Center
Special	Hudson Garden Apartments	Poughkeepsie Middle School

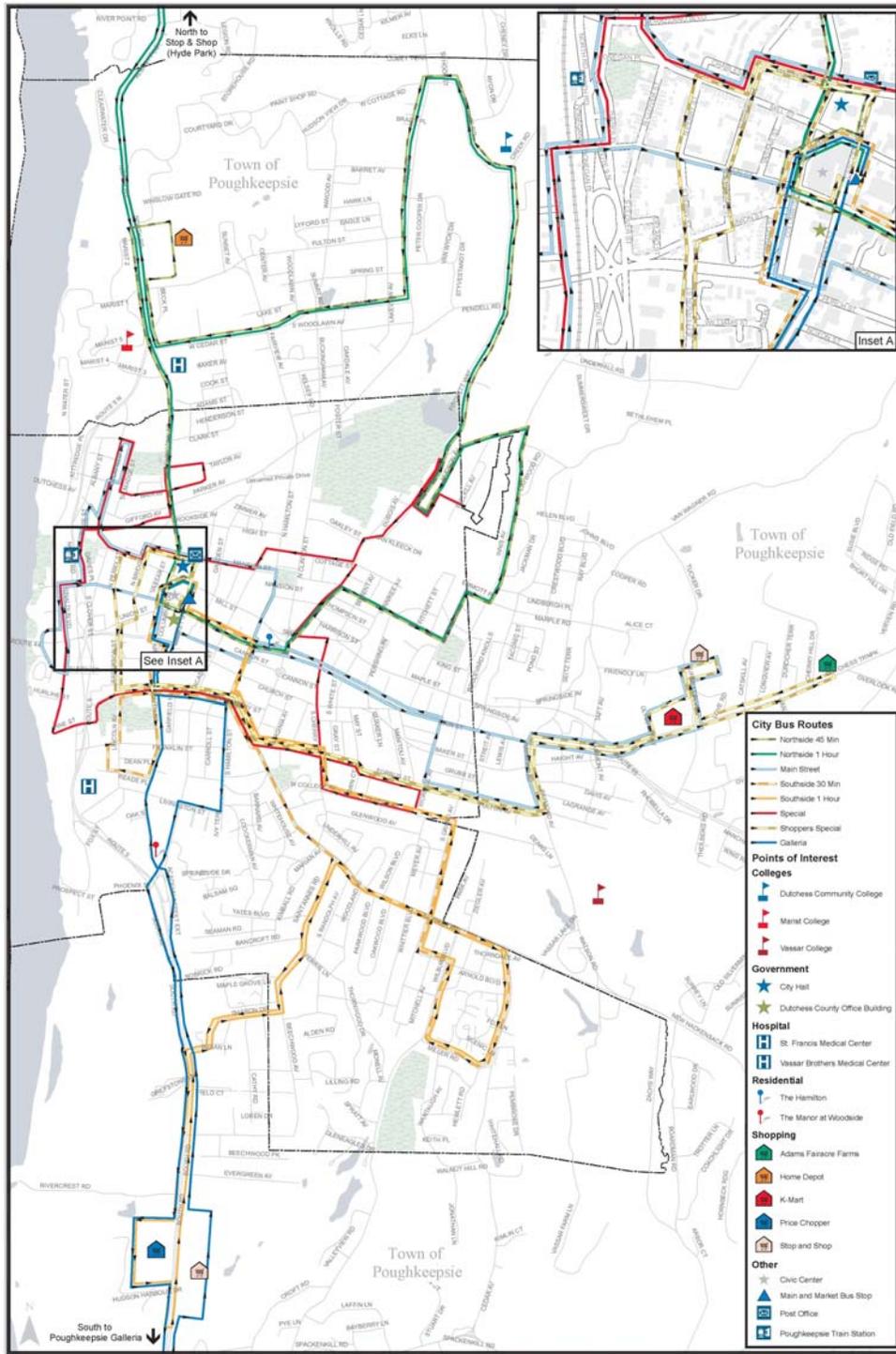
**Table 1.4  
City Bus Span of Service**

Route	Direction	Weekday	Saturday
Galleria	To Galleria/South Hills	8:30AM-4:00PM	8:30AM-3:00PM
	To Main & Market	9:00AM-4:25PM	9:00AM-3:25PM
Main Street	To Vassar/K-Mart	7:00AM-6:30PM	7:00AM-3:25PM
	To Main & Market	6:25AM-6:07PM	6:25AM-3:00PM
Northside	To Hyde Park/DCC	6:30AM-6:30PM	6:30AM-3:20PM
	To Main & Market	6:49AM-6:10PM	6:49AM-3:00PM
Shopper's Special	To K-Mart	9:30AM-5:00PM	No Service
	To Main & Market	10:00AM-5:30PM	
Southside	To Price Chopper/JCC	6:30AM-6:30PM	6:30AM-3:10PM
	To Main & Market	6:50AM-6:10PM	6:50AM-3:00PM
Special	To Middle School	6:30AM-7:30AM	No Service
	To Hudson Garden Apts.	3:00PM-3:35PM	

**Table 1.5  
City Bus Frequency of Service (Headway in Minutes)**

Route	Weekday			Saturday
	AM Peak 6AM-9AM	Midday 9AM-3PM	PM Peak 3PM-6PM	
Galleria	60	60	60	60
Main Street	60	60	60	60
Northside	45	60	60	45/60
Shopper's Special	-	60	60	-
Southside	30	60	60	30/60
Special	1 round trip daily			-

Figure 1.1  
 City Bus System Map



**CITY OF POUGHKEEPSIE**

This map was made using data from various sources. The information provided on this map is for reference purposes only. The scale, accuracy and completeness of the data is not guaranteed. aug. 2007/08

## City Bus Fare Structure

City Bus employs a simple single zone fare structure. The full standard single trip fare is \$1.00. Senior citizens, children between the ages of 6 and 11, persons with disabilities, and persons with Medicare cards ride for \$0.50. Children under the age of 6 ride for free. Persons that need to ride more than a single bus to complete their one-way trip are charged for a transfer at the rate of \$0.30. The City Bus fare structure does not include any multi-ride pass instruments such as weekly or monthly passes. However, City Bus does accept LOOP monthly passes. City Bus receives reimbursement for these trips from Dutchess County.

**Table 1.6**  
**City Bus Fare Structure**

Fare Category	Amount
Adult	\$1.00
Senior Citizen/Disabled/Medicare	\$0.50
Students (city schools)	\$0.50
Child (Ages 6 to 11)	\$0.50
Child under 6	Free
Transfers	\$0.30

- Relevant Issues** - The fare structure may need to be updated to accommodate recommendations resulting from this study. It is anticipated that service recommendations will be designed to make the most effective use of the resources of both the City Bus and LOOP systems to provide the most convenient service to the passenger. This may require some type of joint pass or reciprocal fare agreements between the two systems. Currently, LOOP monthly passes can be used for City Bus service and LOOP does accept transfers under certain circumstances from City Bus. However, new or more extensive arrangements may be necessary. It is also important to note that the current reciprocal fare arrangements are not described in either of the system's public timetables.

## City Bus Operating and Financial Trends

To provide a context for the current system analysis; operating, ridership, and financial information was tabulated for the last five years, 2002 to 2006. The statistics include such measures as the number of revenue hours and revenue miles, as well as bus system ridership, expenses, and revenue collected. The source of information was the National Transit Database reports that the City of Poughkeepsie submits annually to the Federal Transit Administration (FTA). Similar to other New York transit systems, City Bus is on a calendar year financial reporting basis. Fiscal Year 2006 is the last complete year for which information is available.

- Operating and Productivity Trends** - Table 1.7 provides an overview of the five year operating and productivity trends for City Bus. The examination of the five year operating trends shows that the level of service in 2005 and 2006 has been reduced

from the level operated earlier in the period. In 2002, City Bus operated 7 peak buses. This was reduced to 6 in 2003. Also, the 16,240 vehicle hours operated in 2006 is 28 percent below the 2002 level of 22,720 vehicle hours. As a result of the initial reduction in service, ridership decreased by 12.7 percent from 385,140 in 2002 to 336,270 in 2003. However, since 2003, ridership on the City Bus system has consistently increased. In 2006, ridership reached 368,120 passenger trips, only 4.4 percent below the 2002 level. As a result of these trends, productivity has improved from 17.0 passengers per hour in 2002 to 22.7 in 2006, an improvement of 33.5 percent.

- **Financial Performance Trends** - As a result of the reductions in service described above, the operating cost of the City Bus system were the same in 2006 as in 2002. In the interim years, operating costs have fluctuated. These figures are shown in Table 1.8. To determine how much of the fluctuation is due to changes in service level and what can be attributed to other sources, the operating costs of 2004 and 2006 can be compared. In these two years, City Bus operated a similar number of vehicle hours. Between 2004 and 2006, operating costs have increased by 5.8 percent, or an average annual increase of 2.9 percent. This is a reasonable rate of increase given the increases in labor and fuel costs.

Revenue collected from passengers followed the same trend as ridership. There was an initial decrease between 2002 and 2003 with revenue rebounding in 2006 to within 1.2 percent of the 2002 level. As a result, the operating deficit is slightly higher and farebox recovery is slightly lower in 2006 than in 2002. However, neither statistic is significantly different from the 2002 level, and in 2006, farebox recovery is at its highest level since 2002.

Table 1.9 provides an overview of financial performance on a per unit basis. The figures show no significant fluctuation that cannot be attributed to changes in the service level over the last five years.

- **Relevant Issues** - The trends in operating statistics (i.e., vehicle hours and vehicle miles) and productivity suggest that over the past five years, City Bus has been consistently eliminating unproductive services. This current planning effort will provide a more comprehensive review of the services to identify additional improvements to both improve efficiency as well as convenience for the passenger.

Also, the financial trend analysis indicates a relatively stable financial situation for City Bus. This suggests that operating costs are not an issue that will threaten the viability of the system or will significantly affect the development of recommendations for service improvements.

**Table 1.7  
Operating and Productivity Trends**

<b>Item</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Vehicle Miles	234,110	198,250	200,920	200,920	202,290
Vehicle Hours	22,720	18,400	16,800	15,720	16,240
Peak Vehicles	7	6	6	6	6
Ridership	385,140	336,270	344,680	349,570	368,120
Passengers/Hour	17.0	18.3	20.5	22.2	22.7
Passengers/Mile	1.65	1.70	1.72	1.74	1.82

**Table 1.8 - Financial Results**

<b>Item</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Operating Cost (\$)	1,272,320	1,127,800	1,201,820	1,186,740	1,272,560
Revenue (\$)	268,110	232,980	231,540	227,740	264,890
Deficit (\$)	1,004,210	894,820	970,280	959,000	1,007,670
Farebox Recovery (%)	21.1	20.7	19.3	19.2	20.8

**Table 1.9 - Financial Measures**

<b>Item</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
<b>Financial Results Per Vehicle Hour</b>					
Operating Cost (\$)	56.01	61.30	71.54	75.47	78.37
Revenue (\$)	11.80	12.66	13.78	14.48	16.31
Deficit (\$)	44.21	48.63	57.75	60.99	62.06
<b>Financial Results Per Vehicle Mile</b>					
Operating Cost (\$)	5.43	5.69	5.98	5.91	6.29
Revenue (\$)	1.15	1.18	1.15	1.13	1.31
Deficit (\$)	4.29	4.51	4.83	4.77	4.98
<b>Financial Results Per Passenger</b>					
Operating Cost (\$)	3.30	3.35	3.49	3.39	3.46
Revenue (\$)	0.70	0.69	0.67	0.65	0.72
Deficit (\$)	2.61	2.66	2.82	2.74	2.74

## City Bus Funding

The concluding portion of the trend analysis for City Bus is the funding framework. Since riders only cover a small portion of the costs of the system, it is important to understand the sources of funding that bridge the difference between revenue generated through operation and the overall cost of the system. This section provides an overview of the five year funding trends.

- **Operating Costs** - Table 1.10 provides a breakdown of how the operating deficit of the City Bus system has been funded over the past five years. Funding provided by local, state, and federal sources has fluctuated over the period. This is mainly due to the changes in service level. However, one observation to note is that in 2004 and 2005, federal funding was used to cover a higher percentage of the operating deficit than in other years. Federal funding reached a high of 46.1 percent of the operating deficit in 2004. This increase can be attributed to the availability of Federal Transit Administration Jobs Access-Reverse Commute (JARC) grant funding in those years. Over those same two years, local funding decreased to the lowest levels over the period, declining to 20.9 percent of the deficit in 2004. State funding, while fluctuating, has remained relatively stable at approximately 35 percent of the operating deficit throughout the period. In 2006, local funding increased to 31.0 percent of the operating deficit and federal funding decreased to 33.0 percent. This was a return to the patterns demonstrated in 2002 and 2003. This also represented approximately the same amount of local funding in 2006 as in 2002.
- **Capital Funding** - Table 1.10 shows that funds expended for the capital needs for the City Bus system have fluctuated from year to year throughout the period. Capital spending reached a high of \$742,800 in 2005 and a low of \$86,400 in 2003. The fluctuation can be attributed to the purchase of transit vehicles made in 2004 and 2005. The percentage breakdown of how the capital needs of City Bus are funded has remained consistent with federal funds covering 80 percent of the costs, and local and state funds each covering 10 percent. This is common in the transit industry and is consistent with the parameters of federal capital grant programs.
- **Relevant Issues** - The increase in local funding for the operating deficit between 2005 and 2006 shows a local commitment to funding the operation of the system. This suggests stability in the funding sources. Also the local outlays for capital needs over the five year period suggest local commitment to continuous improvement of the bus system. For service planning purposes, this indicates that the system is not in a period of contraction due to funding constraints, and that there is potential for service expansion.

**Table 1.10  
Funding By Source**

Item	2002		2003		2004		2005		2006	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Operating Deficit										
Local	318,590	31.7	311,150	34.8	202,500	20.9	246,910	25.8	312,150	31.0
State	433,380	43.2	305,430	34.1	320,650	33.0	300,370	31.3	363,020	36.0
Federal	252,240	25.1	278,240	31.1	447,130	46.1	411,720	42.9	332,500	33.0
Total	1,004,210	100	894,820	100	970,280	100	959,000	100	1,007,670	100
Capital										
Local	27,180	10.0	8,650	10.0	54,720	10.0	74,280	10.0	17,110	10.0
State	27,180	10.0	8,650	10.0	54,720	10.0	74,280	10.0	17,110	10.0
Federal	217,410	80.0	69,190	80.0	437,780	80.0	594,240	80.0	136,840	80.0
Total	271,770	100	86,490	100	547,220	100	742,800	100	171,060	100
Total	1,275,980		981,310		1,517,500		1,701,800		1,178,730	

**LOOP Organization**

This section provides an overview of the organization of LOOP services. Aspects of the staff and asset resources used to operate LOOP services are described. This includes staffing, facilities, and the revenue fleet. Table 1.11 and Table 1.12 provide details of the organization of LOOP. Noteworthy points regarding these aspects of LOOP include:

- Staffing** - LOOP service is operated by an outside operator under contract with Dutchess County. The Dutchess County Department of Planning and Development provides official oversight of the system. The contractor responsible for LOOP employs one General Manager who is responsible for the day to day administration of the system. LOOP also includes five other administrative employees. The contractor employs 24 dispatchers and vehicle operators. All of these staff persons are employees of the contractor. LOOP’s fleet is also maintained by the contractor. The equivalent of 4.3 full-time mechanics is dedicated to the maintenance of the transit fleet. Overall, 35.3 full-time equivalent employees are dedicated to the mass transit (LOOP) function.
- Facilities** - LOOP is operated out of a facility owned by Dutchess County. The facility is located on Commerce Street in the Town of LaGrange. All operators report for, and end their shifts at this facility. LOOP performs all routine servicing (e.g., washing and fueling) and maintenance (e.g., preventive maintenance checks and

repairs) on the revenue fleet at this location. The facility does not have sufficient capacity for indoor storage of the entire revenue fleet. Also, employee parking is currently close to capacity.

- Revenue Fleet** - LOOP uses a fixed route revenue fleet of 28 transit buses. This includes eleven full sized transit vehicles with seating capacities of at least 35 passengers, and 17 smaller transit buses with a seating capacities of 22 to 26 passengers. The average age of the current fleet is 6.5 years. The Federal Transit Administration (FTA) suggests the average age of a revenue fleet should not exceed one-half the average economic useful life of the fleet. The full sized vehicles in LOOP's fleet have economic useful lives of twelve years, while the smaller buses have useful lives of ten. Given the mix of vehicles, the fleet has an average economic useful life of 10.8 years. This indicates that the average age should be no more than 5.4 years. The current TIP includes the purchase of six new replacement full sized transit buses in 2008 as well as five smaller transit vehicles in each year of 2008 and 2010. These vehicles will replace the current vehicles that will have met or exceeded their useful lives in those years. This will allow LOOP to maintain the average fleet age at or below the suggested level.

A point that will be discussed in more detail in the following section is that LOOP requires 26 vehicles to operate its peak service. With a fleet of 28, this only allows for a spare fleet of two vehicles. This results in a spare ratio of 7.7 percent. The FTA suggests a spare ratio of 20 percent to allow for proper maintenance of the revenue fleet, and to maintain the reliability of services offered. Under this guideline, LOOP should have a spare fleet of five vehicles, or a total fleet of 31.

- Relevant Issues** - Any potential recommended expansion of LOOP services will need to take into account the impact on facility needs and whether or not the current facility can accommodate the recommended expansion. Also, as a county wide system, LOOP routes will vary widely in terms of utilization and maximum loads. With a fleet containing various sized vehicles, it will be necessary to determine which routes will need to be assigned full sized transit vehicles based on expected utilization. Another issue is that the small spare fleet will limit the ability for service expansion in the near term. Future TIP's may need to include funding for expansion, rather than just replacement, vehicles.

**Table 1.11**  
**LOOP Staffing**

Function	Annual Work Hours	Full Time Equivalent Employees
Administration	11,254	6
Vehicle Operations	52,273	24
Vehicle Maintenance	7,537	4.3
Non-Vehicle Maintenance	1,939	1
<b>Total</b>	<b>74,003</b>	<b>35.3</b>

**Table 1.12**  
**LOOP Fixed Route Revenue Fleet**

Manufacturer	Model Year	Number	Length	Seats
Gillig	1998	6	35	35
Trolley Enterprises, Inc.	1998	1	30	26
Blue Bird	2000	9	25	26
Orion	2000	5	40	47
Coach	2004	7	28	22
<b>Total</b>	-	<b>28</b>	-	-
Average Age	<b>6.5</b>			
Suggest Avg.	<b>5.4</b>			

### LOOP Service Network

This section provides a description of the services offered by LOOP in 2008, before recent service reductions which took place in 2009. This includes a description of the routes as well as the level of service provided. Noteworthy aspects of the current route network include:

- Fixed Route Service Description** - LOOP operates 30 fixed route bus routes. There are three categories of routes operated by LOOP. These include regular routes, express routes, and commuter train connection (CTC) services. Regular routes offer local service along specified route alignments making stops to pick up or discharge passengers at all marked stops, or at flag stops in suburban and rural areas. Express routes offer limited stop service between various destinations throughout the county. CTC routes are specifically designed to connect residential neighborhoods, as well as satellite parking lots, with the Poughkeepsie, New Hamburg, and Beacon train stations along the Metro-North Railroad’s Hudson Line. Trips are timed to arrive at the stations shortly before southbound trains leave during the morning peak, and leave the stations slightly after the arrival of northbound trains in the afternoon peak. All municipalities in Dutchess County receive some level of fixed route bus service with the exception of Milan. Table 1.13 lists these routes and Figure 2 provides a graphical depiction of the current route network.
- Fixed Route Service Levels by Route** - Table 1.14 and Table 1.15 provide details of the span and frequency of service for the 30 LOOP fixed routes. With a few exceptions, regular routes begin service between 6:30 AM and 8:00 AM. All but three regular routes (2, 3, and 3B) end weekday service by 7:00 PM. LOOP 2, LOOP 3, and LOOP 3B all serve the South Hills and Galleria Malls with the latest evening departures from the Galleria Mall being 9:50 PM, 9:45 PM and 8:15 PM respectively. The Galleria Mall closes at 9:30 PM, Monday through Saturday. Twelve regular routes offer Saturday service. As with the weekday schedule, all regular routes end service by 7:00 PM on Saturday with the exception of LOOP 2, LOOP 3, LOOP 3B,

and the Beacon Shuttle. No service is offered to the area malls on Sunday. Only two regular routes, LOOP 10 and the Beacon Shuttle, offer Sunday service.

All but one of the express routes offers service on weekdays only. These have limited spans of service operating mainly in the peak periods. Typically, the routes offer one trip in one direction in the AM peak with one return trip in the opposite direction in the PM peak. This reflects the nature of these services, which are designed to meet a specific travel pattern. The one exception is Express C which is a Saturday only service.

CTC's are weekday only services operating in the early morning through the AM peak and starting again in the early afternoon through early evening. This reflects the nature of these services which are designed to address specific commuter patterns.

In terms of frequency, all of the regular routes, with the exception of LOOP 2, LOOP 3, and LOOP 3B, offer service at low frequencies. Typical frequencies on these routes are 180 minutes (every three hours). LOOP 2, LOOP 3, and LOOP 3B offer service every 60 minutes or less throughout the day. This indicates the nature of the system in that LOOP 2, LOOP 3, and LOOP 3B are serving the more urbanized core of the system with the remaining routes serving the more suburban and rural areas of the county. Express routes typically operate one AM and one PM trip with no midday service. CTC routes offers service at approximately every 30 minutes during the periods in which they operate. This offers commuters numerous alternatives in terms of connecting trains.

- **Fixed Route Service Levels by Municipality** - Table 1.16 shows the level of fixed route service provided within each municipality in Dutchess County. The table shows that LOOP provides a relatively frequent level of service along the Route 9/9D corridors including Hyde Park, Town of Poughkeepsie, City of Poughkeepsie, Wappinger, Fishkill, and Beacon. All of these municipalities have an effective average frequency of 45 minutes or less. A second tier in terms of frequency includes Dover, Pleasant Valley, Washington, East Fishkill, and LaGrange where the effective average frequency is between 60 and 75 minutes. All other municipalities receive service at an average of every 90 minutes or more. Again, no fixed route service is provided in the Town of Milan. For the general public, Milan is served by the Rural Paratransit Service (described below) only. This provides another indication of the nature of the service network. Service is more heavily concentrated in the southwestern portion of the county. This is to be expected given the more urbanized nature of the southwestern quadrant compared to the more suburban and rural areas in the remainder of the county.
- **Scheduling** - Over the years, transit policy makers in Dutchess County have added routes to meet specific mobility needs of particular target markets. As a result, the schedules for many of the fixed routes include only one trip. In some cases, routes do not even operate a complete round trip throughout the day. This affects the overall system in various ways. First, the addition of single trip specific routes has created a

system with 30 separate routes. This would give the impression of a transit system that is much larger than LOOP. This adds to the complexity of the system from the passenger's standpoint.

Another effect of these single trip routes is that it is difficult to create driver work schedules in an efficient manner. This is reflected in the complicated nature of LOOP driver schedules. This also forces LOOP to rely heavily on interlining. This may be efficient if routes have common terminal points and compatible schedules, but when that is not the case, it can create numerous inefficiencies in the schedule.

LOOP does not employ pulse scheduling or timed-transfers between its routes or with the City Bus network on a system-wide basis. There is some level of schedule coordination between certain routes. LOOP 1 and LOOP 2 arrive/depart from the Hyde Park Stop & Shop at the same times every two hours. Also, LOOP 2, LOOP 3 and LOOP 3B all arrive/depart from the Galleria Mall at the same time every hour (with some exceptions). This would allow a passenger to travel from Hyde Park to Beacon or the Dutchess Mall using coordinated services. In addition, the CTC routes are designed to meet commuter trains at the Poughkeepsie, New Hamburg, and Beacon stations.

- **Demand Responsive Services** - LOOP also operates three demand responsive services in Dutchess County which include:
  - **ADA Paratransit** - LOOP operates the mandatory ADA complementary paratransit service for the City of Poughkeepsie and Dutchess County. This service is for individuals who live within 3/4 mile of a City Bus or LOOP fixed route but who have a disability that precludes them from riding the fixed route service.
  - **Dial-a-Ride** - LOOP also operates the Dial-a-Ride service for Dutchess County. This is a community sponsored service available to individuals 60 and over who cannot use the regular LOOP service. To be eligible, passengers must be a resident of Beekman; Dover; East Fishkill; Hyde Park; LaGrange; Pleasant Valley; Town of Poughkeepsie; Red Hook; Union Vale; Wappinger; or the City of Poughkeepsie. Trips must also have an origin point in one of those municipalities. Beginning in 2009, the Towns of Dover and Union Vale have chosen not to participate in the program.
  - **Rural Paratransit** - The third demand responsive service available in Dutchess County is the Rural Paratransit Service. This service is available between 7:00 AM and 4:00 PM on weekdays and is open to the general public. In 2008, service was available in the Towns of Milan; Pine Plains; North East; Clinton; Stanford; Amenia; Washington; Union Vale; Dover; and Pawling.

- **Relevant Issues** - The examination of the current LOOP services provides insight into various issues that should be addressed as part of this planning process. First, LOOP is highly complex and includes numerous specialized routes. There are 30 separate routes in the system which is far higher than what would be expected given the size of the operation. Streamlining these routes may be necessary to create a more user friendly system as well as allow for more efficient schedules. It may also be necessary to revisit the route nomenclature. Various routes are labeled loop (e.g., Loop 1, Loop 2, etc.), however, the routes are not loops.

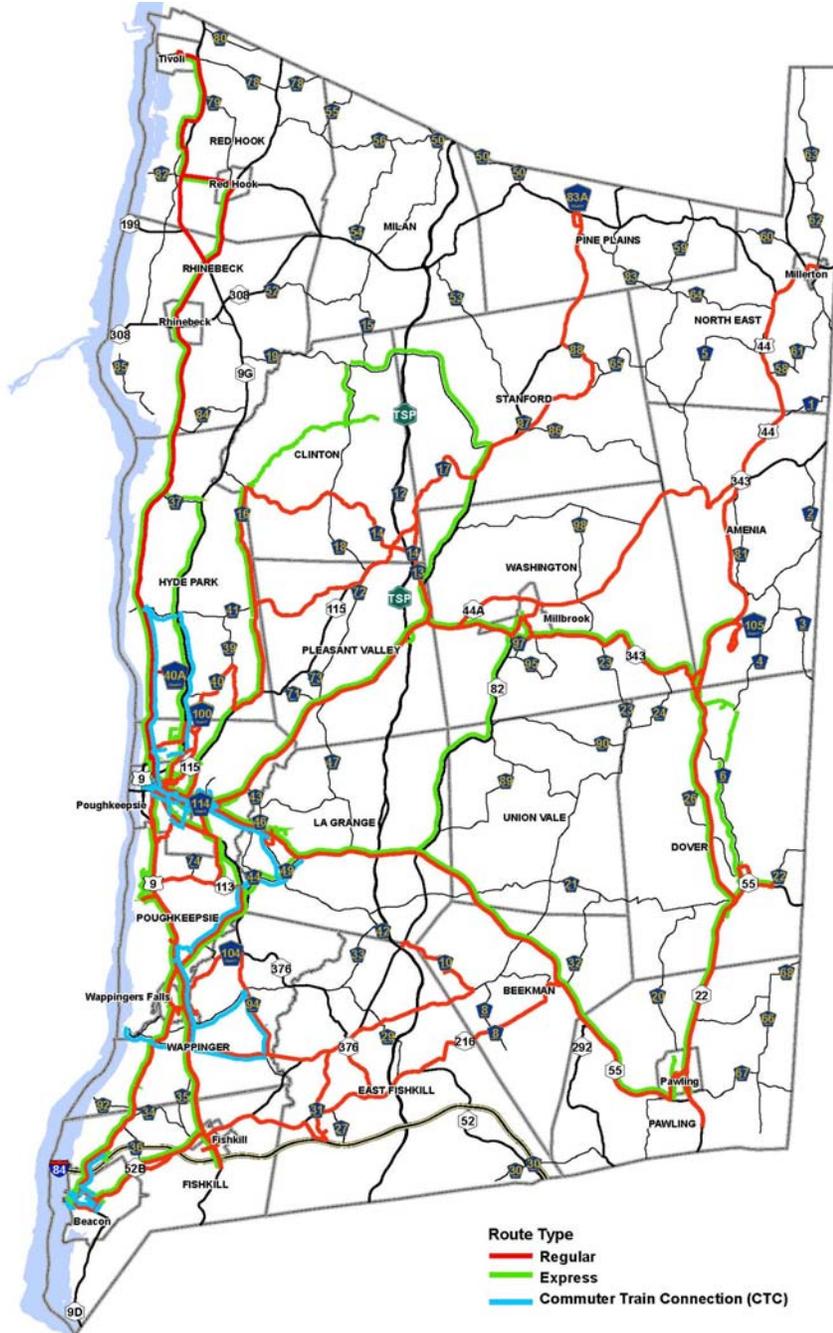
Another issue that should be examined is the use of suburban hubs and connecting services. Given the nature of the service area, this may be an appropriate model to explore. Related to this would be the possible incorporation of pulse scheduling at various hubs. This may include possible pulsing with City Bus routes at Main and Market in Poughkeepsie.

Another significant issue is the frequency of service. In many communities, service is provided at an average of every three hours. At this level, it may be necessary to examine alternative models such as enhanced use of demand responsive services. Service provided every three hours is not responsive to the needs of many patrons. Also, the frequency and span of service within the more urbanized core of the system should be examined. Additional evening services may be required in more communities as well as enhanced levels of service on Saturday and Sunday. In addition, only one route operates at a frequency higher than every 60 minutes. It may be necessary to provide more frequent service on additional routes serving major corridors.

**Table 1.13**  
**2008 LOOP Fixed Route Description**

<b>Route</b>	<b>Between</b>	<b>And</b>
<b>Regular Routes</b>		
LOOP 1	Hyde Park Stop & Shop	Rhinebeck or Tivoli with 1 round trip to Poughkeepsie
LOOP 2	Hyde Park Stop & Shop or Poughkeepsie - Main & Market	South Hills Mall
LOOP 3	Galleria Mall	Beacon Transportation Center
LOOP 3A	Wappinger - Hark Plaza	Galleria Mall
LOOP 3B	Galleria Mall	Beacon Post Office
LOOP 4	Hopewell Junction - Route 376 & 82	Dutchess Mall
LOOP 5	Apple Valley Shopping Center	Downtown Poughkeepsie
LOOP 6	Downtown Poughkeepsie	Galleria Mall
LOOP 7	Pine Plains - Library	Downtown Poughkeepsie
LOOP 8	Downtown Poughkeepsie	Millerton Square
LOOP 9	LaGrange - Route 55 & Overlook	Millerton Square
LOOP 10	Downtown Poughkeepsie	Wassaic Development Center
LOOP 11	Pawling - Pawling Corp.	Marist College via downtown Poughkeepsie
LOOP 13	LaGrange - Hudson River Housing	Poughkeepsie (Main & Market) or Galleria Mall
Beacon Shuttle	Beacon Train Station	Downtown Beacon - E. Main turnaround
<b>Express Routes</b>		
9G/NW Express	Downtown Poughkeepsie	LaGrange - ARC Industry
9G Express #2	Downtown Poughkeepsie	Oakley Street - Poughkeepsie
Southwest Exp.	Downtown Poughkeepsie	LaGrange - ARC Industry
Beacon Express	Dutchess Mall	Downtown Poughkeepsie
Special K	Downtown Poughkeepsie	Poughkeepsie ARC - Industry Street
HR Express	Hudson River Housing	Downtown Poughkeepsie
Express A	Downtown Poughkeepsie	Tivoli - Broadway & Montgomery
Express B	Downtown Poughkeepsie	Beacon Transportation Center
Express C	Millbrook - Alliance Apartments	44 Plaza - Poughkeepsie
Express L	Downtown Poughkeepsie	Harlem Valley Psychiatric Center
Express N	Downtown Poughkeepsie	Harlem Valley Psychiatric Center
<b>Commuter Train Connection Services</b>		
Hyde Park	Hyde Park - Mansion & Post Office	Poughkeepsie Train Station
Apple Valley	Apple Valley Shopping Center	Poughkeepsie Train Station
New Hamburg	Galleria Mall	New Hamburg Train Station
Beacon	Beacon (Wolcott & Teller)	Beacon Train Station

Figure 2  
2008 Dutchess County LOOP Bus System



Map produced by the Poughkeepsie-Dutchess County Transportation Council (PDCTC), June 2007. This is a graphical representation of the relevant data available from sources at the time of publication and is not for site specific work. This department makes no claim as to content accuracy or omission.

Map prepared by PDCTC

**Table 1.14**  
**LOOP Span of Service (2008)**

Route	Direction	Weekday	Saturday	Sunday
<b>Regular Routes</b>				
LOOP 1	To Hyde Park	8:50AM-4:45PM	10:05AM-6:45PM	-
	To Rhinebeck/Tivoli	8:15AM-4:00PM	9:15AM-6:00PM	-
LOOP 2	To Hyde Park/Poughkeepsie	7:45AM-10:30PM	8:15AM-10:30PM	-
	To South Hills Mall	7:15AM-9:45PM	7:45AM-9:45PM	-
LOOP 3	To Galleria	8:35AM-9:45PM	8:35AM-9:45PM	-
	To Beacon	8:15AM-10:15PM	8:15AM-10:15PM	-
LOOP 3A	To Galleria	8:45AM-3:25PM	8:30AM-2:03PM	-
	To Hopewell Jct/Wappinger	9:20AM-3:55PM	9:20AM-3:00PM	-
LOOP 3B	To Galleria	8:15AM-9:15PM	8:15AM-9:15PM	-
	To Beacon	8:15AM-9:15PM	8:15AM-9:15PM	-
LOOP 4	To Hopewell Junction	7:15AM-5:15PM	-	-
	To Dutchess Mall	6:45AM-4:45PM	-	-
LOOP 5	To Apple Valley	7:45AM-5:35PM	9:45AM-5:35PM	-
	To Poughkeepsie	7:15AM-4:45PM	9:15AM-4:45PM	-
LOOP 6	To Galleria	-	10:15AM-3:00PM	-
	To Poughkeepsie	-	11:15AM-4:05PM	-
LOOP 7	To Pine Plains	6:30AM-5:15PM	6:30AM-5:15PM	-
	To Poughkeepsie	7:45AM-4:03PM	7:45AM-4:03PM	-
LOOP 8	To Millerton Square	8:45AM-11:05AM	9:25AM-11:53AM	-
	To Poughkeepsie	12:25PM-2:45PM	3:37PM-5:58PM	-
LOOP 9	To Millerton Square	5:10AM-7:15PM	-	-
	To LaGrange	6:05AM-8:15PM	-	-
LOOP 10	To Wassaic	5:50AM-10:50PM	5:50AM-10:50AM	5:50AM-10:50AM
	To Poughkeepsie	7:15AM-12:40PM	7:10AM-12:40PM	7:10AM-12:40PM
LOOP 11	To Pawling	4:42AM-5:30PM	-	-
	To Poughkeepsie/ Marist	5:40AM-6:00PM	-	-
LOOP 13	To Poughkeepsie/ Galleria	7:17AM-8:15AM	7:32AM-8:45AM	-
Beacon	To Downtown Beacon	-	1:20PM-8:10AM	1:20PM-8:10AM
	To Train Station	-	1:35PM-8:20PM	1:35PM-8:20PM
<b>Express Routes</b>				
9G/NW	To LaGrange - ARC	7:45AM-9:10AM	-	-
	To Poughkeepsie	2:10PM-3:45PM	-	-
9G#2	To Oakley Street	9:55AM-10:10AM	-	-
Southwest	To LaGrange - ARC	7:30AM-9:17AM	-	-
	To Poughkeepsie	3:02PM-4:23PM	-	-
Beacon	To Poughkeepsie	7:40AM-8:20AM	-	-

Route	Direction	Weekday	Saturday	Sunday
	To Dutchess Mall	5:15PM-6:30PM	-	-
<b>Express Routes (Continued)</b>				
Special K	To Poughkeepsie ARC	7:45AM-8:05AM	-	-
	To Downtown Poughkeepsie	3:00PM-3:30PM	-	-
HR	To Downtown Poughkeepsie	7:32AM-7:45PM	-	-
A	To Tivoli	5:45AM-6:15PM	-	-
	To Poughkeepsie	6:45AM-7:15PM	-	-
B	To Beacon	6:05AM-5:15PM	-	-
	To Poughkeepsie	6:45AM-5:45PM	-	-
C	To Poughkeepsie	-	9:25AM-2:30PM	-
	To Millbrook	-	12:35PM-2:00PM	-
L	To Harlem Valley	6:10AM-7:05AM	-	-
	To Poughkeepsie	4:10PM-5:10PM	-	-
N	To Poughkeepsie	7:10AM-8:45AM	-	-
	To Harlem Valley	2:45PM-4:09PM	-	-
<b>Commuter Train Connection</b>				
Hyde Park	To Poughkeepsie Station	4:30AM-7:03AM	-	-
	To Hyde Park	5:57PM-9:08PM	-	-
Apple Valley	To Poughkeepsie Station	4:33AM-7:03AM	-	-
	To Apple Valley	5:57PM-9:05PM	-	-
New Hamburg	To New Hamburg Station	4:49AM-7:14AM	-	-
	To Galleria Mall	5:41PM-8:38PM	-	-
Beacon	To Beacon Station	5:13AM-8:00AM	-	-
	To Dutchess County Transportation Center	5:35PM-8:23PM	-	-

**Table 1.15**  
**LOOP Frequency of Service (2008)**

Frequency represents average headway in minutes; trips represent round trips

Route	Weekday								Saturday	
	AM Peak 6AM-9AM		Midday 9AM-3PM		PM Peak 3PM-6PM		Evening After 6PM			
	Trips	Frequ	Trips	Frequ	Trips	Frequ	Trips	Frequ	Trips	Frequ.
<b>Regular Routes</b>										
LOOP 1	1	120	2	180	1	120	-	-	4	150
LOOP 2	3	45	6	60	5	30	4	75	14	60
LOOP 3	1	60	6	60	4	60	3	90	12	60
LOOP 3A	1	90	2	180	-	-	-	-	3	140
LOOP 3B	1	60	6	60	2	60	4	60	9	60
LOOP 4	2	60	2	190	1	150	-	-	-	-
LOOP 5	3	40	3	160	1	120	-	-	4	110
LOOP 6	-	-	-	-	-	-	-	-	3	120
LOOP 7	1	180	1	300	1	360	-	-	3	300
LOOP 8	0.5	210	0.5	210	-	-	-	-	1	NA
LOOP 9	1	600	1	390	1	390	-	-	-	-
LOOP 10	1	480	1	480	-	-	1	480	3*	480
LOOP 11	1	480	-	-	1	480	-	-		
LOOP 13	2	15	-	-	-	-	-	-	2	15
Beacon Shuttle	-	-	-	-	-	-	-	-	13*	32
<b>Express Routes</b>										
9G/NW	0.5	-	-	-	0.5	-	-	-	-	-
9G #2	0.5	-	-	-	-	-	-	-	-	-
Swest	0.5	NA	-	-	0.5	NA	-	-	-	-
Beacon	0.5	-	-	-	0.5	-	-	-	-	-
Spec. K	0.5	-	-	-	0.5	-	-	-	-	-
HR	0.5	NA	-	-	-	-	-	-	-	-
A	2	60	-	-	2	30	-	-	-	-
B	0.5	NA	-	-	0.5	NA	-	-	-	-
C	-	-	-	-	-	-	-	-	1.5	270
L	0.5	NA	-	-	0.5	NA	-	-	-	-
N	0.5	NA	-	-	0.5	NA	-	-	-	-
<b>Commuter Train Connection**</b>										
Hyde Park	5	28	-	-	7	28	-	-	-	-
Apple Valley	5	29	-	-	7	26	-	-	-	-
New Hamburg	5	31	-	-	6	30	-	-	-	-
Beacon	6	31	-	-	6	31	-	-	-	-

\* Also reflects Sunday schedule

\*\* All CTC trips scheduled to meet AM departing trains are considered to be in the AM Peak period. All trips scheduled to meet PM arriving trains are considered to be in the PM Peak.

**Table 1.16  
 Weekday Level of Service by Municipality (2008)**

Municipality	Served by Routes	Arrivals/Departures		Number of Daily Trips	Average Effective Frequency
		First	Last		
<b>Cities</b>					
Beacon	3, 3B, B, SW, 41 CTC, Beacon Express	5:10A	10:15P	37	30
Poughkeepsie	1, 2, 5, 7, 8, 9, 10, 11, 13, A, B, L, N, SW, 9G-NW, 9G#2, Beacon Express, K, HR Apple Valley CTC, Hyde ParkCTC,	4:45A	10:15P	64	20
<b>Towns</b>					
Amenia	8, 9	5:50A	7:30P	4	180
Beekman	8, 11, N	5:30A	5:40P	4	180
Clinton	7	7:15A	4:35P	3	180
Dover	8, 9, 10, 11, L, N	6:30AM	6:50P	10	75
East Fishkill	3A, 4, B	6:45A	5:15P	8	75
Fishkill	3, 3B, 4, B, SW, Beacon Express, Beacon CTC	7:05A	9:00P	44	20
Hyde Park	1, 2, 7, A, 9G-NW, Hyde Park CTC	4:30AM	9:00P	25	40
LaGrange	5, 8, 9, 11, 13, K, N, 21/22 CTC	4:30A	9:00P	18	60
Milan	No Fixed Route Services				
North East	8, 9	6:05A	7:15P	4	210
Pawling	8, 11, N	5:40A	5:30P	4	180
Pine Plains	7	6:30A	4:05P	3	180
Pleasant Valley	5, 7, 9, 10, ,11, L	5:25A	7:55P	16	60
Poughkeepsie	1, 2, 3, 3A, 3B, 5, 7, 8, 9, 10, 11, 13, B, K, L, N, SW, 9G-NW, Apple Valley CTC, Hyde Park CTC, New Hamburg CTC	4:45AM	9:50P	93	10

Municipality	Served by Routes	Arrivals/Departures		Number of Daily Trips	Average Effective Frequency
		First	Last		
Red Hook	1, A	6:25AM	6:25PM	7	90
Rhinebeck	1, A	6:15AM	6:35PM	8	90
Stanford	7	6:45A	4:20PM	3	190
Union Vale	5, 8, 11, N	5:25A	5:45P	6	120
Wappinger	3, 3A, 3B, B, SW, Beacon Exp, 31/32 CTC	6:30A	9:00P	40	22
Washington	5, 9, 10, 11, L	5:30A	6:10P	13	60

**LOOP Fare Structure**

Due to the types of service offered, LOOP utilizes a comprehensive fare structure. The full standard single trip fare is \$1.00. This applies to all LOOP services including CTC routes. Senior citizens, children between the ages of 6 and 11, persons with disabilities, and persons with Medicare cards ride for \$0.50. Children under the age of 6 ride for free. These are all consistent with the City Bus fare structure. LOOP’s fare structure does not include transfers. Therefore, persons that need to ride more than a single bus to complete their one-way trip must pay an additional base fare. LOOP does accept transfer tickets sold on City Bus routes with some limitations.

LOOP’s fare structure is also zone based. For trips of a certain length, passengers on LOOP routes are assessed a zone charge which is equal to the applicable base fare for the passenger.

LOOP’s fare structure also includes various multi-ride pass instruments. These include a Monthly Ride-Anytime pass which allows unlimited riding on all LOOP services, and a Monthly Commuter Pass which allows for unlimited riding between the hours of 4:00 AM and 9:00 AM, as well as between 3:00 PM and 7:00 PM. These passes are accepted on City Bus routes. Dutchess County reimburses City Bus for these trips. A Day Pass is also available for the Beacon Shuttle allowing unlimited rides for one day. Lastly, the fare structure includes monthly and weekly Uniticket passes which allow passengers to ride both the Metro-North commuter rail service as well as the CTC bus routes.

Table 1.17 lists each fare type, the cost, as well as the percent of annual ridership accounted for by that fare type. The full, standard cash fare accounted for 61.9 percent of passenger trips in 2006. LOOP’s two monthly passes accounted for 8.2 percent combined, with the Commuter Pass only accounting for 0.1 percent. Unitickets only accounted for 0.5 percent of all rides throughout the year. However, Uniticket pass usage accounted for 18.5 percent of CTC ridership during the months when the Uniticket passes were available.

**Table 1.17**  
**LOOP Fare Structure**

Fare Category	Amount	Percent of Annual Riders
Single One-Way		
Standard Fare	\$1.00	61.9
Senior Citizen/Disabled	\$0.50	10.7
Medicaid Card Holders	\$0.50	0.5
Students	\$0.50	7.8
Child (Ages 6 to 11)	\$0.50	1.3
Child under 6	Free	3.1
Zone Charge	Applicable Single Zone Fare	-
Multi-Ride Passes		
Monthly Ride-Anytime	\$52.00	8.1
Monthly Commuter	\$35.00	0.1
Beacon Shuttle All-Day Pass	\$2.00	-
CTC		
Single CTC Ride Fare	\$1.00	Included in Standard Fare
Monthly Poughkeepsie Uni-Ticket	\$367.00	0.5
Weekly Poughkeepsie Uni-Ticket	\$117.00	
Monthly New Hamburg Uni-Ticket	\$336.00	
Weekly New Hamburg Uni-Ticket	\$107.00	
Monthly Beacon Uni-Ticket	\$331.00	
Weekly Beacon Uni-Ticket	\$107.00	
Other Fare Arrangements	-	6.0

- Relevant Issues** - In terms of service coordination, LOOP's fare structure provides some advantages. First, the single ride fares are consistent with the City Bus fare structure. Also, there is some existing fare reciprocity in that LOOP accepts transfer tickets from City Bus routes under certain circumstances, and City Bus accepts LOOP monthly passes. It is anticipated that service recommendations resulting from this study will be designed to make the most effective use of the resources of both LOOP and City Bus to provide the most convenient service to the passenger. This may require expanded reciprocal fare arrangements such as joint passes or other policy modifications. Again, it should be noted that the current public timetables for the two systems do not describe the existing reciprocal fare arrangements.

Another issue is the advisability of the zone based fare structure. Zone based fare structures are common for systems with large service areas. This type of structure provides an element of equity in that passengers traveling longer distances are required to pay a higher fare. Drawbacks to the zone based structure include the additional complexity, administrative burden, and disincentives to ride created by the

policy. These must be considered in comparison to the amount of additional revenue generated through the zone charges.

Other relevant observations regarding LOOP's fare structure include the fact that LOOP monthly passes, the Ride Anytime and the Commuter passes only account for 8.2 percent of all passenger trips combined. Typically, pass ridership accounts for 20 to 40 percent of all riders on transit systems, and higher at some systems. Two observations can be made from this figures. First, this could indicate that most LOOP passengers are not daily riders and are not using the service for work purposes. Second, it may indicate that the passes are overpriced. Typically, monthly pass pricing assumes that a passenger will make two trips each day over 21 working days in a month, for a total of 42 trips. Most systems then provide a 20 percent discount over the base cash fare for 42 rides. That would be approximately \$34 for LOOP given the \$1.00 base cash fare. At \$52.00, the rider is actually paying more than if they paid the cash fare for each trip.

The pricing may assume that riders are transferring to make their trip, and therefore, the pass does provide a discount. To assess the accuracy of that assumption, it will be necessary to review the results of the rider survey being performed as part of this study effort. The rider survey asks riders if they transferred from another LOOP vehicle. If only a small percentage of LOOP riders transfer, the Ride Anytime pass is overpriced and is only useful to that particular group of riders. At 0.1 percent of all riders, the Commuter Pass is not addressing an existing market and should be modified, or possibly eliminated to simplify the fare structure.

As noted, Unitickets made up 18 percent of the CTC ridership for the months during which the passes were available. The monthly Uniticket pass is priced at \$10 to \$13 more than the train pass. Over 21 working days in a month, this would render an effective fare of \$0.24 to \$0.31 for each CTC bus ride. This represents a 69 to 76 percent discount off of the base cash fare. The fact that only 18 percent of the CTC riders make use of this pass suggests that a significant portion of the CTC riders may not be daily commuters. This may effect the types of services that are recommended to address this market as well as the fare media that should be used to attract ridership. The bus rider survey conducted as part of this study effort will provide information regarding the frequency of riding by CTC passengers. If a significant amount of CTC riders are daily users, this lower level of pass usage may indicate an issue regarding general awareness of the availability of the pass.

## LOOP Operating and Financial Trends

As with the City Bus trend analysis; operating, ridership, and financial information was tabulated for LOOP for the last five years (2002 to 2006). Again, the source of information was the National Transit Database reports submitted by LOOP annually to the FTA. This section provides a review of the noteworthy points from this review.

- **Operating and Productivity Trends** - Table 1.18 provides an overview of the five year operating and productivity trends for LOOP. The examination of the five year operating trends shows that the level of service, measured in vehicle hours, is 9.0 percent lower in 2006 than in 2002. However, vehicle hours reached a peak of 68,350 vehicle hours in 2004, approximately 9.7 percent higher than in 2006. While the number of vehicle hours has fluctuated over the five year period, figures for each year are within ten percent of all other years in the period. This indicates a relatively stable level of service throughout the period. Another indicator of a stable service level is the fact that the number of peak vehicles operated by LOOP has remained at 26 throughout the period.

The one measure that has shown significant fluctuation over the past five years is ridership. According to the NTD reports, LOOP provided 663,010 passenger trips in 2006. This is 29.3 percent lower than the 938,380 passenger trips reported for 2002. The most significant change came between 2003 and 2004, when ridership decreased from 918,880 to 654,930. This drop in ridership cannot be explained by a reduction in service or a significant fare increase. It is possible that the 2004 through 2006 ridership numbers represent the results of more accurate data gathering and computation procedures than those of the earlier years.

In consideration of this observation, it can be noted that ridership was higher in 2006 than in 2004. Also, productivity reached 10.7 passengers per vehicle hour in 2006. This was the highest level for the three years of 2004 to 2006.

- **Financial Performance Trends** - Table 1.19 shows that operating costs for LOOP increased by approximately 26.5 percent over the five year period. During the same period, revenue from passengers increased by 6.0 percent. With growth in costs outpacing growth in revenue, the farebox recovery of the bus system declined from 13.5 percent in 2002 to 11.3 percent in 2006. However, an accurate analysis of the financial trend of the bus mode at LOOP cannot be performed. This is due to the fact that LOOP does not track operating costs by mode. Total operating costs are allocated to the bus mode and the demand response mode on a percentage basis. Each year, approximately 59 percent of total system operating costs are allocated to the bus mode while 41 percent are allocated to demand response. This is demonstrated in Table 21. The table shows that the operating costs of both modes increased by 26.5 percent over the period. This does not mirror the trend in the transit industry where, typically, demand response operating costs are rising faster than costs for bus (fixed route) due to increased demand and the complexity of trips being provided on demand responsive services.

Table 1.20 provides an overview of financial performance on a per unit basis. The operating cost and deficit per unit figures are all affected by the accounting procedure described above. The revenue per unit figures do provide some insight into the financial performance of the bus mode. Revenue per vehicle mile and vehicle hour have been steadily increasing. This suggests that the services are becoming more financially productive. The revenue per passenger figures are affected by the significant change in ridership between 2003 and 2004. One noteworthy point is that revenue per passenger has increased between 2004 and 2006, another indicator of improving financial productivity.

- **Relevant Issues** - The trends in operating statistics (i.e., vehicle hours and vehicle miles) and productivity suggest that over the past five years, LOOP has remained relatively stable. The system has operated 26 peak vehicles, and between 61,000 and 68,000 vehicle hours each year of the period. While this does represent a stable condition, this trend also indicates that some changes have been made to the system over the period including service eliminations and additions. The effect of these changes will need to be assessed as part of this current planning process.

Another noteworthy trend is the fact that over the past three years, LOOP service has become more productive in terms of the number of passenger trips per vehicle hour, as well as more financially productive in terms of revenue generated per vehicle hour, vehicle mile, and passenger trip. This indicates that any service expansion the may emerge from the recommended service improvements will not have as significant an affect on overall deficit as if this trend were declining. Recommendations should also be aimed at continuing these trends. LOOP should also examine changes to its cost allocation practices to allow for more accurate financial performance analyses by mode in the future.

**Table 1.18**  
**LOOP Operating Statistics and Productivity**

Item	2002	2003	2004	2005	2006
Vehicle Miles	1,362,270	1,292,200	1,219,520	1,223,460	1,185,280
Vehicle Hours	67,790	64,530	68,350	66,040	61,680
Peak Vehicles	26	26	26	26	26
Ridership	938,380	919,880	654,930	668,710	663,010
Passengers/Hour	13.8	14.3	9.6	10.1	10.7
Passengers/Mile	0.69	0.71	0.54	0.55	0.56

**Table 1.19**  
**LOOP Financial Results**

Item	2002	2003	2004	2005	2006
Operating Cost (\$)	2,397,260	2,541,220	2,637,230	2,893,740	3,033,800
Revenue (\$)	323,030	303,160	306,560	307,930	342,340
Deficit (\$)	2,074,230	2,238,060	2,330,670	2,585,810	2,691,460
Farebox Recovery (%)	13.5	11.9	11.6	10.6	11.3

**Table 1.20**  
**LOOP Financial Measures**

Item	2002	2003	2004	2005	2006
<b>Financial Results Per Vehicle Hour</b>					
Operating Cost (\$)	35.36	39.38	38.58	43.82	49.18
Revenue (\$)	4.77	4.70	4.49	4.66	5.55
Deficit (\$)	30.60	34.68	34.10	39.16	43.63
<b>Financial Results Per Vehicle Mile</b>					
Operating Cost (\$)	1.76	1.97	2.16	2.37	2.56
Revenue (\$)	0.24	0.23	0.25	0.25	0.29
Deficit (\$)	1.52	1.73	1.91	2.11	2.27
<b>Financial Results Per Passenger</b>					
Operating Cost (\$)	2.55	2.76	4.03	4.33	4.58
Revenue (\$)	0.34	0.33	0.47	0.46	0.52
Deficit (\$)	2.21	2.43	3.56	3.87	4.06

**Table 1.21**  
**LOOP Financial Results (Dollars) By Mode**

Item	2002	2003	2004	2005	2006
<b>Operating Costs</b>					
Bus	2,397,260	2,541,220	2,637,230	2,893,740	3,033,800
Demand Responsive	1,637,260	1,757,670	1,813,350	1,993,820	2,068,870
Total	4,034,520	4,298,890	4,450,580	4,887,560	5,102,670
<b>Revenue</b>					
Bus	323,030	303,160	306,560	307,930	342,340
Demand Responsive	253,810	238,200	240,870	241,930	268,980
Miscellaneous	177,180	215,580	234,090	236,430	209,750
Total	754,020	756,940	781,520	786,290	821,070
<b>Deficit</b>	3,280,500	3,541,950	3,669,060	4,101,270	4,281,600

**LOOP Funding**

The concluding portion of the trend analysis for LOOP is the funding framework. This section provides an overview of the five year funding trends.

- Operating Costs** - Table 1.22 provides a breakdown of how the operating deficit of LOOP’s bus (fixed route) and demand response system has been funded over the past five years. Funding provided by local, state, and federal sources has fluctuated over the period. The most noteworthy change is the amount of local funding provided to cover the operating deficit of the system. Local funding has increased by 122 percent between 2002 and 2006. This represents an increase of approximately \$980,000 in annual funding. Local funding has also increased as a percent of total operating funding, increasing from 24.3 percent in 2002 to 41.4 percent in 2006. Federal funding has remained stable at between 13.0 and 16.0 percent of operating funding. State funding has decreased slightly, declining by 10.5 percent over the period. As a percent, the state’s share of total funding has decreased from 62.3 percent in 2002 to 42.7 percent in 2006.
- Capital Funding** - Table 1.10 shows that funds expended for the capital needs for LOOP have fluctuated from year to year throughout the period. Capital spending reached a high of \$851,970 in 2005 and a low of \$44,420 in 2003. The fluctuation can be attributed to the purchase of transit vehicles made in 2002, 2004, and 2006. The percentage breakdown of how the capital needs of LOOP are funded has remained consistent with federal funds covering 80 percent of the costs, and local and

state funds each covering 10 percent. This is common in the transit industry and is consistent with the parameters of federal capital grant programs.

- **Relevant Issues** - The increase in local funding for the operating deficit between 2002 and 2006 shows a significant local commitment to funding the operation of the system. This suggests a stability in the funding sources since state and Federal funding has also remained stable over the period. Also the local outlays for capital needs over the five year period suggest local commitment to continuous improvement of LOOP. This is especially true when considering that the local TIP includes sufficient funding for continued upgrades of the capital assets of the system. Similar to the observation regarding City Bus, for service planning purposes, these trends indicate that the system is not in a period of contraction due to funding constraints, and that there is potential for service expansion.

**Table 1.22**  
**LOOP Operating and Capital Funding by Source**

Item	2002		2003		2004		2005		2006	
	Amount	%								
Operating Deficit										
Local	795,910	24.3	1,123,210	31.7	1,216,570	33.1	1,507,000	37.5	1,774,090	41.4
State	2,043,590	62.3	1,986,740	56.1	1,910,490	52.1	1,920,910	47.8	1,829,010	42.7
Federal	441,000	13.4	432,000	12.2	542,000	14.8	673,350	14.7	678,500	15.9
Total	3,280,500	100	3,541,950	100	3,669,060	100	4,101,260	100	4,281,600	100
Capital										
Local	49,780	10.0	4,440	10.0	85,200	10.0	8,340	10.0	30,100	10.0
State	49,780	10.0	4,440	10.0	85,200	10.0	8,340	10.0	30,100	10.0
Federal	398,240	80.0	35,540	80.0	681,570	80.0	66,680	80.0	240,790	80.0
Total	497,800	100	44,420	100	851,970	100	83,360	100	300,990	100
Total	3,778,300		3,586,370		4,521,030		4,101,270		4,582,590	

### Intercounty Public Transportation Service Providers

In addition to City Bus and LOOP service, Dutchess County is also served by two railroads, the Metro-North Railroad and Amtrak. In addition, various intercounty bus service operators provide service in Dutchess County, as well as one ferry operator. The ferry service provider, New York Waterway, operates the service under contract with the Metro-North Railroad. These various carriers provide linkages with Westchester, Ulster, and Orange Counties

as well as other parts of the region. These services are listed in Table 1.23. One thing to note about Table 1.23 is the additional regional generators that can be accessed through this network of intercounty services. This includes New York City, White Plains, Stewart Airport, and New Paltz.

Appendix A to this final report document provides a connectivity matrix for these various services as well as City Bus and LOOP. Table A in Appendix A shows various common stops among these services and the arrival/departure times of the routes that serve the location. A review of the table shows that there are various locations that are served by more than one service in Dutchess County. Some locations, such as the Poughkeepsie Train Station or Main and Market in Poughkeepsie, allow for convenient connections between frequently arriving services. Specific service improvements have been implemented over the past several years, such as the implementation of the CTC services, that allows for these types of transfers. As part of this planning process, particular attention will need to be paid to facilitating connections between infrequent services at additional locations such as the Dutchess Mall or Hyde Park. Improved connectivity among these services will maximize the mobility options of Dutchess County residents.

**Table 1.23  
 Intercounty Providers Route Description**

<b>Route</b>	<b>Between</b>	<b>And</b>
<b>Metro-North Railroad</b>		
Hudson Line	Stations at Poughkeepsie, New Hamburg, Beacon	Grand Central Terminal, New York
Harlem Line	Stations at Wassaic, Tenmile River, Dover Plains, Harlem Valley-Wingdale, Appalachian Trail, Pawling	Grand Central Terminal, New York
<b>Amtrak</b>		
Empire	Stations at Poughkeepsie, Rhinecliff-Kingston (Rhinebeck)	New York, Albany, Buffalo, Niagara Falls
Ethan Allen	Stations at Poughkeepsie, Rhinecliff-Kingston (Rhinebeck)	Rutland, Vermont
Adirondack	Stations at Poughkeepsie, Rhinecliff-Kingston (Rhinebeck)	New York, Montreal
Lake Shore Limited	Stations at Poughkeepsie, Rhinecliff-Kingston (Rhinebeck)	New York, Albany, Buffalo, Chicago
Maple Leaf	Stations at Poughkeepsie, Rhinecliff-Kingston (Rhinebeck)	New York, Albany, Buffalo, Toronto
<b>Coach USA</b>		
Poughkeepsie	Rhinebeck	Port Authority Bus Terminal - New York
<b>New York State DOT - Operated under contract by Leprechaun Lines</b>		
Poughkeepsie - White Plains	Poughkeepsie	White Plains
Newburgh-Beacon Shuttle	Beacon Train Station	Stewart Airport
<b>Adirondack Trailways</b>		
Newburg-Kingston	Newburgh	Kingston via Poughkeepsie
<b>Metro-North Railroad - Operated under contract by NY Waterway</b>		
Newburgh-Beacon Ferry	Newburgh - Marine Drive	Beacon Train Station
<b>Ulster County Area Transit</b>		
Ulster-Poughkeepsie LINK	Rosendale Park & Ride	Downtown Poughkeepsie and Poughkeepsie Train Station (Planned)

**Summary**

This chapter documented the transit systems operated by City Bus and LOOP. The service levels of City Bus and LOOP were examined in terms of coverage, frequency and span of service. Also presented was the inventory of major capital items and staff that are used to operate both systems. This report has also documented recent trends in key operating, ridership, and financial statistics as well as performance measures for City Bus and LOOP. The concluding topic was the source of funds used to cover the operating deficit and permit capital

investments. The trend analysis provides an indication of the financial dimensions of both systems, and the sources of funds from local jurisdictions, the State of New York and the federal government. This report also described the services of other private and public transportation providers operating in Dutchess County. These services were described both in terms of coverage as well as connectivity among these intercounty services as well as with the two local transit systems. For each area of analysis, issues relevant to the current planning study were identified and described. Combined, this information provides a baseline and context for future planning activities.



## CHAPTER 2 PLANNING INPUTS

A number of inputs were considered in preparing the program of public transportation options for Dutchess County. They consisted of technical analyses as well as opinions and views of riders and community representatives. These quantitative and qualitative analyses each provided valuable input into the development of service improvement proposals. Together, the findings also allowed for the identification of various unifying themes that acted as central tenets of the proposals overall. Each of these inputs is summarized in this chapter. Comprehensive descriptions of findings have been submitted under separate cover as appendices to this Final Report document.

### **Socioeconomic and Demographic Analysis**

Utilizing U.S. Census data, Dutchess County was described in terms of population concentrations and the characteristics of residents. Of particular interest were communities where transit need was the greatest. The locations of major generators (i.e., major employers, shopping centers, schools and hospitals) were identified, along with the appropriate dimensions. The findings of this analysis were described in the Service Area Characteristics report. The full findings report has been submitted under separate cover as Appendix B to this final report document.

This Service Area Characteristics analysis provides a description of the environment in which Poughkeepsie City Bus and the Dutchess LOOP services are provided. The report discussed both the production and attraction ends of public transportation demand. The production end of demand represents the residential areas that exhibit certain socioeconomic, demographic and land use characteristics. To analyze the production end of demand, the report included an analysis of population and population trends as well as geographic distribution analyses of target populations that typically depend more heavily on public transportation services than the public overall. The attraction end of demand for these services was analyzed through the compilation of an inventory of major generators and planned development which generally attracts public transportation trips.

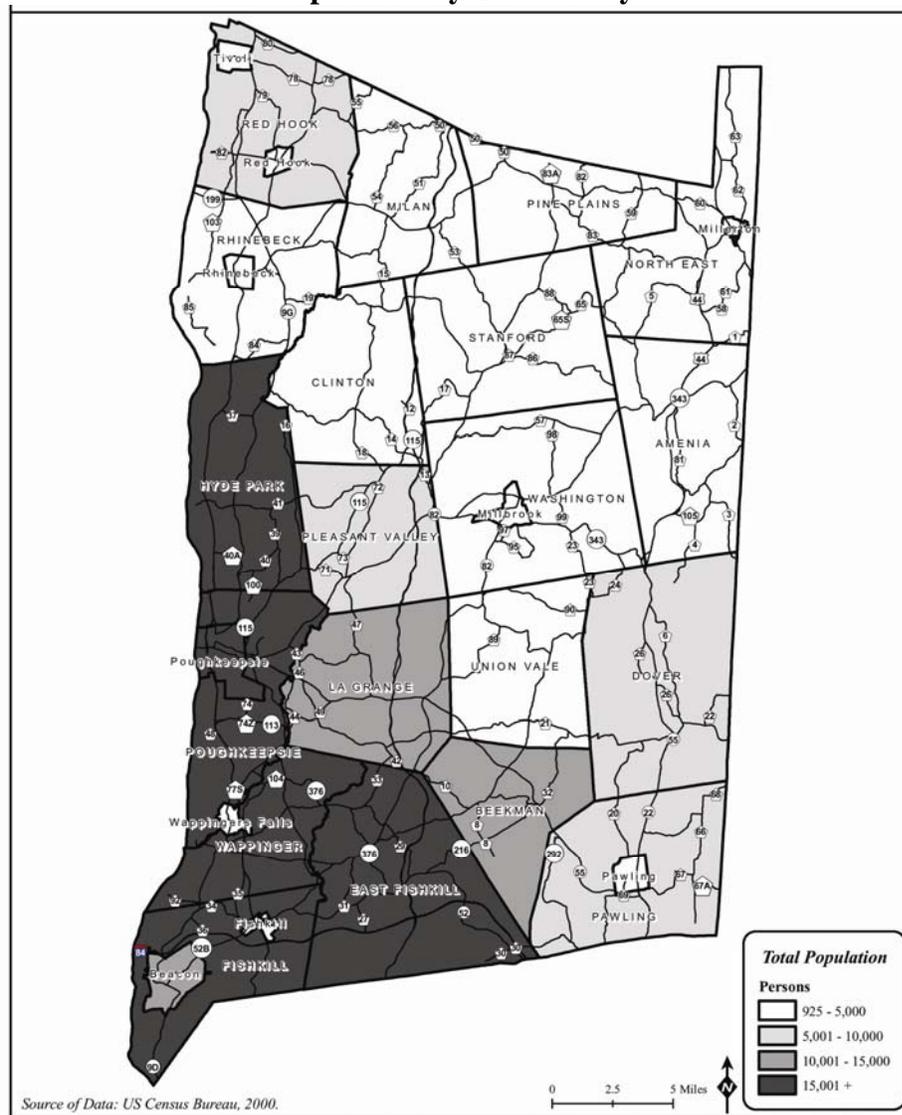
Overall, the findings suggest that the areas with the greatest need and propensity to facilitate transit use exist in the communities along the Route 9 corridor between Hyde Park and Fishkill. This area has been identified as the priority area and corridor for transit service improvements. However, the analysis also showed that transit needs exist in other areas of the county. The following paragraphs provide an explanation as to why the Route 9 corridor between Hyde Park and Fishkill has been identified as a priority, as well as the analysis that was used to identify other needs throughout the county.

**Priority Areas and Corridors** - The analysis of population trends shows that, based on projections, the overall population of the county will increase with the majority of the growth occurring in the municipalities along the Route 9 corridor between Hyde Park and Fishkill and

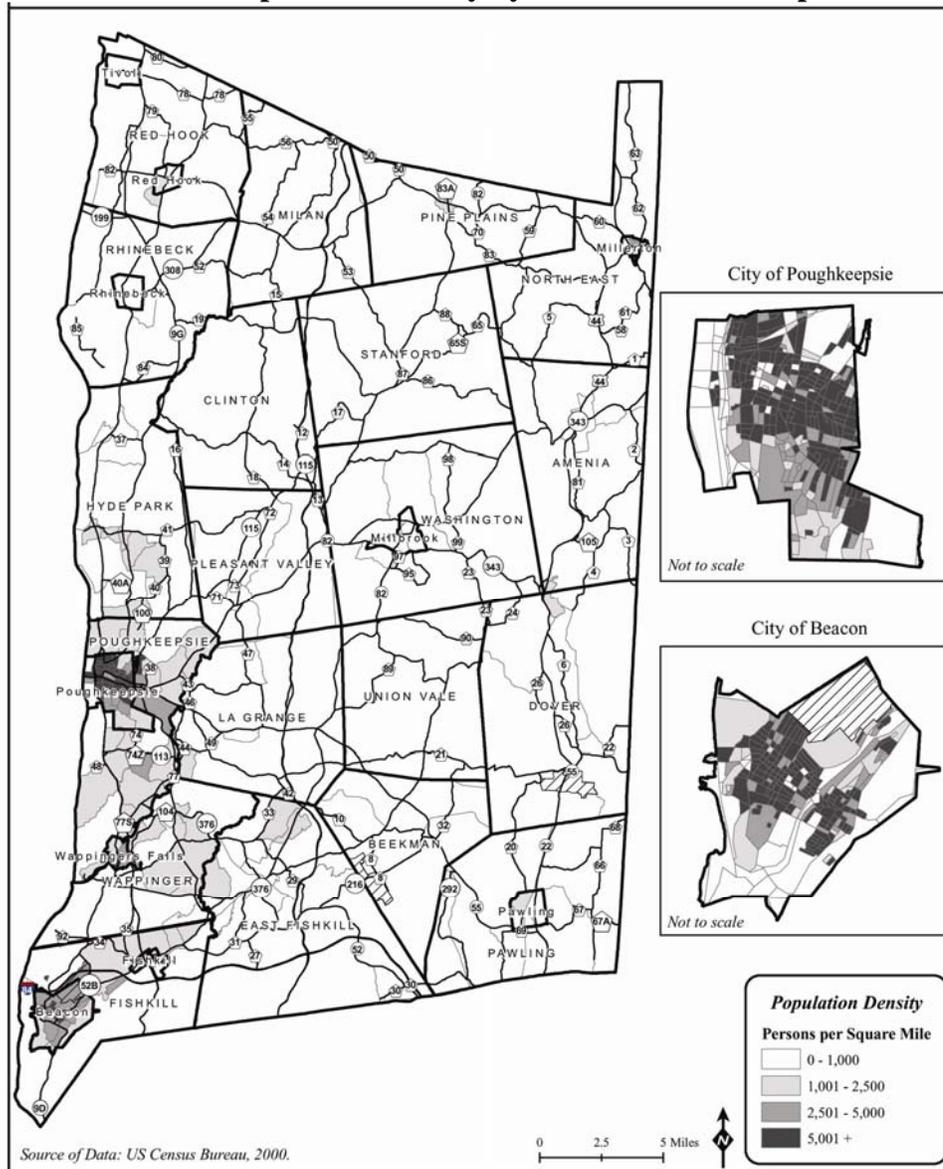
Beacon as well as in the adjacent suburban communities of East Fishkill, LaGrange, Pleasant Valley and Beekman. The analysis indicates that sufficient densities of overall and target populations exist along this corridor between Hyde Park and Fishkill to suggest the use of traditional fixed route services to meet identified needs in the area. The analysis also indicates the areas with the most need for public transportation service currently include, and will continue to include in the near future, the communities along Route 9 between Hyde Park and Fishkill and Beacon as well as the growing suburban communities adjacent to these municipalities including Pleasant Valley, LaGrange, East Fishkill and Beekman.

This is supported by findings shown in Figures 2.1 through 2.4. Figure 2.1 and Figure 2.2 show that the overall population in Dutchess County, as well as the highest population densities, are concentrated along this corridor.

**Figure 2.1**  
**Total Population by Community**



**Figure 2.2**  
**Population Density by Census Block Group**

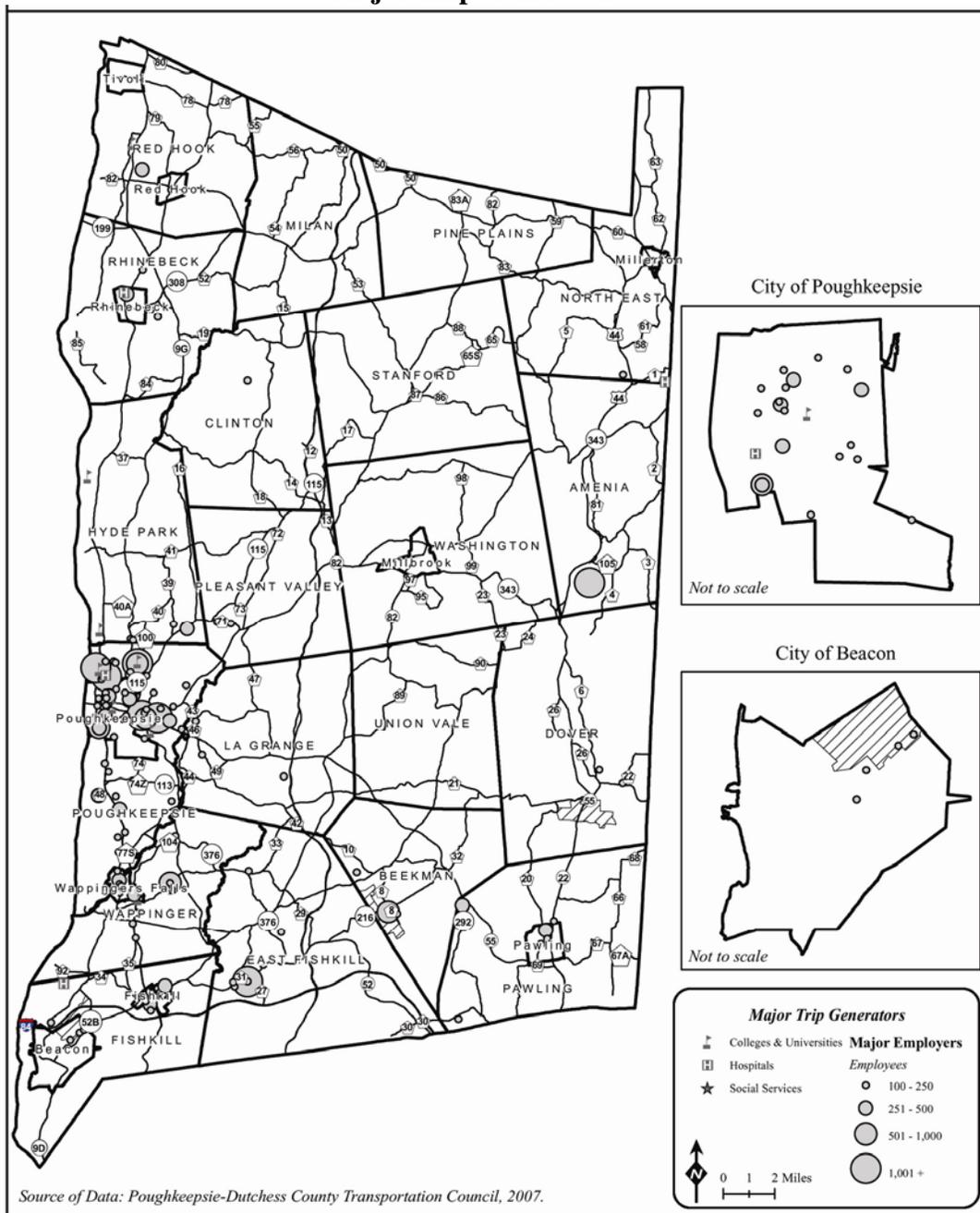


Major trip generators are locations frequented by a significant number of people, traveling by all modes, within the study area. Trip generators include major employers, colleges and universities, hospitals, office complexes and industrial parks and shopping centers. These generators must be considered when evaluating transit service for a region as they comprise a significant portion of the origins and destinations in a transportation network.

Figure 2.3 graphically illustrates the geographical distribution of major trip generators in Dutchess County. Generators such as office complexes, industrial parks, and shopping centers are included in the major employer category on the map in the figure. As Figure 2.3 shows, major employers in Dutchess County are located in the City of Poughkeepsie and Town of

Poughkeepsie as well as along the Route 9 corridor between Hyde Park and Fishkill as well as in Beacon and East Fishkill. There are also 9 major employers located in various spots along the State Highway 22 corridor. The largest employer in Dutchess County (i.e., 5,800 employees) is IBM located in the Town of Poughkeepsie along Route 9. No other companies employ more than 1,200 employees.

**Figure 2.3**  
**Major Trip Generators**



The Route 9 corridor is also the location of the highest densities of labor force. The concentrations of major employers and labor force along this corridor would make it possible to use fixed route solutions to connect labor force with employment sites. Major employers outside of this corridor are not clustered and therefore, employment based transportation services to these employers would need to be site specific.

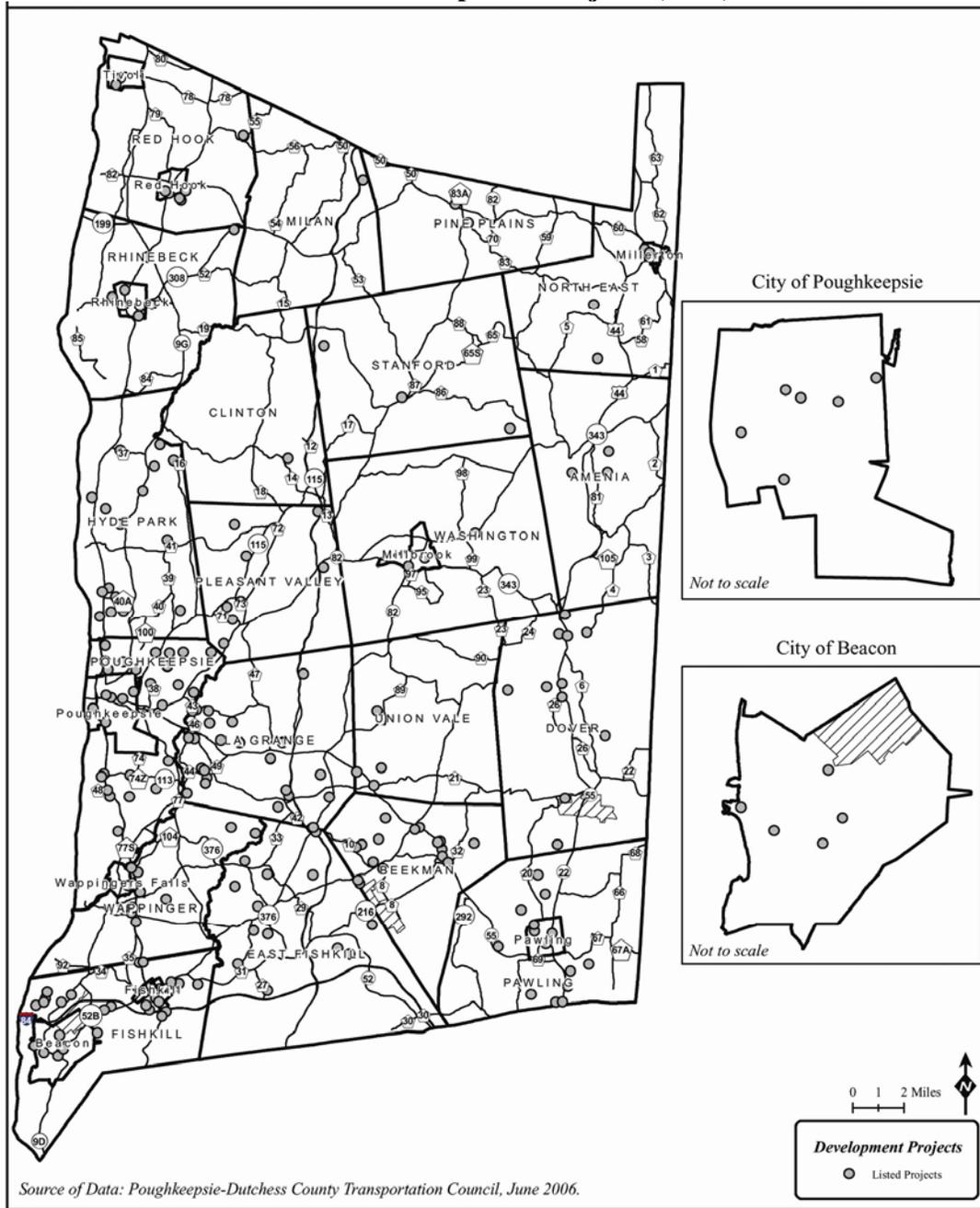
The PDCTC maintains a list of major development projects in the County. The list was most recently updated in June of 2006. Figure 2.4 illustrates the geographical distribution of planned developments from 2006. Some of these developments have been constructed and, due to the current economic conditions, many projects have been cancelled or delayed. However, the figure is included here for demonstrative purposes. That is, it shows the location of where development has been taking place, and where it is likely to continue when demand conditions improve.

The figure depicts a pattern in which the greatest amount of growth has been anticipated for the southern half of the county. However, recent trends showed that there has continued to be steady growth in the northern half of the county as well. The development in the northern portion of the county is nearly all residential where development in the southern half of the county is both residential and non-residential, with the highest rate of growth in the northern half of the county expected in Pine Plains.

Residential development is concentrated in the towns of Dover, East Fishkill, Fishkill, Hyde Park, LaGrange, Pine Plains, and Poughkeepsie, each of which had over 1,000 proposed housing units in 2006, for a combined total of 12,081 units. Recent patterns would suggest that non-residential development will be concentrated in the towns of East Fishkill and Fishkill, which combined for more than 2.5 million square feet of proposed space in 2006. Also, the towns of Dover, Hyde Park, Pawling and Poughkeepsie each had more than 400,000 square feet of non-residential space proposed.

Planned and new development data showed that a high level of residential and non-residential growth has been planned in all communities along the Route 9 corridor between Hyde Park and Fishkill. There was also a high level of planned growth in the adjacent municipalities of Pleasant Valley, East Fishkill, Beekman and LaGrange. This is another indication that the highest need for public transportation services will continue to exist along the Route 9 corridor, but there will be growing needs in the adjacent suburban communities within the planning horizon of this document.

**Figure 2.4  
 Planned Development Projects (2006)**



**Other Public Transportation Needs** - The geographic distribution analyses of senior citizens, youth, persons with disabilities and persons living at or below the poverty level show that these groups are dispersed throughout the county with the highest densities and percent of total population located in the City of Poughkeepsie and Beacon as well as along the Route 9 corridor. While the highest level of need exists in these communities, the analysis also showed that certain target populations exist in sufficient numbers in areas throughout the county

suggesting potential demand for service. Based on the density of population figures, it was observed that more flexible service models may be the most appropriate to meet any identified needs in areas outside of the southwestern portion of the county.

Figure 2.5 shows the results of a needs analysis for each census tract in Dutchess County. The scores depicted in the figure incorporate the overall population and population density as well as the total population and density of various target populations within each census tract. The calculated score is based on the relationship between the measure for the census tract with the minimum and maximum values for the measure among all census tracts in the county. The target populations included in the needs score include seniors, youth, persons with disabilities, low income households, and households with no automobiles. These population groups tend to have a higher propensity to use transit than the population overall.

As Figure 2.5 shows, the areas of highest need based on this analysis of target populations are in the City of Poughkeepsie, the City of Beacon, as well as the southern part of LaGrange. This area of LaGrange scores high due to the level of seniors and persons with disabilities living in the area compared to other tracts in the county. Other areas with elevated levels of need according to the analysis include sections of Wappinger, the Town of Poughkeepsie, and Union Vale. Union Vale scores high due to the high level of both seniors and youth residing in the tract.

It is important to note that the figure shows that transit needs due to target populations are geographically distributed throughout the county. Cross referencing Figure 2.5 with Figure 2.2 provides an indication of where needs exist and the most appropriate model of transit service to meet those needs. In the tracts that exhibited higher levels of population density, as shown in Figure 2.5, fixed route transit solutions could be employed, while in the areas with lower population densities, more flexible, demand responsive models would be appropriate.



Using the assembled data, five procedures were utilized to present a “snapshot” of financial, productivity and other types of performance. Each technique provides a different perspective of gauging route level efficiency and effectiveness. These techniques are summarized below:

- **Cost Centers** - This technique establishes the revenue, cost and resulting deficit of each bus route. Emphasis is placed on farebox recovery, which is the percentage of operating costs that is covered from fares. A major element of this effort is the development of a financial model that relates operating costs to service levels. A three-variable cost allocation model was utilized in which the cost of a bus route was related to vehicle hours, vehicle miles and peak vehicles.
- **Contribution Analysis** - This procedure also places emphasis on the financial results of each bus route. The deficit is examined in terms of both relative amounts (i.e., farebox recovery) and absolute amounts (i.e., each route’s contribution to the system deficit). This method allows each route to be assigned to one of four categories which reflect the route’s performance in each measure and whether it is better or worse than the system average.
- **Strategic Planning** - This analysis procedure gauges route performance for two criteria. The first measure is deficit per passenger, which indicates the extent of route subsidy for each boarding passenger. The second factor is the market share of each route, which has been defined as the ratio of each route’s passengers to the average for the system. Values greater than one denote routes with relatively large market shares, while values lower than one indicate routes with relatively small market shares.
- **Ordinal Ranking** - This bus route evaluation procedure numerically ranks all bus routes from best to worst for seven performance indices. Three measures relate to productivity while another four present deficit relative to operating and passenger statistics. In turn, these results are combined for each group of criteria to arrive at a combined score and overall rank.
- **Supply and Demand Review** - The concluding analytical technique is a review of the relative balance between each route’s supply of service and the resulting performance. The number of weekly bus trips operated is compared to the passengers per hour and farebox recovery. There should be a directly proportional relationship in that routes with better performance have more service while routes that have low performance operate less service.

The discussion above provides a brief summary of each technique that was utilized in the route diagnostics analysis. As noted previously, the results are for a recent one year period that reflects the current route structure and service levels. Several points are worth noting at the outset. First, the techniques are diagnostic in that they indicate the need for more detailed analysis (e.g., a review of the ride check data) to remedy deficiencies and exploit opportunities. Second, they examine route level performance from a variety of perspectives to assure a comprehensive review of efficiency and effectiveness. Finally, the diagnostics review is only

one input to the service development process, since issues such as need and equity must also be considered. Nonetheless, the current analysis provides a timely input to the preparation of service proposals.

In the aggregate, the individual route performance is similar - but not identical - with the different techniques. Generally, the results of the various analyses showed that the highest performing routes include LOOP 2, Express B, LOOP 3, and LOOP 3B. This is to be expected given the fact that these routes all operate in the Route 9 corridor. The worst performing routes include the Northeast Special, Eastern Express, New Hamburg CTC, the Hyde Park CTC, and LOOP 4. The Northeast Special and the Eastern Express were both discontinued in 2006. Therefore, the next two currently operating routes that are consistently among the worst performing services include the 9G- Special Express #2 and LOOP 4. When juxtaposing two performance measures, the New Hamburg CTC and the Hyde Park CTC are the most consistent outliers in terms of under-performance while LOOP 2, LOOP 3B, and Express B are consistent outliers in terms of over-performance.

A similar analysis was prepared for the City Bus system. Generally, the results of the various analyses showed that the highest performing routes include Main Street and Galleria. The worst performing routes include the Northside and Southside routes. The Shopper's Special does not perform well, but the more limited service level restricts the financial burden placed on the overall system by the route. In addition, the Special performs well in terms of productivity and financial burden placed on the system. However, due to the limited nature of the route (one round trip per day), the overall market share of the route (i.e., ridership) is low. When juxtaposing the level of service provided on each route with various performance measures, the Northside and the Southside routes are the most consistent outliers in terms of under-performance while Galleria and the Special are consistent outliers in terms of over-performance. Main Street and Shopper's Special perform at levels that would be expected given the resources devoted to the route.

It is important to note, the procedures are diagnostic in that they provide one input to subsequent service planning steps. Other information, such as that derived from the ride checks, passenger surveys and service area characteristics also influenced service proposals. Other considerations, many of which are non-quantifiable (such as coverage, equity and need) also influenced the development of service improvement proposals. Nonetheless, the range of techniques and the different performance measures facilitate the identification of both deficiencies and opportunities

### **Service Guidelines and Adequacy**

To evaluate the adequacy of the existing fixed route bus service in Dutchess County and to guide any route restructuring and new service proposals, it is necessary to establish a set of transit service guidelines. Initially, these guidelines are used as appropriate standards in assessing the present service. The guidelines suggest minimum thresholds in various areas related to the operation of transit service that will be used to evaluate the adequacy and performance of the current bus systems. In a subsequent phase of the current study, certain

standards would guide the formulation of route improvement proposals to bridge the gap between actual and desired performance. The service standards discussed here also provide the framework for subsequent service monitoring which should be an on-going effort for both LOOP and City Bus.

The development of service standards for Dutchess County was based on several key factors including:

- Suitability to the characteristics of each operator's service territory in terms of its urban, suburban and rural development pattern and the resulting requirements.
- Ease of use in that the parameters defined in each standard permit a straightforward evaluation of actual system performance and set forth clear guidelines for evaluating service alternatives.
- Consideration of the cost implications of each guideline.
- Recognition that there are two operators with their own set of policy and funding issues while promoting a seamless system from the rider's perspective. Certain guidelines must also recognize the need to address other connecting services such as Metro-North or the demand responsive services operated by LOOP.
- Prevailing practice in the transit industry including standards developed in other communities in the greater New York City area.

Several points should be made with respect to the development and subsequent application of the service standards. Reasonable judgment must be used in applying the service standards to assess current fixed route bus service. While the standards are quantitative for the most part, other factors may be considered in making a service change decision. Further, issues related to public policy in terms of funding cannot always be addressed fully by numerical standards. Also, the service standards may conflict with one another since some yardsticks relate to the benefits derived from transit service while others relate to the costs. Nonetheless, the standards permit the tradeoffs to be delineated and an informed decision made to resolve differences.

Another point related to service assessment is that the comparison of actual performance with the standards should not be made on a "pass-fail" basis. Instead, results should be viewed in terms of the proportion of the standard that is met or the level of attainment. Further, the standards have been set at reasonable values to reflect current and prospective operating conditions. Another point regarding the standards is that they represent minimums that should be achieved. This would not preclude either LOOP or City Bus exceeding thresholds that have been established for each criteria. It should be recognized that delineating a service standards policy is a dynamic process. Based on the evaluation of both bus systems, further modifications may be made to define acceptable performance.

One point to note is that the guidelines may vary by service type. In the case of City Bus, all routes are treated as a single category. For LOOP, which has a more diverse service area and service network, service has been categorized in three groups as follows:

- **Urban/Suburban** - These are typically routes that serve the more densely developed portions of Dutchess County such as the U.S. Route 9 corridor and may include local and express routes. Typically, the latter routes include a few trips which are already served by local bus lines.
- **Rural** - Several LOOP routes serve outlying portions of Dutchess County. These routes typically operate along roadways in specific corridors that link freestanding communities. For simplicity, the single Harlem Valley bus line (i.e., LOOP 11) is included in this category.
- **CTC** - LOOP also operates a few bus lines that provide access to Metro-North rail stations. The unique nature of these feeder bus lines suggest that they should be considered as a separate service type.

The set of service guidelines developed for Dutchess County include four major aspects of service:

1. **Service coverage** – guidelines that establish where and when services should operate.
2. **Patron convenience** – these are guidelines regarding how passengers access the system and the overall quality of their ride.
3. **Fiscal condition** – guidelines which establish system-wide and route level performance parameters.
4. **Passenger comfort** – guidelines regarding the rider’s overall experience using the transit system.

More than a dozen separate service guidelines within the four broad categories have been specified. The guidelines for each system are summarized in Table 2.1 and Table 2.2.

**Table 2.1  
Summary of LOOP Service Guidelines**

Category	Guideline		
<b>Service Coverage</b>			
Availability	Production End - See Table 2.3		
	Attraction End - Service should be afforded to: Employers with 500+ employees in one location; Shopping Centers with 125,000+ Square Feet; Colleges/Universities with 500+ Full-Time Students; Hospitals with 150+ Beds; Social Services/Government Centers with 150+ Visitors/Clients per day		
Frequency of Service	<i>Weekday Peak</i>	<i>Weekday Off-Peak</i>	<i>Saturday</i>
	60	60	60
Span of Service	<i>Weekday</i>		<i>Saturday</i>
	7:00AM-7:00PM		8:00AM-6:00PM
Route Directness	Directness Ratio: Ratio of route distance to straight air line should not exceed 1.70		
	Transfer Rate: less than 25% of passengers should have to transfer to complete their trip		
<b>Patron Convenience</b>			
Travel Speed	Buses should have an overall average operating speed of 9-15 mph		
Loading	<i>Peak</i>	<i>Off-Peak</i>	
	Figures as a % of seated capacity of the vehicle		
	Urban/Suburban – 115% Rural – 100% CTC – 115%	All – 100%	
Bus Stop Spacing	<i>Urban</i>	<i>Suburban</i>	<i>Rural</i>
	7-8 Stops/Mile; Spacing: 660-754 ft	4-6 Stops/Mile; Spacing: 880-1,320 ft	2-3 Stops/Mile; Spacing: 1,760-2,640 ft
Dependability	On-Time Performance	<i>Routes with headway of 60 minutes or less</i>	<i>Routes with headway over 60 minutes</i>
		Peak - 90%; Off-Peak - 95%	Peak - 95%; Off-Peak - 95%
	Missed Trips	99.8%	
	Pull-Outs	99.9%	
	Miles per Road Call	4,000-6,000 Miles	
<b>Fiscal Condition</b>			
Fare Structure	6 qualitative criteria: equity, administrative ease, patron comprehension, connectivity, revenue generation, fiscal integrity		
Farebox Recovery	System-wide Target: 12.4% Farebox Recovery Ratio Route Category Targets: Urban/Suburban – 15%; Rural – 4.0%; CTC – 4.0%		
	<i>Route Performance Rating</i>	<i>% of Route Category Target</i>	
	Successful	Over 80%	
	Acceptable	60%-80%	
	Problem	Under 60%	
Productivity	System-wide Target: 11.0 passengers per vehicle hour Route Category Targets: Urban/Suburban - 14.0; Rural – 4.0; CTC – 4.0		
	<i>Route Performance Rating</i>	<i>% of Route Category Target</i>	
	Successful	Over 80%	
	Acceptable	60%-80%	

Category	Guideline	
	Problem	Under 60%
<b>Passenger Comfort</b>		
Waiting Shelters	Passenger Criteria	Bus stops with 25+ boardings/day should be afforded a bus waiting shelter; bus stops with 15+ boardings/day should be afforded benches
	Dimensions/Attributes	Bus waiting shelters should be 50 square feet and enclosed with benches and service info
Bus Stop Signs	All bus stops should be marked with uniform bus stop signs with City Bus logo, route #, telephone #, and web page address; route # of the route(s) serving the stop is advisable	
Revenue Equipment	Buses should be clean and comfortable with little or no damage in or on the vehicle. Route designation signs should be in the front of the bus.	
Public Information	Timetables should be available at no cost for each route as well as a system map containing all of the routes. Info should be available on all buses. Public info should be available at all major activity centers. Route/system maps should be displayed at each bus shelter along with specific departure times. Info should be available by phone during service hours and online. A complaint collecting and processing procedure should be in place.	

**Table 2.2**  
**Summary of City Bus Service Guidelines**

Category	Guideline		
<b>Service Coverage</b>			
Availability	Production End - See Table 2.3		
	Attraction End - Service should be afforded to: Employers with 500+ employees in one location; Shopping Centers with 125,000+ Square Feet; Colleges/Universities with 500+ Full-Time Students; Hospitals with 150+ Beds; Social Services/Government Centers with 150+ Visitors/Clients per day		
Frequency of Service	<i>Weekday Peak</i>	<i>Weekday Off-Peak</i>	<i>Saturday</i>
	60	60	60
Span of Service	<i>Weekday</i>		<i>Saturday</i>
	7:00AM-7:00PM		8:00AM-6:00PM
Route Directness	Directness Ratio: Ratio of route distance to straight air line should not exceed 1.70		
	Transfer Rate: less than 25% of passengers should have to transfer to complete their trip		
<b>Patron Convenience</b>			
Travel Speed	Buses should have an overall average operating speed of 9-15 mph		
Loading	<i>Peak</i>		<i>Off-Peak</i>
	Loads should not exceed 115% of seated capacity of vehicle		Loads should not exceed 100% of seated capacity of vehicle
Bus Stop Spacing	<i>Urban</i>	<i>Suburban</i>	<i>Rural</i>
	7-8 Stops/Mile; Spacing: 660-754 ft	4-6 Stops/Mile; Spacing: 880-1,320 ft	2-3 Stops/Mile; Spacing: 1,760-2,640 ft
Dependability	On-Time Performance	<i>Routes with headway of 60 minutes or less</i>	<i>Routes with headway over 60 minutes</i>
		Peak - 90%; Off-Peak - 95%	Peak - 95%; Off-Peak - 95%
	Missed Trips	99.8%	
	Pull-Outs	99.9%	
	Miles per Road Call	4,000-6,000 Miles	
<b>Fiscal Condition</b>			
Fare Structure	6 qualitative criteria: equity, administrative ease, patron comprehension, connectivity, revenue generation, fiscal integrity		
Farebox Recovery	System-wide Target: 20.2% Farebox Recovery Ratio		
	<i>Route Performance Rating</i>	<i>% of System-wide Target</i>	
	Successful	Over 80% or 16.2%+	
	Acceptable	60%-80% or 12.1% to 16.1%	
Problem	Under 60% or under 12.1%		
Productivity	System-wide Target: 22.0 Passengers per Vehicle Hour		
	<i>Route Performance Rating</i>	<i>% of System-wide Target</i>	
	Successful	Over 80% or 17.6+	
	Acceptable	60%-80% or 13.2 to 17.5	
	Problem	Under 60% or under 13.2	
<b>Passenger Comfort</b>			
Waiting Shelters	Passenger Criteria	Bus stops with 25+ boardings/day should be afforded a bus waiting shelter; bus stops with 15+ boardings/day should be afforded benches	
	Dimensions/Attributes	Bus waiting shelters should be 50 square feet and	

Category	Guideline
	enclosed with benches and service info
Bus Stop Signs	All bus stops should be marked with uniform bus stop signs with City Bus logo, route #, telephone #, and web page address; route # of the route(s) serving the stop is advisable
Revenue Equipment	Buses should be clean and comfortable with little or no damage in or on the vehicle. Route designation signs should be in the front of the bus.
Public Information	Timetables should be available at no cost for each route as well as a system map containing all of the routes. Info should be available on all buses. Public info should be available at all major activity centers. Route/system maps should be displayed at each bus shelter along with specific departure times. Info should be available by phone during service hours and online. A complaint collecting and processing procedure should be in place.

As noted in Tables 2.1 and 2.2, the service guidelines establish a production end coverage standard which allows for the determination of which residential neighborhoods should be candidates for service. This is a function of the distance people are willing to walk to access transit. Repeated surveys have shown that the maximum distance an average person can reside from a bus route and still consider oneself to “have service” is approximately one quarter of a mile, or about 1,300 feet. However, this rule of thumb must be applied in conjunction with data regarding auto ownership rates and the population density of an area to determine optimum spacing of bus routes. Table 2.3 indicates the route coverage standard suggested for Dutchess County based on auto ownership and population density. The former criterion reflects the need for public transportation service while the latter measures the concentration of development necessary to support reasonable utilization levels.

The suggested standard would require a 1,300 feet (one-quarter of a mile) walking distance between a rider’s home and the closest route in high density and low auto ownership areas. In contrast, for those areas where residential density is relatively low and auto ownership relatively high, routes can be spaced farther apart while still meeting the standard. These standards apply where the percentage of households without autos and the population density are sufficient to justify such "specified" transit coverage. In areas that do not exhibit characteristics associated with the need or propensity to use transit, the standard permits limited or no service.

**Table 2.3  
Transit Route Spacing Guide (Distance to Nearest Bus Route)**

Percent Zero Car Household	Population Density (Persons Per Square Mile)			
	Over 6,400	4,500 to 6,400	2,500 to 2,499	Under 2,500
Over 15.0	1,300 Feet 1/4 Mile	1,300 Feet 1/4 Mile	2,000 Feet 3/8 Mile	2,600 Feet 1/2 Mile
10.0 to 15.0	1,300 Feet 1/4 Mile	2,000 Feet 3/8 Mile	2,600 Feet 1/2 Mile	5,200 Feet 1 Mile
5.0 to 9.9	2,000 Feet 3/8 Mile	2,600 Feet 1/2 Mile	5,200 Feet 1 Mile	As Needed
Under 5.0	2,600 Feet 1/2 Mile	5,200 Feet 1 Mile	As Needed	As Needed

To provide further policy guidance regarding bus stop spacing, the standards document also defined the Dutchess County communities which make up the urban, suburban, and rural categories. These are listed in Table 2.4.

**Table 2.4  
Bus Stop Spacing Guide**

Service Area	Bus Stops Per Mile	Spacing (Feet)
<b>Urban</b> - City of Poughkeepsie, City of Beacon	7 or 8	660 - 754
<b>Suburban</b> - Fishkill, East Fishkill, Hyde Park, Town of Poughkeepsie, Wappinger	4 to 6	880 - 1,320
<b>Rural</b> - All other communities	2 or 3	1,760 - 2,640

**Adequacy of Service** – Using the set of service and performance guidelines described above, the adequacy of the current LOOP and City Bus services was analyzed by comparing current performance in each measure to the established guideline.

Key findings from the analysis included the following:

- Service Coverage
  - Current LOOP and City Bus service complies with the goal of the production end guideline.

- Frequency and Span of Service:
  - Almost all LOOP routes do not meet the frequency or span guideline for their category.
  - All City Bus routes end too early on weekdays and Saturdays to meet the span of service guideline.
- Route Directness – routes with directness ratios which exceed 1.70 include:
  - New Hamburg CTC
  - Hyde Park CTC
  - LOOP 3A
  - LOOP 5
  - LOOP 8
  - LOOP 9
  - LOOP 11
  - Southwest Express
  - 9G – Northwest Express
  - 9G – Special Express #2
  - City Bus Northside
- Fiscal Condition
  - LOOP routes in the “Problem” category for both farebox recovery and productivity included:
    - LOOP 1
    - LOOP 3A
    - LOOP 4
    - LOOP 5
    - LOOP 6
    - LOOP 8
    - LOOP 9
    - LOOP 10
    - LOOP 11
    - LOOP 13
    - Beacon-Poughkeepsie Express
    - Beacon Shuttle
    - Express A
    - Express C
    - Express N
    - Special K

- No City Bus routes were “Problem” routes for either farebox recovery or productivity.
- Passenger Comfort
  - LOOP and City Bus bus stops are not uniformly marked are clearly designated.
  - Bus stops along common segments are not consistently designated by both systems.
  - Public information is not sufficiently available and is not designed in a user-friendly manner.

Comparing current performance to the established guidelines effectively identifies issues that should be addressed as part of the development of service improvement proposals.

## **Stakeholders Interviews**

To provide a valuable qualitative view of the existing conditions and opportunities for the future, interviews were conducted with community leaders representing various interests to seek their perceptions and views on public transportation in Dutchess County. The stakeholder interview process consisted of three basic steps: (1) identification of the stakeholder groups and individual stakeholders, (2) preparation of a list of topics to be discussed and (3) the actual conduct of the interviews. Each of these steps, as well as a summary of the results is provided in this section. A full description of the discussion results have been submitted under separate cover as Appendix E to this report.

**Participants** - To effectively elicit the opinions and concerns of a variety of interests throughout the county, it was decided that the stakeholder interviews would be conducted in panel sessions with eight different groups. Each panel included approximately six to twelve individuals with all with the individuals in each group representing a similar interest. The list of stakeholder groups and the individuals to participate in each group was selected in consultation between the Poughkeepsie-Dutchess County Transportation Council (PDCTC) staff and the consultant team. All of the individuals asked to participate represent organizations that are currently impacted by transportation or could potentially be given certain circumstances. They provide a broad cross-section of views representing groups of current and potential users of the transit system. A total of 86 individuals or organizations were invited to take part in the process with 54 individuals attending the interview sessions. Table 2.5 lists the various groups for which panel sessions were held as well as the individuals who participated and the organizations they represent.

**Table 2.5  
 Stakeholder Session Participants**

<b>Name</b>	<b>Agency/Organization</b>
<b>Elected Officials</b>	
Matt Alexander	Mayor, Village of Wappinger Falls
Fred Bunnell	Dutchess County Legislature
Suzanne Horn	Dutchess County Legislature
<b>Community Organizations</b>	
Shirley Adams	Poughkeepsie Housing Authority, Catherine St. Center
Sheila Appel	IBM Community Service Organization
Michael Cole	Hudson River Housing
Cynthia Fiore	Taconic Resources for Independence
John Folster	Taconic Resources for Independence
Naima Glover	City of Poughkeepsie Weed & Seed
Jennifer Lockwood	Council of Community Services of New York State, Inc.
Bob Mallory	Hudson River Housing
Patrick Mulb	Taconic Resources for Independence
Gail Webster	Hudson River Housing
<b>Economic Development/Major Employers</b>	
Brandy Albach	Talent Tree
Cecilia Cook	Poughkeepsie Area Chamber of Commerce
Ron Iarossi	Beacon Business Association
Thea Glaser	Dutchess County Economic Development Corporation
Kathy Schultz	Talent Tree
Cecelia Shaffer	Poughkeepsie Area Chamber of Commerce
Susan Thompson	Pawling Corporation
Sharone Wellington	Poughkeepsie Area Chamber of Commerce
<b>Medical and Health Care Facilities/Providers</b>	
Cynthia Atkins	Mental Health Association of Dutchess County
Laura Donseca	Mental Health Association of Dutchess County
Scott Flynn	Vassar Brothers Medical Center
Heather Johnson	Mental Health Association of Dutchess County
Sue Koppenhaver	Eden Park Health Care Center
Suzanne Manning	Hudson River Psychiatric Center
Donna Marquardt	Mental Health Association of Dutchess County
Karen Mundon	Premiere Home Health Care
Mary Rich	Mental Health Association of Dutchess County
<b>Colleges/Universities</b>	
John Gildard	Marist College
Keri Kinder	Culinary Institute of America
Edward Schmidt	Bard College
<b>Tourism</b>	
Allen Dailey	National Park Service

<b>Name</b>	<b>Agency/Organization</b>
Elizabeth Hart	Hudson Valley Regional Visitors Center
Jennifer Mackiewicz	Dia:Beacon
Mary Kay Vrba	Dutchess County Tourism
<b>Intercounty Transportation Operators/Administrators</b>	
Peter Cohen	Amtrak
Christine Falzone	Coach USA
Frank Gallagher	Leprechaun Lines/Hendrick Hudson Bus
David Markowitz	New York State Department of Transportation
Robert Parrington	Orange County Planning
Kent Patterson	Metro-North Railroad
Cynthia Ruiz	Ulster County Area Transit
<b>Dutchess County Agencies</b>	
John Beale	Dutchess County Office of the Aging
Bill Cusack	Dutchess County Department of Mental Hygiene
Frank DeSiervo	Dutchess County Department of Mental Hygiene
Mary Kaye Dolan	Dutchess County Office of the Aging
Kelle Farinacci	Dutchess County Department of Mental Hygiene
Bill Fluer	Dutchess County Probation
Mark Henderson	Dutchess County Department of Mental Hygiene
Christopher Lee	Dutchess County Department of Health
Bob Oppenheim	Dutchess County Department of Mental Hygiene
Nelson Eddy Rivera	Dutchess County Veterans Service Agency

The eight groups were chosen to act as a source of specific information that is important to the public transportation planning process. Three groups: Colleges/Universities, Medical Facilities/Providers, and Economic Development/Major Employers represent institutions that typically act as major generators of public transportation demand, that is, they are common destinations of many public transportation trips. It is important to understand the mobility needs of the students, employees and customers of these institutions since they represent a significant market for area public transportation services. It is also important to gain advanced knowledge of any planned changes (i.e., planned facility expansions, new services offered, etc.) to these institutions that may affect demand in the near future.

Two other groups, Dutchess County Agencies and Community Organizations were assembled since they have close contact with many of the key target populations for public transportation including seniors, youth, disabled and low income individuals. Representatives of these agencies and organizations provide key insight into the mobility needs of these populations.

It is always important to obtain the views of local elected officials regarding the planning of public services. In many instances it is the local elected officials who receive complaints or commendations regarding the area services and have been told of unmet needs among their constituents. In addition, they may have ideas about what should be the priorities for the

development of the area's public transportation system. They can also provide insight into the funding environment in terms of whether services could potentially be expanded. For these reasons, a group of elected officials was also included.

The remaining two groups were somewhat unique to conditions in Dutchess County. Due to the importance of the tourism industry to the local economy, it was decided that one session would be dedicated to the unique needs of those representing tourism interests. The final group included representatives of intercounty transportation providers and administrators. Due to the location of Dutchess County in the commutershed of New York City and Westchester County, various types of rail, bus and ferry services are offered to meet commuter needs. Effective coordination between these various services with the Poughkeepsie City Bus or LOOP system could provide substantial benefit to residents or employees in Dutchess County. For this reason, another session was dedicated to representatives of the intercounty transit providers.

**Findings and Results** - While the stakeholder interview process provides a flexible format for soliciting views, approximately nine topics were prepared prior to the conduct of the interviews. This provided an outline of issues to be discussed and in some cases led to the discussion of other topics. The topics included:

- Knowledge and Awareness of Current Services
- LOOP and City Bus Image in the Community
- System Performance
- Marketing
- Responsiveness to Community Conditions and Trends
- Primary Beneficiaries
- Benefits of a public transportation system
- Transit Needs and Desired Improvements
- Service Improvement Priorities
- Intercounty Public Transportation Priorities
- Planned Changes or Trends

A series of consistent themes emerged from the eight sessions. These themes are summarized below:

- There should be a high level of service (i.e., increased frequency and span of service) along key corridors including Route 9 from Hyde Park to Fishkill, and along Route 44 between Poughkeepsie and Pleasant Valley.
- The general public is unaware of the transit service available in the county.
- Public information is not user-friendly and is not sufficiently available to the general public.
- The current route structure of LOOP is confusing and needs to be streamlined.
- Current service schedules are not conducive to modern work schedules with many people working evenings, weekends, and holidays. More evening and weekend service is needed to meet these needs.

- Bus stops need to be commonly designated and uniformly marked. This includes rural areas where there currently flag stops.
- There is a need for improved connections to the train stations, as well as an increased need for park-n-ride locations for service to the stations.

## Rider Surveys

An extensive data collection effort was undertaken to obtain data on current riders and their perceptions. Two separate survey techniques were used. Ride checks were conducted by on-board observers who recorded the location and time of all passenger boardings and alightings. A rider survey was also conducted to solicit information on riders about the trip they were making, their socioeconomic and demographic characteristics, their opinion of the current services, and suggested improvements.

This section presents a summary of the findings from an opinion survey of current LOOP and City Bus riders. This survey was part of a larger community participation program designed to involve current passengers, the general public, key stakeholders and transit system staff in the planning process. This program also included the stakeholder interviews described above, as well as additional outreach efforts, which are described in a later section. The interim report providing a comprehensive description of the survey findings has been submitted under separate cover as Appendix F to this final report document.

The results of this survey, as well as the results from the overall outreach program are essential in terms of assisting in the development of service improvement recommendations for LOOP and City Bus.

**Survey Description and Methodology** - This section provides a description of the methodology, content, and response rate for the passenger opinion survey of LOOP and City Bus which was conducted during May and June, 2007.

**Methodology** - The passenger opinion survey was part of a larger data collection effort which included the collection of boarding and alighting data by stop location on all LOOP and City Bus routes. To accomplish this data gathering effort, survey workers were present on LOOP and City Bus vehicles and manually recorded passenger activity. This was completed for 100 percent of LOOP and City Bus weekday and weekend trips.

While on the bus, survey workers distributed survey cards to boarding passengers in one direction. Cards were distributed in one direction to avoid duplication as well as to minimize tabulation, while ensuring an adequate sample size.

Riders were provided the option to complete the survey card while on the bus or to take the card with them to complete it later. If the rider did not complete the survey while on the trip they were issued the card, they could return it to any other survey worker or a bus driver on a subsequent trip. The survey forms were printed on hard card stock paper to make writing easier

for passengers while riding the bus. The survey workers provided pencils to riders who did not have their own writing instrument.

**Survey Questions** - The survey card consisted of 22 questions. A unique feature of the survey is that the reverse side of the survey form contained the same questions in Spanish. Therefore, those riders that are more comfortable reading Spanish were able to participate in the survey. With the exception of two questions relating to trip origin and destination, and two open-ended questions, riders were only required to check off a box to answer questions. The first group of questions asked the rider to provide a travel itinerary which included origin and destination information, information related to how buses were accessed, trip purpose, and length of time riding. The next group of questions requested attitudinal information regarding their view of the existing bus services overall.

The final group of questions focused on socioeconomic characteristics of the respondent. These questions asked for information pertaining to key factors influencing travel habits including age, automobile ownership, automobile availability and family income. In addition, the survey asked riders if they have access to the internet, which is a useful question for marketing purposes. Lastly, riders were asked questions related to their riding trend as well as how often they ride LOOP and City Bus fixed route transit services.

A copy of the survey card is provided in Appendix F to this final report.

**Survey Response** - During the survey period, approximately 1,160 survey forms were issued and a total of 882 valid surveys were returned. This is an overall response rate of about 83 percent which is very high for this type of survey. Based on the consultant's experience with other bus rider surveys, the response rate is typically around 25 percent.

The breakdown by system is 600 cards distributed on LOOP and 511 returned for a response rate of 85 percent. The goal of the survey was to assemble a profile of the ridership bases of the two systems for a typical day. LOOP carries an average of approximately 2,200 unlinked passenger trips on weekdays and Saturdays, and 160 on Sunday. Typically, only a small percentage of riders use a transit system exclusively on weekends and riders were asked to complete only one survey form. Therefore, the weekday ridership number provides a good indication of the population to be sampled. Assuming most passengers make round trips, the 2,200 unlinked passenger trips represents approximately 1,100 passengers. Survey results, which will be discussed in more detail later, suggest that 17 percent of LOOP riders transfer between buses to complete their trip. These second trips are included in the unlinked passenger figure. Again assuming a round trip, the total unlinked passenger trip figure would need to be reduced by approximately 30 percent for a revised total of 770 users on any given day. This indicates that the 600 survey cards distributed reached a significant portion of the population of LOOP riders on a typical day of service.

For City Bus, 460 cards were distributed with 371 returned for a 81 percent response rate. On a typical weekday, City Bus carries 1,300 unlinked passenger trips. After adjusting for round trips and a transfer rate of 17 percent, this represents approximately 550 users on any given day.

Again, this indicates that a significant portion of the population of users for a typical day were reached by the survey.

The breakdown of cards received of 511 surveys for LOOP and 371 for City Bus represents a percentage breakdown of 57.9 percent for LOOP and 42.1 percent for City Bus. This differs from the combined ridership of the two systems of which LOOP ridership accounted for approximately 63 percent in 2006. The most likely explanation for this discrepancy is the fact that survey workers were instructed to offer the survey to boarding passengers, but the passengers were not obliged to take or complete the card. The number of boarding passengers who declined to take a survey card was not tracked. Anecdotally, however, survey workers reported that passengers declining to take a survey card was far more common on LOOP services than on City Bus.

Despite this, the sample size for both systems does reach the goal of attaining a margin of error of 5.0 percent or less at a 95 percent confidence level. Given the size of LOOP's sample, the margin of error for LOOP findings is approximately four percent at a 95 percent confidence level. That is, 95 percent of the time, the survey finding will be within four percent of the result if all members of the given population were surveyed. The margin of error for the City Bus results is slightly less than 5.0 percent.

**Survey Results** - After the completion of the survey, responses from the 882 completed surveys were tabulated. Responses for the weekday, Saturday and Sunday surveys were evaluated together. Results from each of the survey questions are presented in this section of the report. It should be noted that questions three and six, which ask the riders their origin and destination, are not included in this report. A database of the responses to this question has been assembled and will be provided to the PDCTC for their use. The key findings for the remaining questions are identified and discussed.

The survey results are grouped into five categories: (1) Rider Characteristics, (2) Rider Travel Habits, (3) Mode Choice and Trip Purpose, (3) Rider Opinions, and (4) Marketing Issues. This report will discuss the survey results as they relate to these five categories and not necessarily in the order the questions were actually asked. This will better convey the survey results and help identify any major issues. Also, the format followed in this report provides a descriptions of who is riding, how do they ride, why do they ride, what do they think of the service, and how can the transit systems reach out to their customers.

**1. Rider Characteristics** - This series of questions concerned the socioeconomic and demographic characteristics of the rider. This provides a description of who is riding the two transit systems. Some of the indicators allow for comparisons of LOOP and City Bus' ridership base to the population of Dutchess County overall. For the purpose of this report, Dutchess County data is based on the 2000 U.S. Census. All survey results in this section are shown in Table 2.6.

- **Relevant Issues** - Various observations that could affect the development of service improvement proposals can be derived from the demographic and socioeconomic characteristics of the riders. Emerging themes include the need to address the

mobility requirements of working parents, low senior ridership, low youth ridership, and high levels of riders from low income households.

- **Working Parents** - Both systems have a higher rate of females than the county as a whole. A female majority is typical of the make up of the ridership base at transit systems due to socioeconomic reasons. This, coupled with the lower incomes and high rate of employment in service jobs, could indicate that there are many single mothers using the transit systems. This is especially true on the City Bus system. For working parents, frequency of service is often the highest priority for service improvement. This results from the need of working parents to take a bus to day care, drop off a child, then take the next bus on to the remainder of their trip. When service is infrequent, this can make the trip highly inconvenient, and often impossible.
- **Low Senior Ridership** - Another issue is the fact that seniors comprise a smaller percentage of bus system riders than the county population as a whole. In an area like Dutchess County, seniors often comprise a larger percentage of bus riders than the overall population. The lower rate observed through this survey may indicate that seniors in Dutchess County who do not drive more often use the Dial-a-Ride or ADA paratransit services available to them to meet their mobility needs. The low rate of ridership among senior citizens should be investigated further to determine if this key target group could be accommodated better by LOOP and City Bus services. This may also indicate the need for better outreach to seniors or expanded travel training programs.
- **Low Youth Ridership** - Another age group which represents a smaller percentage of bus service riders than the overall county population is youth (persons under 18 years old). This is a growing demographic in Dutchess County resulting from residential growth. The mobility needs of this market should be examined further as service improvement alternatives are developed.
- **High Level of Low Income Households** - Lastly, the fact that bus riders are disproportionately from the lower income households in Dutchess County suggests a high level of transit dependency among the riders. This will be discussed in more detail in a later section. A high level of transit dependency does affect the type of recommendations that are developed for the improvement of the system, and will need to be considered.

**Table 2.6  
Rider Demographic and Socioeconomic Characteristics  
(all figures in percent)**

Measure	LOOP	City Bus	Dutchess County
<b>Gender</b>			
Female	51.7	59.1	50.0
Male	48.3	40.9	50.0
<b>Age</b>			
Under 18	8.1	6.9	24.9
18 to 34	44.6	41.5	21.8
35 to 44	19.1	18.5	17.9
45 to 64	24.8	27.3	23.4
65 and older	3.4	5.8	12.0
<b>Occupation</b>			
Manager/Professional	12.1	6.0	
Technical/Skilled	10.1	9.4	
Clerical	4.5	7.6	
Service/Retail	19.5	18.7	
Retired	5.8	11.5	
Homemaker	6.9	6.0	
Student	15.9	19.3	
Unemployed	3.5	8.5	
Other	21.7	13.0	
<b>Annual Household Income</b>			
Below \$15,000	29.9	50.7	11.0
15,000-\$24,999	26.5	22.4	9.5
\$25,000-\$39,999	18.2	16.1	15.8
\$40,000-\$74,999	18.1	9.3	31.8
\$75,000 and greater	7.3	1.5	31.9

**2. Rider Travel Habits** - The previous section provided information about who is riding LOOP and City Bus services. This section provides the results of various survey questions designed to understand the travel habits of those riders. Four topics were covered including: (1) the length of time the rider has been using the bus system; (2) how often the rider uses the bus system in a given week; (3) the trend in their riding habits; and (4) their access mode to and from the bus. Table 2.7 and Table 2.8 provide the survey findings from these questions.

**Table 2.7**  
**Travel Habits**  
 (All figures in percent)

Measure	LOOP	City Bus
<b>Length of Time Riding</b>		
Less than six months	18.0	9.7
Six months to a year	11.2	12.6
1 to 2 years	18.0	15.1
3 to 5 years	17.8	14.1
More than 5 years	35.0	48.5
<b>Frequency of Riding (days per week)</b>		
Seven	2.8	7.8
Six	22.6	23.2
Five	33.8	32.5
Four	9.8	12.9
Three	8.4	13.2
Two	9.4	4.8
One	4.6	1.7
Less than once per week	8.6	3.9
<b>Trend</b>		
Ride more than last year	29.3	29.4
Ride less than last year	9.1	9.7
Ride at same frequency	50.0	55.7
New rider	11.6	5.2

**Table 2.8**  
**Trip Pattern**  
**(All figures in percent)**

Measure	LOOP	City Bus
<b>Access mode from origin to bus</b>		
Walk	82.6	81.0
<i>Less than one block</i>	71.8	78.2
<i>One block</i>	7.9	8.4
<i>Two blocks</i>	5.4	6.8
<i>Three blocks</i>	4.8	3.1
<i>Four blocks or more</i>	10.1	3.5
Other Bus	8.2	13.8
Drove Car	2.4	0.8
Dropped off in car	3.8	2.5
Metro-North	1.6	0.3
Other	1.4	1.6
<b>Access mode from bus to destination</b>		
Walk	74.3	77.9
<i>Less than one block</i>	76.8	76.2
<i>One block</i>	11.6	8.2
<i>Two blocks</i>	3.6	5.7
<i>Three blocks</i>	2.4	3.0
<i>Four blocks or more</i>	5.6	6.9
Other Bus	17.0	17.6
Drove Car	1.4	0.6
Dropped off in car	1.6	0.6
Metro-North	4.1	1.7
Other	1.6	1.6

- **Relevant Rider Travel Habit Issues** - The findings of this section provide various insights for the purposes of service planning. These include the low level of new riders on City Bus, a high level of frequent riders, an indication that the needs of seniors and teens are not being met, a limited ridership pool, and a low transfer rate.
  - **Few New Riders on City Bus** - The City Bus has a very stable ridership base with almost half of the riders indicating that they have been riding for *five or more years*. Also, only one of every ten City Bus riders indicated that they have been riding for *less than six months*. This suggests that the system is not attracting new riders. This could be due to various factors including a lack of awareness of the services among the general public or services that do not respond to people's needs. Ridership on LOOP is more dynamic with approximately one of every five riders indicating that they have been riding six months or less. This could be due to growing markets or new services that address specific needs of the population. For either system, these findings stress the importance of engaging in continuous efforts to raise awareness of services and educate riders.
  - **High Level of Frequent Riders** - The survey indicated that both systems have a high number of frequent riders. A high number of frequent riders can often indicate that the bus system is predominantly being used by riders to travel to and from work since most people work at least four days per week. However, the survey showed that work trips only accounted for 55 percent of the trips on LOOP and 37 percent of trips on City Bus (the results of this question are discussed in a later section). This discrepancy provides an indication of transit dependency among the riders since many people are using the system almost on a daily basis, and not exclusively for work purposes.
  - **Limited Ridership Pool** - The fact that a significant majority of City Bus and LOOP riders walk less than two blocks to access the service indicates that those living further than two blocks from a route are not being attracted to the service. Riders are also not accessing the systems by other means such as driving to a bus stop or being dropped off. This may be due to a lack of awareness or of convenience. Services designed to attract a wider pool of riders should be explored through the development of service improvement proposals. This may include the expanded use of demand response or flexible fixed route services.
  - **Low Transfer Rate** - The survey also showed that there is a low rate of transferring between buses on LOOP and City Bus. Typically, transfer rates that exceed 20 percent indicate the need for route restructuring specifically designed to reduce the amount of transfers needed and improve directness for the passenger. While the improvement proposals resulting from this study may result in fewer needed transfers, this does not appear to be an issue that needs specific attention.

**3. Mode Choice and Trip Purpose** - This section includes questions from the survey that were designed to provide insight as to why passengers are riding the two local bus systems. Two topics are covered. First, a group of questions were asked as part of the survey to help gauge the extent to which riders have transportation options other than the transit service; the questions include automobile availability, the number of cars in the household, and whether or not the rider has a valid driver's license. This allows for the determination of whether or not the rider had a choice in the mode they used to make their trip. The second topic pertains to the purpose of the trip the rider was making on LOOP or City Bus at the time they received a survey card. The survey results are shown in Table 2.9 and Table 2.10.

- **Relevant Issues** - The main theme emerging from this section is the fact that both LOOP and City Bus have a high level of riders for whom transit is their only mobility option. The questions geared towards determining the level of transportation options that riders have consistently demonstrated that approximately 80 percent of LOOP riders and 90 percent of City Bus riders could be considered to have had no other transportation option. This indicates that discretionary use of the two bus systems is low. These findings have ramifications for the development of service improvement proposals.

First, riders who do not have other transportation options use transit services for more than work trips. They often use the local transit system for personal business, shopping, etc. This was demonstrated in the survey findings. Therefore, when designing service proposals, it is necessary to plan for convenient connections to not only work locations, but also destinations such as grocery and retail stores, medical offices, government offices, etc.

In addition, people who rely on transit for their transportation need to travel during the evening and on weekends. Limited evening and weekend service is a significant impediment to their overall mobility. Also, limited frequencies throughout the day make travel much more difficult for this group. Therefore, span and frequency of service issues are often the highest priority improvements for this group of riders.

The types of service changes proposed can also be affected by the level of transit dependency among the riders. Typically, riders who do not have other transportation options are more likely to be willing to transfer if switching to another route provides overall time savings on their trip. Riders who do have other options available to them tend to prefer one seat rides even if a transfer provides a time savings

**Table 2.9**  
**Factors Affecting Transportation Options**  
 (All figures in percent)

	LOOP	City Bus
<b>Car Available for Trip</b>		
Yes	20.9	8.8
No	79.1	91.2
<b>Number of vehicles in household</b>		
None	44.1	68.2
One	33.7	22.1
Two	13.6	7.9
Three or more	8.6	1.8
<b>Valid Driver's License</b>		
Yes	43.9	35.6
No	56.1	64.4

**Table 2.10**  
**Trip Purpose**  
 (All figures in percent)

Category	LOOP	City Bus
Work	55.2	37.5
Shopping	24.3	27.6
Personal Business	9.9	14.5
Medical/Dental	1.5	5.9
Social/Recreation	4.3	2.8
College	1.2	6.5
Other School	1.8	4.3
Other	1.8	0.9

**4. Rider Opinions** - This section includes questions that were designed to gauge the rider's opinion of the quality of service provided by LOOP and City Bus. The first question asked the rider to rate the performance of LOOP and City Bus in several different categories. The second question asked the rider to indicate if service on LOOP and City Bus has improved

since the prior year. The last two questions were open ended and asked the rider to indicate what places should be served by LOOP and City Bus that are not presently served, and what improvements are needed to make the bus services better. The survey responses are provided in Tables 2.11, 2.12, 2.13, and 2.14.

- **Relevant Issues** - Two important themes emerging from this section that will affect the service planning process include the high level of dissatisfaction with the services among the current riders. A second is that span and frequency issues are the highest priority improvements among the riders.
  - **Dissatisfaction with Public Information** - Overall, survey results indicate that a high number of riders on both LOOP and City Bus are dissatisfied with the availability of public information regarding the services. *Schedule availability* was one of the three lowest rated service attributes for both LOOP and City Bus.
  - **Improvement Priorities among Riders** - It is interesting to note that *when routes go* and *how often buses run* received lower ratings than *where routes go* on the service rating question for both systems. This is an indication that riders are more concerned with the frequency and span of service than of service coverage. This observation was reinforced by the findings of the two open-ended questions. When asked to identify a location to which they would like service expanded, only 15 percent of the riders provided a suggestion. Further, many of those riders suggested a location that is already served. This not only indicates that coverage is not a high priority for current riders, but also indicates a potential issue in terms of the awareness of current services among the riders.

Results from the second open-ended question showed that span and frequency of service issues are by far the highest priorities of the current LOOP and City Bus riders. This would be expected given the high level of transit dependency among riders coupled with the low level of frequency and span on many LOOP and City Bus services. It will be important to address these issues through the service improvement proposals.

**Table 2.11**  
**Service Ratings**  
 (all figures in percent)

Attribute	Excellent	Very Good	Good	Total Favorable	Fair	Poor
<b>LOOP</b>						
Service Reliability	31.3	28.0	27.6	86.9	10.1	3.0
Vehicle Cleanliness	26.0	25.4	30.8	82.2	14.1	3.4
Fares Charged	36.1	22.7	28.3	87.1	11.6	1.3
Driver Courtesy	39.4	23.7	22.5	85.6	10.7	3.7
Safety	38.6	24.9	27.4	90.9	8.0	1.1
Where Routes Go	26.7	25.5	30.1	82.3	13.1	4.6
When Routes Go	21.5	22.1	26.3	69.9	21.7	8.4
How Often Buses Run	18.2	21.6	23.4	63.2	20.1	16.7
Schedule Availability	21.2	22.8	26.7	70.7	16.0	13.3
Overall Satisfaction	23.8	28.6	32.7	85.1	13.5	1.4
<b>City Bus</b>						
Service Reliability	37.3	27.9	23.2	88.4	8.0	3.6
Vehicle Cleanliness	25.5	21.6	28.3	75.4	16.5	8.1
Fares Charged	29.7	21.7	26.9	78.3	17.4	4.3
Driver Courtesy	48.5	17.5	18.6	84.6	8.7	6.7
Safety	43.7	18.8	26.1	88.6	8.7	2.7
Where Routes Go	31.6	19.4	27.1	78.1	15.1	6.8
When Routes Go	29.1	17.9	25.4	72.4	16.1	11.5
How Often Buses Run	25.8	15.5	25.2	66.5	16.3	17.2
Schedule Availability	25.5	18.9	25.7	70.0	19.4	10.5
Overall Satisfaction	27.4	23.4	33.0	83.8	13.1	3.1

**Table 2.12**  
**Service Quality Trend**  
**(All figures in percent)**

Rating	LOOP	City Bus
Getting better	25.0	25.1
Getting worse	4.2	5.5
About the same	56.4	61.6
I am a new rider	14.4	7.8

**Table 2.13**  
**Suggested Service Locations**  
**(Number of responses)**

Location	LOOP	City Bus	Total
WalMart*	3	9	12
Newburg	6	4	10
Hyde Park*	-	9	9
Fishkill*	3	4	7
Kingston	6	-	6
Service along Route 9*	5	-	5
Other Counties	4	-	4
Beacon*		3	3
Highland	3		3
Hopewell Junction*	3		3
LaGrange*	3	-	3
New York City	3	-	3
Adams*	-	2	2
Church Street	-	2	2
Galleria Mall*	-	2	2
Manchester Road	-	2	2
Shop Rite*	-	2	2
Other (Less than 2)	27	19	46
<b>Total</b>	<b>66</b>	<b>58</b>	<b>124</b>

\* Currently served by LOOP or City Bus

**Table 2.14**  
**Most Important Service Improvement**  
**(Number of responses)**

<b>Suggested Improvement</b>	<b>LOOP</b>	<b>City Bus</b>	<b>Total</b>
More Frequent Service	58	27	85
Weekend Service	50	48	98
Later evening bus service	33	34	67
Improve on time performance	31	0	31
More overall service	27	17	44
Cleaner buses	15	23	38
More comfortable buses	14	10	24
Friendlier drivers	12	12	24
Other (Less than 10 per system)	23	19	42
<b>Total</b>	<b>273</b>	<b>190</b>	<b>463</b>

**5. Marketing Issues** - This section includes questions that are useful for marketing purposes, such as the type of fare paid, how many riders have access to the internet, and how many surveys were completed in Spanish. The responses to the questions in this section are listed in Table 2.15.

- **Relevant Issues** - Two important themes emerging from this section that will affect the service planning process include the low level of usage of multi-ride fare media among LOOP riders (City Bus does not have any multi-ride fare media), a high percentage of passengers who do not have access to the internet, and the significant level of surveys which were completed in Spanish.
  - **Low Usage of Multi-Ride Fare Media** - The survey asked the rider what type of fare they paid for the trip they were riding. Results showed that only 5.9 percent of LOOP riders made use of multi-ride fare media available to them. Overall, the low level of LOOP pass usage may indicate that the pass is overpriced or not addressing the needs of any particular market. The need for, and the pricing of these fare media should be examined.
  - **Internet Access** – Survey results showed that 62.7 percent of LOOP riders and 54.9 percent of City Bus riders have access to the internet. These responses indicate that it is still very important to provide printed public information material to the riders.

- Spanish Surveys** - As noted in the introductory portion of this report, the reverse side of the survey listed all of the survey questions in Spanish. Of the 882 surveys that were returned by LOOP and City Bus riders, 86 were completed in Spanish (72 LOOP and 14 City Bus), which represents approximately 10 percent of the survey responses. There was a large discrepancy in the Spanish response rate by system. Among LOOP riders, 14.1 percent answered the survey in Spanish while only 3.8 percent of City Bus riders did so. Based on this result, LOOP and City Bus will need to decide if service information should be provided in Spanish in the future.

**Table 2.15**  
**Marketing Issues**  
**(All figures in percent)**

	LOOP	City Bus
<b>Fare Paid</b>		
Adult Cash	69.3	58.2
Senior	5.3	11.3
Disabled	3.3	8.8
Student	9.4	5.4
Transfer	0.9	2.4
Single Ticket	5.9	10.5
Monthly Pass/Uniticket	5.9	3.4
<b>Internet Access</b>		
Yes, have access	62.7	54.9
No, do not have access	37.3	45.1
<b>Surveys Completed in Spanish</b>		
English	85.9	96.2
Spanish	14.1	3.8

**Summary of Key Findings** - Key findings from the rider survey provide valuable insight into areas such as rider demographics and riding habits, rider quality of service ratings, and the improvement priorities of the riders.

- In terms of rider demographics and riding habits, key findings include:

- LOOP and City Bus riders come disproportionately from low income households when compared to the population of Dutchess County overall.
- Approximately 80 percent of LOOP and 90 percent of City Bus riders had no other transportation option available to them for their trip. It can be concluded that, typically, these riders rely on bus service to meet their mobility needs.
- Most riders walk to get to their bus or to complete their trip to their final destination.
- The majority of riders use LOOP and City Bus for work or shopping related trips.
- Approximately one-third to one-half of the riders have been using the bus systems for at least five years.
- Rider opinions regarding the current services include:
  - Service attributes of LOOP and City Bus services receiving the lowest favorable ratings (combined total of *excellent*, *very good* and *good* ratings on the service evaluation question) from passengers included *how often buses run* (frequency of service), *schedule availability*, and *when buses operate* (span of service).
  - Attributes receiving the highest ratings from passengers included *safety* for both systems as well as *fares charged* for LOOP riders, and *service reliability* for City Bus.
  - *Driver Courtesy* received the highest percent of *excellent* ratings.
- In terms of improvement priorities, riders generally want more frequent service, more weekend service and longer service hours. Service coverage did not emerge as a top improvement priority for current riders.

## Other Outreach Efforts

In addition to the rider survey and stakeholder interviews, additional efforts were made to elicit the opinions and suggestions of current transit riders, potential transit markets, the general public, as well as staff members of the two transit systems. These efforts include:

- Intercept Surveys at the Beacon Train Station
- Intercept Surveys at the Galleria Mall
- Intercept Surveys at the Main & Market transit hub in Poughkeepsie
- Walk-In Meeting at Dutchess Community College (DCC)
- Walk-In Meeting at Marist College
- Walk-In Meeting at Culinary Institute of America (CIA)

- Public Meetings
- Staff In-reach Meeting with LOOP Drivers
- Staff In-reach Meeting with City Bus Drivers

Relevant findings from the different input techniques are provided below. The detailed findings of each of these sessions are provided under a separate cover as Appendix G to this final report.

**Intercept Surveys** - The three intercept survey sessions were conducted over a two day period in September 2007. A total of 153 people participated in the three sessions. The break down by session included 82 participants at the Beacon Train Station, 39 at the Galleria Mall, and 32 at Main and Market.

The questionnaires used at the different sessions were tailored to the expected market. That is, train commuters at the Beacon Train Station, the general public (i.e., transit users and non-users) at the Galleria Mall, and primarily City Bus and LOOP users at Main and Market.

The significant findings from the three sessions which affect subsequent service planning efforts include:

**Beacon Train Station:**

- The most common mode of travel to the train station is “Drive Alone”.
- Only 7 of the 82 people interviewed arrived by LOOP bus or CTC (3 on LOOP bus and 4 on CTC). Only 3 of those 7 used a Uniticket.
- Those who drive to the station mentioned various reasons why driving is more convenient (have car available, live too far, make multiple stops on trip, fastest mode, etc.)
- Only 2 of the 82 people interviewed mentioned any difficulty parking at the train station.
- The most common suggestions mentioned for how to encourage more people to take transit to the train station included more frequent service and more service information.
- The suggestions of those who currently use LOOP bus routes or the CTC did not differ from those who do not.

**Galleria Mall:**

- The most common mode of travel among the participants is the automobile.
- Over half of the participants said that they had used LOOP or City Bus in the past. This is a significant finding in terms of the general public’s willing to use transit as a mobility option.
- The most common reason for not using transit is that a car is available.
- The most common suggestions mentioned for how to encourage more people to use transit to meet their mobility needs included more frequent service and more service information.

- Approximately one-third of the participants noted that they would never use the bus.

### **Main and Market:**

- Results were consistent with the rider survey in that the most commonly suggested service improvements included more frequent service, more weekend service, and service later in the evening.
- Few places were named to which people would like to travel but cannot on the current system. This is also consistent with the findings of the rider survey.

**Walk-In Meetings** - The three walk-in meetings were conducted over a two day period in September 2007. A total of 167 people participated in the three sessions. The break down by session included 78 participants at DCC, 32 at CIA, and 57 at Marist.

The questionnaires used at the different sessions were identical and were tailored to address the mobility needs of college students. The significant findings from the three sessions which affect subsequent service planning efforts include:

- At DCC, no students live on campus and the most common mode of travel to campus is the “Drive Alone” or “Drive with Others”.
- Most of the CIA students who participated live off campus and “Drive Alone” to campus.
- None of the participants at the CIA or DCC sessions mentioned any difficulty with parking on campus.
- At Marist, most students live on campus and primarily use taxis to meet their mobility needs.
- Various findings suggested that effort would be needed to change the mindset of students to consider transit as a mobility option. These include:
  - Approximately one-quarter of the participants at DCC said they would use the bus only if a car was not available, and another one-third stated that they would never use the bus.
  - Marist students reported that the taxis are very convenient but would consider the bus if it were frequent and less expensive than taxis.
- However, at each institution, significant majorities of the participants indicated that they would consider using the bus.
- The most common suggestions mentioned at all three sessions for how to encourage more students to use transit for their mobility needs included more frequent service and more service information. At Marist, more information was by far the most commonly mentioned suggestion.
- The specific service suggestions at the DCC session was for better connections to DCC from communities in the northeast portion of the county (Red Hook, Rhinebeck, and Tivoli); more direct service from LaGrange; earlier morning service; and better evening service.

- A CIA student mentioned that the bus schedules are not compatible to class schedules at CIA.

**Public Meeting and Staff In-reach Meetings** - The first public meeting to be held as part of the TDP process was conducted on November 19, 2007 at the Poughkeepsie City Hall. Approximately 25 members of the public participated in the meeting. At the meeting, a report of preliminary findings was presented. After the formal presentation, those attending were invited to provide any comments they wished regarding the City Bus and LOOP services. A total of 56 comments were received at the meeting. A second round of public meetings was held on October 16, 2008 at the Poughkeepsie City Hall during the afternoon hours, and a second on the same day at Arthur S. May Elementary School in Poughkeepsie during the evening. Approximately 80 members of the public attended the two meetings.

On November 8, 2007, staff in-reach meetings were conducted at the facilities of LOOP and City Bus. A total of 21 LOOP drivers participated in the in-reach session and four of the six City Bus drivers participated. LOOP drivers provided 51 comments and City Bus drivers provided 46 comments regarding the current transit services.

Since the overall themes emerging from the comments received through the public meeting and in reach sessions were consistent, they are being presented together. The overall themes emerging from these outreach efforts include:

- Provide more frequent service, especially in main corridors such as Route 9 and Route 44.
- Provide more consistent service in the outlying areas.
- Reduce the complexity of LOOP's route structure.
- Improve public information. This includes printed information, posted information, and information provided through web sites.
- Provide later evening service Monday through Saturday.
- Provide Sunday service.
- Designate bus stops and mark them with bus stop signs.
- Examine the necessity to serve certain destinations currently served by City Bus or LOOP routes.
- Eliminate duplication between LOOP and City Bus service to allow for more frequent service elsewhere.

These themes are consistent with those that emerged from the stakeholder interviews and the rider opinion survey.

**Steering Committee** – All interim reports were provided to the members of the project review team. In addition, progress reports were presented to the committee at key milestones. As a result, members of the committee were able to provide timely input regarding priorities to guide the development of service proposals.

The discussion above indicates the extensive input to the planning process. It included technical analyses that examined the existing bus systems in Dutchess County and the setting in

which they operate. These findings were complemented with suggestions from riders, the public, drivers, the Dutchess County community, the PDCTC staff, and the management staff of both bus systems. The following chapter provides a description of the various service planning themes which emerged from these various inputs.

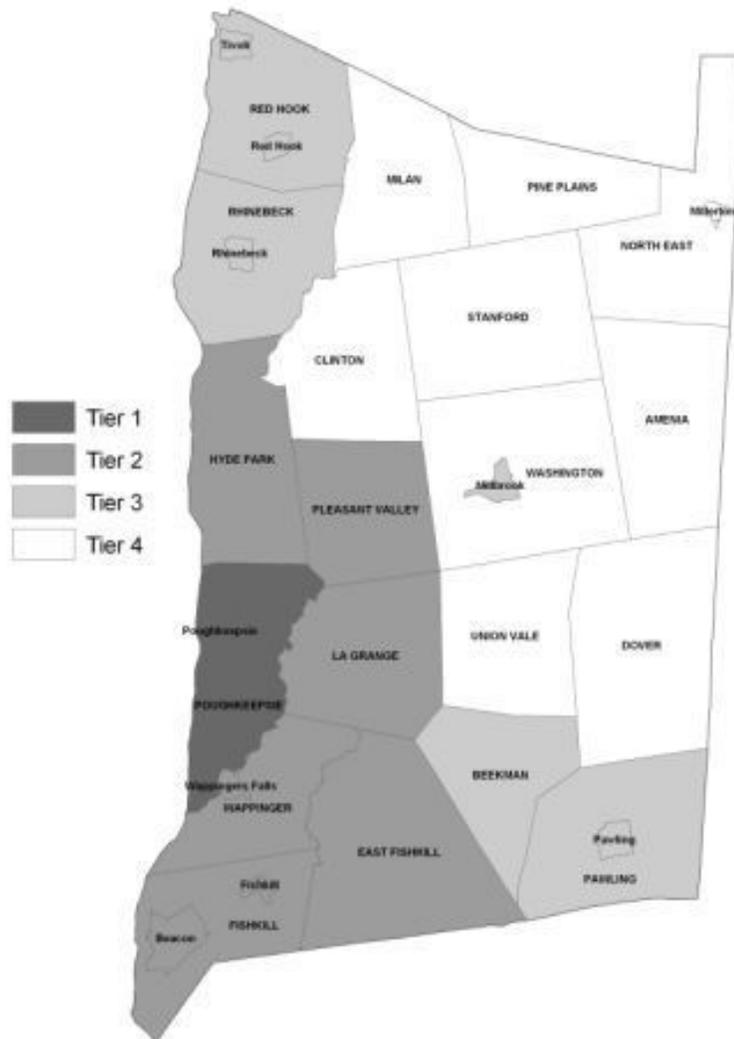
## CHAPTER 3 SERVICE PLANNING THEMES

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

- **Service Consistent with Development** – Dutchess County is characterized by dense urban cities and villages, rapidly developing suburban areas, as well as sparsely developed suburban and rural tracts. The current route structure of LOOP includes fixed route bus services that operate in the most sparsely populated areas of the county. These are some of the poorest performing routes in the system. At the same time, certain highly developed corridors in the county do not receive service at a sufficient frequency. Based on the analyses performed as part of the study effort, as well as the input received from the general public, current riders, and the stakeholders, a primary planning precept for the service proposals is that transit service should be allocated in a manner that is consistent with the development pattern. The socioeconomic and demographic analysis, as well as input from the public and stakeholders, was used to develop a hierarchy of corridors/places. That hierarchy, which is depicted in Figure 3.1, includes:
  - **Tier 1** - Corridors/communities that should receive fixed route service at a high frequency (i.e., every 30 minutes or less). This tier would include the City of Poughkeepsie and the Town of Poughkeepsie.
  - **Tier 2** - Corridors/communities that should receive fixed route bus service at a lesser frequency (i.e., every 60 minutes). This tier would include parts of the Town of Poughkeepsie, as well as the Towns of East Fishkill, Fishkill, Hyde Park, Pleasant Valley, and Wappinger; and the Villages of East Fishkill and Wappingers Falls.
  - **Tier 3** - Corridors/communities that should receive fixed route bus service every 120 minutes. This tier would include the Towns of Beekman, LaGrange, Pawling, Red Hook, and Rhinebeck; and the Villages of Millbrook, Pawling, Red Hook, Rhinebeck, and Tivoli.
  - **Tier 4** - Lastly, the remainder of the county only requires demand responsive service at a maximum. This tier would include the Towns of Amenia, Clinton, Dover, Milan, North East, Pine Plains, Stanford, Union Vale, and Washington; and the Village of Millerton.

It should be noted that any community may be incorporated into various tiers depending upon the diversity of development patterns in the municipality.

Figure 3.1  
Service Tier Structure



Map prepared by PDCTC

- **Coordinate Transit Systems** – A second planning precept used to guide the development of the service proposals was to use the resources of both systems in a coordinated way to expand the mobility options for current and potential transit users in Dutchess County. Although the Poughkeepsie City Bus and Dutchess County LOOP systems serve different service areas, the systems do overlap in certain key corridors. For example, both systems serve the Route 9 corridor south to the Galleria Mall and north to the Hyde Park Stop-n-Shop. However, the schedules of these services are not designed to maximize the utility to the passenger. Improving upon the current structure requires the coordination of the route alignments (i.e., the path followed by the bus route) as well as the schedules. To do this, it was necessary to

define the primary roles of each system. This will be described in more detail in the description of the proposals provided in the following section. The fact that LOOP now operates local within the City of Poughkeepsie (i.e., can drop off and pick up passengers along their routes) is a significant benefit in terms of coordinating the two systems. This allows for the use of LOOP routes to provide higher frequency service, later evening service, and weekend service along key corridors in the City of Poughkeepsie. This is not the case in other parts of New York State where county run services are not allowed to operate local within the limits of a municipality in which a separate city system also operates.

It is not necessary for both systems to implement the recommendations included in this report to realize any improvement in service. However, the implementation of the recommendations for both systems will maximize the positive impacts from the standpoint of the passenger.

- **Seamless Transit Policies** – To realize the benefits of the coordination of route alignments and schedules, other policies of the two systems also need to be more integrated and compatible. This includes an integrated fare structure which would allow passengers to use a single fare media to access either system. Currently, the base cash fare for both systems is the same. Also, LOOP sells multi-ride pass media that can be used on the City Bus system. Another policy that should be coordinated and integrated is the publishing of public information. While both systems could continue to publish their own individual timetables, there should also be jointly published information, such as a system map, that includes information for both systems. It should also be noted that the quality and availability of information regarding LOOP was an issue of major concern among the general public and stakeholders. The quality of information regarding the City Bus system was not as much an issue; however, the availability of that information was seen as insufficient.

A third policy in need of integration is bus stops. Currently, the City Bus system and LOOP do not have common designated bus stops. In addition, neither system consistently marks its bus stops with bus stop signs. To maximize the convenience of the overall system, the City Bus and LOOP should designate common bus stops along shared segments. These bus stops should then be marked accordingly with a bus stop sign indicating that both systems make the stop.

To create a seamless transit network from the standpoint of the passenger, it may be necessary to create some type of umbrella association of the two systems. This would not require a merge of the two systems, but rather, both systems would be a part of the overall association. For example, the association could be called “Dutchess Transit” or “Hudson Valley Transit” which would encompass LOOP and City Bus. The logo of the broader association could be used on all public information, internet websites, bus stop signs, and fare media to communicate the idea of there being one overall transit network.

- **Service Coverage Expansions** – One issue that was deemed highly important by both riders and non-riders is the need for more service during weekday and Saturday evenings, as well as on Sunday. This includes service in general as well as the span of service to specific destinations, such as the Galleria Mall. As noted above, the proposed service plan is based on the precept of using the resources of both systems to provide expanded coverage in the evenings and weekends. Expanding service to new destinations currently unserved by transit was not an issue commonly raised by current riders, the general public, or the stakeholders.
- **User Friendliness** – A major planning precept followed in developing the service proposals was to simplify the route structure and introduce user friendly elements to the transit network. Much of the public input received throughout the study effort focused on the complexity of the current LOOP route structure. Currently, LOOP operates 30 separate fixed routes. The schedules of many of these routes include only one or two trips. There are also instances of routes which only provide service for trips in one direction. Under the proposed plan, LOOP would operate six fixed routes in the initial phase of implementation. Each of these routes has few or no variations. The plan also outlines some longer term proposals under which LOOP would operate 11 fixed routes.

The plan eliminates many of the single trips routes LOOP currently operates. Passengers will still be able to make the trips they are currently making on these eliminated routes by using the proposed route structure. LOOP could elect to continue operating some of these specialty routes if they feel the need exists. This could be done with special trippers that do not need to appear in the overall system information, or the service could be provided using a demand responsive run.

Another element of user friendliness that was a focus of the proposed service plan was the use of timed transfer arrangements. For example, the City Bus system currently employs a partial pulse arrangement (i.e., some bus routes arrive and leave a particular stop at the same time) to facilitate transfers at Main and Market in downtown Poughkeepsie. This plan introduces a full pulse of the City Bus system (i.e., all routes arrive and leave at the same time) at Main and Market. In addition, this plan envisions various suburban hubs at which passengers could make timed transfers between other fixed routes. For example, timed transfers will be available at the Galleria Mall between certain fixed routes. The plan is also based on the use of demand responsive services in the more sparsely developed areas of the county which could connect to fixed route services at designated outlying hubs.

- **Terminals/Transfer Stations** – To accommodate the downtown Poughkeepsie timed transfer arrangement, the system “hub” at Civic Center Plaza would continue to be the major hub/transfer point. It is recognized that a new facility is planned for the intersection of Academy and Cannon Streets in downtown Poughkeepsie. It is envisioned that this plan will not be adversely affected by the move of the system hub if this facility is constructed. Other major hubs will include the Galleria Mall and the shopping center in Hyde Park. In addition, as noted above, the plan proposes a

network of suburban transfer locations throughout the county. For the most part, these hubs would be located at established retail centers or major intersections within communities.

- **Service Efficiency** – The Route Diagnostic Analysis and Service Guidelines reports prepared as part of this study effort were used to identify instances in which the current services are inefficient or inadequate. This was done on both a systemwide and route level basis. In addition, the ride check data was used to analyze ridership patterns at the trip and route segment level. With this data, ride checks were used to identify segments on current fixed routes that could either be served in a different manner, or served by demand responsive services.
- **Specialty Markets** – Another precept of the study proposals is to address the needs of specific markets in Dutchess County. Two major markets in the study area include colleges and universities, as well as tourism. The service proposals have been designed to improve the mobility options of area college students. In addition, the service proposals improve the connections between the train stations in the county and the major tourism destinations (e.g., Hyde Park National Historic Site).

Building upon these themes, a comprehensive set of service improvement proposals was developed to guide the development of LOOP and City Bus over the next five years, as well as system expansion options that can provide a transit vision for the area beyond the planning horizon of this document. These proposals are discussed in detail in the following chapter.



## CHAPTER 4 SERVICE PROPOSALS

This chapter describes the recommended service improvements for LOOP and City Bus. These proposals, which build upon the planning themes described in the previous chapter, were designed to increase ridership, improve efficiency, improve the overall quality of transit service throughout Dutchess County, as well as to respond to growth and changing conditions. The proposals describe an initial phase of implementation, enhancements to those proposals, and system expansion proposals designed for the longer term. The proposals for the initial phase of implementation have been designed to enhance the fixed route system within realistic budget expectations. The relevant elements of the proposed service plan include:

- **Definition of Roles** – To reduce duplication between the two systems, primary roles for the two systems were identified. Due to the nature of LOOP, this plan is based on LOOP assuming primary responsibility for service along major corridors in the county. This includes the responsibility of providing a high frequency service on the main trunk line along Route 9 from Hyde Park through the City of Poughkeepsie and south to the Galleria Mall. In other corridors, LOOP would provide a lower level of service based on the tier structure described in the Service Planning Themes chapter. LOOP would also assume the primary responsibility of providing service within, and outside of, the City of Poughkeepsie during the weekday and Saturday evenings, as well as on Sunday. The primary role for City Bus would become an overlay to LOOP, allowing for higher frequency service during the daytime hours along corridors within the City of Poughkeepsie other than the Route 9 corridor. In addition, the role of the City Bus routes will be to provide some “infill” coverage in the City of Poughkeepsie to provide service closer to the residents of some neighborhoods.
- **Coordinated Alignments and Schedules** – Based on the defined roles of the two systems, the route structure of the two systems was laid out in a manner that allows for appropriate frequencies along corridors within, and outside, the City of Poughkeepsie using LOOP routes, City Bus routes, or a combination of the two. Under the plan, the Route 9 corridor between the center of Hyde Park and the Galleria Mall will receive service every 30 minutes using LOOP routes. Other corridors within the City of Poughkeepsie, including the Route 44/55 and Main Street corridor, will also be afforded service every 30 minutes using a combination of LOOP and City Bus routes.

In addition, the routes on the City Bus system currently do not meet the suggested weekday and Saturday span of service guideline of ending service at 7:00 PM and 6:00 PM respectively. Using LOOP routes which operate along the same corridors to provide service during those hours eliminates the need for span extensions on these routes. This also allows the City Bus routes that begin weekday service at 6:30AM to continue to do so. Ride checks performed as part of this study effort showed that the early AM trips received a significant level of ridership.

Another element of the coordination of the two systems is the designation of routes. This plan suggests the City Bus routes be designated with numbers (e.g., Route 1). LOOP routes would be designated with letters (e.g., Route A). This will limit confusion among passengers concerning the services offered by the two systems. The numbering and naming scheme suggested in this document is a suggestion; upon implementation, the systems may elect to utilize a different system. However, any numbering and naming scheme should be designed in consideration of the coordination of services.

- **Streamlined Route Structure** – Under the proposed plan, the City Bus system will continue to operate five bus routes as well as a special route. These routes have been redesigned to better coordinate with LOOP routes that will be operating within the City of Poughkeepsie. LOOP, which, in 2008, operated 30 fixed routes, would undergo a significant redesign and streamlining under the proposed plan. The service proposals call for LOOP to operate only six full-service fixed routes and three commuter train oriented routes.
- **Timed Transfer** – As noted in the precepts section, the plan also builds upon timed transfer arrangements. This includes a full pulse of the City Bus routes at Main & Market. Convenient transfers at designated suburban hubs will also be available between fixed routes and demand responsive services operating throughout the county.
- **Evening and Weekend Service Model** – Through the coordination of LOOP and City Bus, it is possible to provide service along major streets in the City of Poughkeepsie during the weekday and Saturday evenings, as well as on Sunday. Specific LOOP routes were chosen to operate in the evenings and on Sundays to provide service along major corridors within the city as well as along densely developed corridors outside of the city. Many of the service enhancement proposals were designed to afford evening and Sunday service to major shopping destinations such as the Galleria Mall.
- **Phasing** - While this document lists all of the proposed service changes, it should be noted that these changes could be made over a phased implementation. Phasing will be discussed in the recommended plan document.

Building on these elements, a set of base service proposals has been developed for both systems. In addition, potential enhancements to these base proposals have been identified. Lastly, possible transit system expansions have outlined. The details of all of these elements are provided in the following sections.

## Base Service Improvement Proposals

The initial service options and route modification proposals for both LOOP and City Bus are presented below. Together, this group of proposals for both systems will be referred to as the Base Service Improvement Plan.

**Poughkeepsie City Bus** - The current City Bus system consists of six bus routes which utilize the Main and Market Bus Stop (on Civic Center Plaza) as the system's hub and primary transfer point. The proposed modified City Bus route system will continue to utilize this location as its central system hub. The City Bus routes will operate on a full pulse at Main and Market (and later at the new downtown transit facility). Certain routes that pass through Main and Market will be scheduled to meet the pulse in a particular direction. It should also be noted that bus stops should be placed along the proposed route alignments in a manner consistent with the bus stop spacing guideline developed as part of this Transit Development Plan.

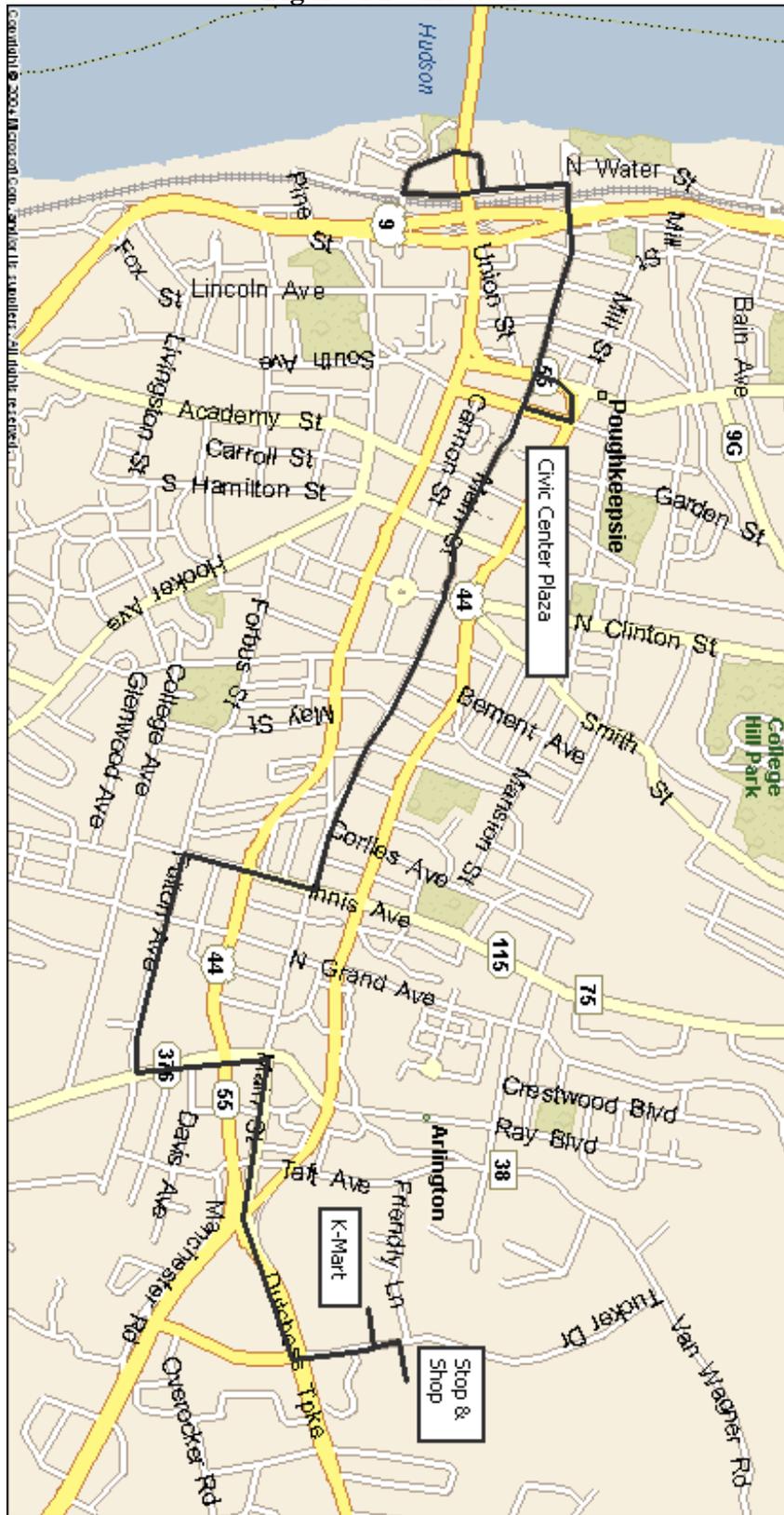
The City Bus routes will be as follows:

- **Route 1 – Main Street** - Route 1 will operate from the Gerald Drive loop on the Hudson River and via Rinaldi Boulevard to Main Street, where it will continue east to the Civic Center Plaza loop (i.e., Civic Center Plaza, Mill Street, Route 44 and Columbus Drive back to Main Street) and then continue east along Main Street, Grand Avenue, Fulton Street, Raymond Boulevard, Main Street, and Route 44 to K-Mart and Stop-n-Shop. Route 1 also provides a connection between downtown Poughkeepsie and the Poughkeepsie Railroad Station. In addition, Route 1 could be used to provide service to Vassar College.

When operating westbound, Route 1 leave Stop-n-Shop and K-Mart and will travel via Route 44, Main Street, Raymond Boulevard, Fulton Street, Grand Avenue, Main Street, then through the Civic Center Plaza loop, from where the Route 1 will continue to operate west on Main Street to Rinaldi Boulevard and into the Gerald Drive loop.

In the initial phase of the service plan, Route 1 will operate every 60 minutes from 7:00 AM to 5:30 PM Monday through Friday and from 8:00AM to 4:00PM on Saturday. There would be no Sunday service. A shorter weekday span of service is proposed for Route 1 since service would be provided by Route D (below) over a more extended span in close proximity to the areas served by Route 1. Service would be coordinated with Route D to offer alternating departures from the Civic Center Plaza bus transfer point. Route 1 will be scheduled to pulse with the other City Routes in the westbound directions.

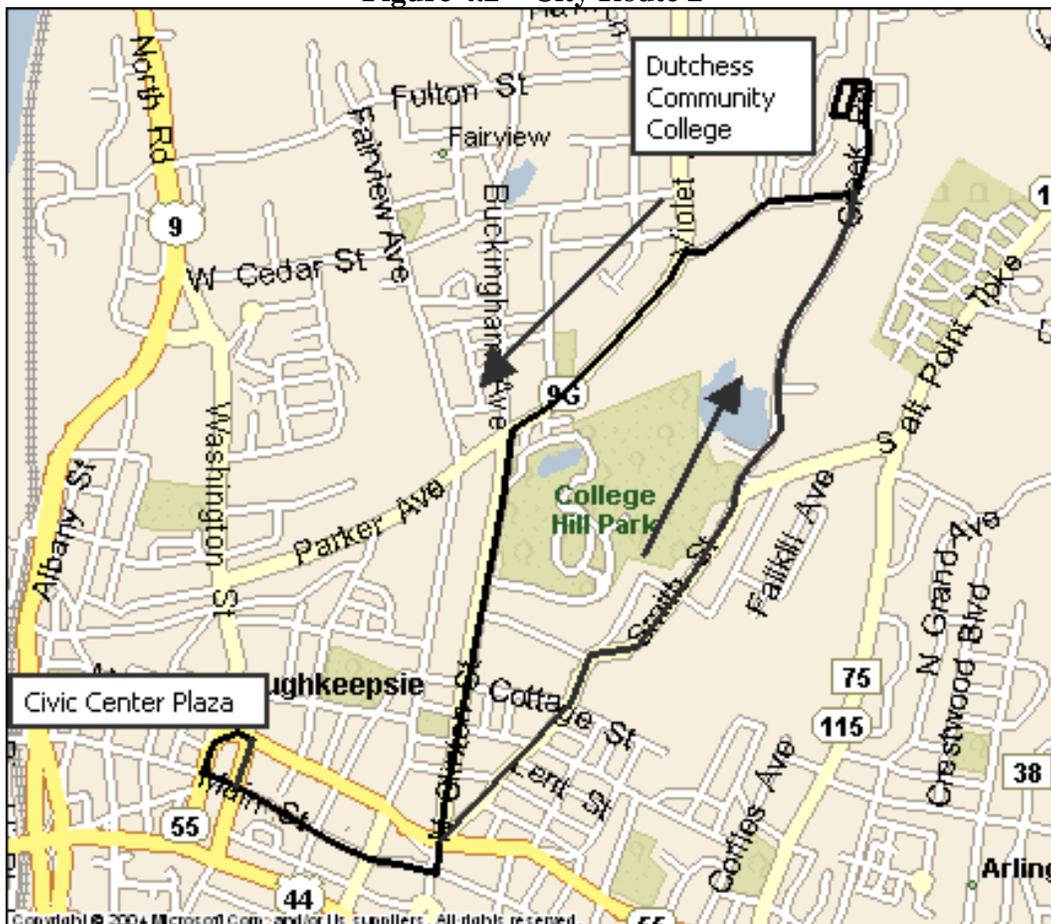
Figure 4.1 – Route 1



- Route 2 – Smith Street/Dutchess Community College** - Route 2 will operate from the Civic Center Plaza loop east on Main Street, north through Clinton Square and onto Smith Street. It will then operate north on Smith Street and Creek Road, serving the Dutchess Community College at Parking Lot E on the east side of Creek Road.

The return trip will leave Dutchess Community College and travel via Pendell Road, Violet Avenue, Parker Avenue, Hamilton Street, and Main Street back to Civic Center Plaza. Under the Base Service Improvement Plan, Route 2 will operate every 30 minutes from 6:30 AM to 6:30 PM Monday through Friday and 8:00 AM to 4:00 PM on Saturday. There will be no Sunday service. Route 2 is shown in Figure 4.2.

Figure 4.2 – City Route 2

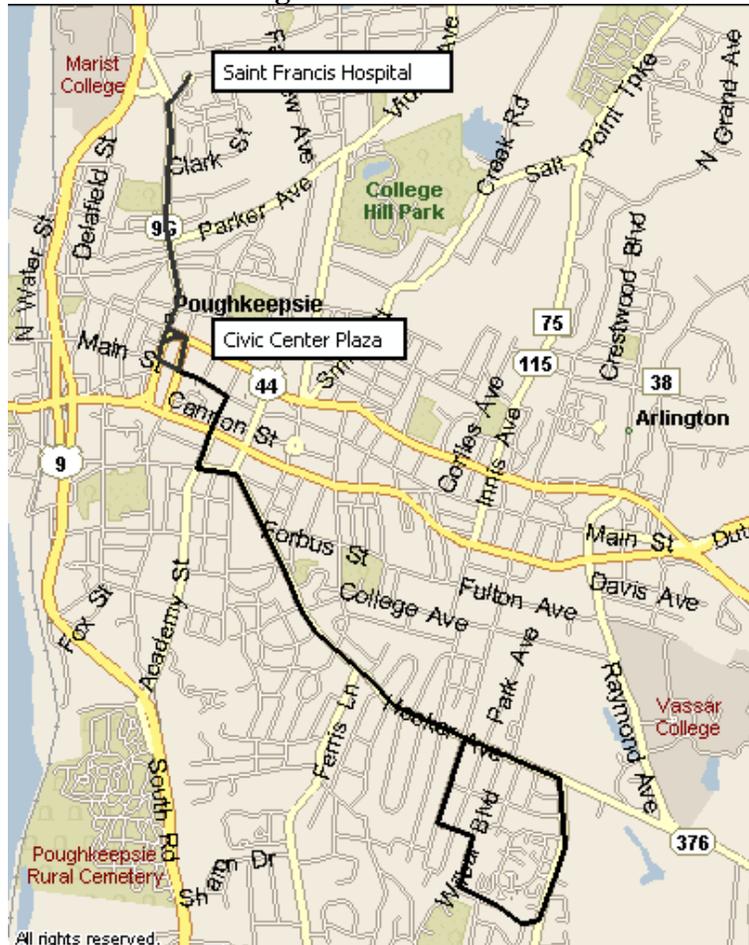


- Route 3 – Hooker Avenue/Saint Francis** - The new Route 3 will operate from the circular driveway in front of Saint Francis Hospital, then travel Baker Avenue, Washington Street, Main Street, then operate a loop via Civic Center Plaza and Route 44 back to Main Street. From there, Route 3 will operate via Main Street, Academy Street, Montgomery Street, Hooker Avenue and continue onto South Grand Avenue,

Arnold Boulevard, Wilbur Boulevard, Miller Road and Cedar Avenue as a turn-around loop back to Hooker Avenue.

Northbound trips on Route 3 will follow the same alignment in the opposite direction. Under the Base Service Improvement Plan, Route 3 would operate service every 60 minutes from 6:30AM to 6:30PM from Monday through Friday and from 8:00AM to 4:00PM on Saturday. There would be no Sunday service. Route 3 is shown in Figure 4.3.

Figure 4.3 – Route 3



- **Route 4 – Mansion Street/Vassar Brothers Medical Center** – The new Route 4 will begin at the intersection of Pehl Road and Innis Avenue and operate via Innis Avenue, Emmott Place, Corlies Avenue, Mansion Street, Columbus Drive, Civic Center Plaza, Mill Street, Columbus Drive, Market Street, Montgomery Street, Lincoln Avenue, and Reade Place into the Vassar Brothers Medical Center complex.

On the northbound trip, Route 4 will leave Vassar Brothers and travel via Young Street, Columbia Street, Lincoln Avenue, Montgomery Street, Market Street, Civic



Figure 4.5 – Route 5



- **Route 6 – Special** – The current City Bus route “Special” would continue to operate and be designated Route 6. This route, which operates two round trips daily, provides service to the Middle School from various neighborhoods in the City of Poughkeepsie. The route would follow the current schedule and alignment.

**Dutchess County LOOP** - Presently, LOOP operates several different types of bus routes which vary in terms of the areas served, the extent of the service areas, the days of operation, the frequencies of operation (with some routes only operating one or two trips per day) and other factors. As currently configured, the Dutchess County LOOP system is very complex and difficult for occasional or first-time riders to comprehend.

Due to these factors, this plan proposes a new approach for the Dutchess County LOOP system, consisting of six bus routes that are simpler, more straightforward and more easily understood. One important element of the plan is that it will significantly increase the availability of one-seat connections along the Route 9 corridor between Hyde Park and Beacon or Fishkill. The plan also provides longer term proposals for an additional three fixed routes. In addition, under the proposed plan, LOOP will provide expanded curb-to-curb services to the general public. It should also be noted that bus stops should be placed along the proposed route

alignments in a manner consistent with the bus stop spacing guideline developed as part of this Transit Development Plan. The proposed Dutchess County LOOP system would be operated as follows:

- **Route A – Hyde Park-Fishkill via Route 9** - Route A would operate between the center of Hyde Park (Route 9 and CR 41) and Fishkill via the downtown bus transfer center on Civic Center Plaza in Poughkeepsie and the Poughkeepsie Galleria Mall along the Route 9 corridor. Route A would become one of the two primary north-south bus services along the Route 9 corridor which, when combined, will provide an enhanced frequency of service along this important trunk corridor.

Southbound trips on Route A would begin at the Hyde Park Town Hall parking lot then travel south on Route 9 and Marist Drive, from which Route A would access Baker Avenue to serve the circular driveway at Saint Francis Hospital. Returning to southbound North Road, Route A would follow North Road until it becomes Washington Street and then operate westbound on Verrazano Boulevard, which becomes Mill Street. The route will then utilize Davies Place and Railroad Avenue to directly access the Poughkeepsie Railroad Station. Route A would exit the railroad station onto eastbound Main Street and utilize this street back to Civic Center Plaza.

To access Civic Center Plaza, southbound trips on Route A would travel eastbound on Main Street, the north on Civic Center Plaza, then south on Columbus Drive to Church Street. From there, southbound trips on Route A would travel eastbound on Church Street, south on Academy Street and Old South Road onto southbound Route 9. Route A would then continue on southbound Route 9 and serve the Poughkeepsie Galleria Mall. From the Poughkeepsie Galleria Mall, Route A would serve the South Hills Mall and operate along Route 9 through Fishkill (and serve a loop through Fishkill via Main, Jackson and Broad Streets) and continue south to serve first the Wal-Mart, Sams Club, Westage Center, and various hotels, and then the Gap Distribution Center on Merritt Boulevard. Returning to southbound Route 9, Route A would terminate at the Home Depot-Fishkill. If demand to the Home Depot-Fishkill does not warrant service, Route A would terminate at the Gap Distribution Center.

Route A would operate northbound from the Home Depot-Fishkill through the Gap Distribution Center, Wal-Mart and the previously described loop through Fishkill to the South Hills Mall and the Poughkeepsie Galleria Mall, from which it would continue northbound on Route 9. It would then exit Route 9 via the Academy Street exit and travel Academy Street, Noxon Street, and Market Street to Civic Center Plaza. It would then proceed westbound on Main Street to Davies Place and Railroad Avenue to directly serve the Poughkeepsie Railroad Station. Route A would then exit the rail station via eastbound Main Street and would then follow Clover Street, Mill Street, Verrazano Boulevard, Washington Street, Baker Avenue to the circular driveway in front of Saint Francis Hospital, then Baker Avenue back to northbound Washington Street, then Marist Drive to Route 9. Route A would then follow Route 9 northbound to the center of Hyde Park at the intersection of Route 9 and CR 41.

Route A should directly serve the Henry A. Wallace Visitors Center of the National Historic Site in Hyde Park in both directions of travel by using Estates Lane off of Route 9. However, this would be difficult in the northbound direction, since this would require a left turn onto Route 9 northbound at an intersection with no traffic control. The installation of a traffic signal at this intersection should be pursued to facilitate transit service to this major tourism site in the county.

All trips in the weekday AM and PM peak periods would also serve the IBM-Poughkeepsie campus off Route 9.

The Wal-Mart, as well as the Poughkeepsie Galleria Mall, would function as transfer locations with the demand responsive feeder services. The Home Depot-Fishkill is also a transfer location with intercity bus services utilizing Interstate 84.

Route A would operate every 60 minutes between Hyde Park and the Home Depot-Fishkill in Fishkill throughout its service day on weekdays and weekends. The span of service on Route A would be from 7:00AM to 11:00PM Monday through Saturday, and from 9:00AM to 7:00PM on Sunday.

Because Route A and Route B both operate between Hyde Park and the Poughkeepsie Galleria Mall via the downtown transit center at Civic Center Plaza, the frequency of service between these destinations would be every 30 minutes. The two routes would be scheduled to depart the Civic Center plaza in downtown Poughkeepsie 30 minutes apart. Route A is shown in Figure 4.6 and Figure 4.7.

Figure 4.6 – Route A  
Proposed Routing between Poughkeepsie and Fishkill

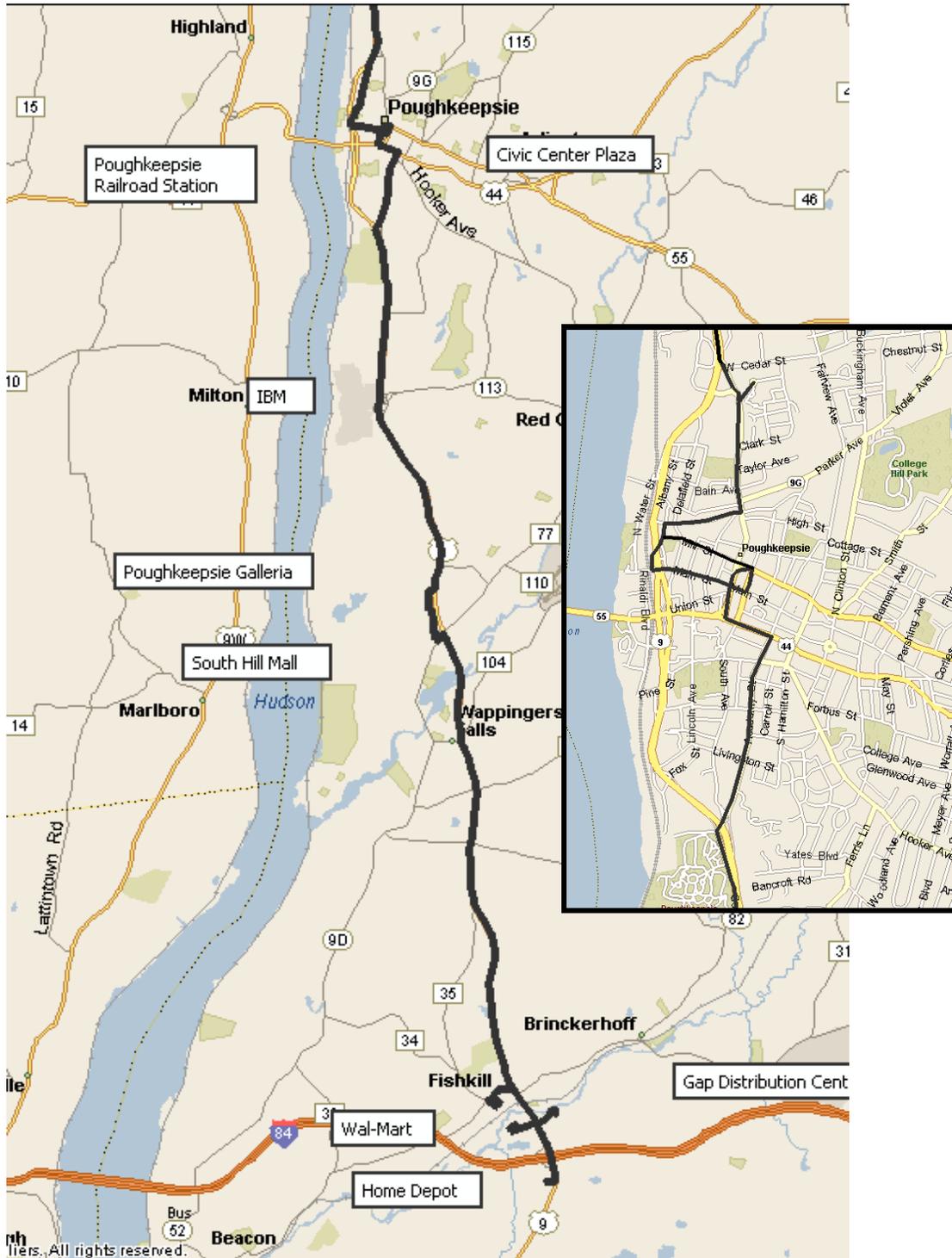
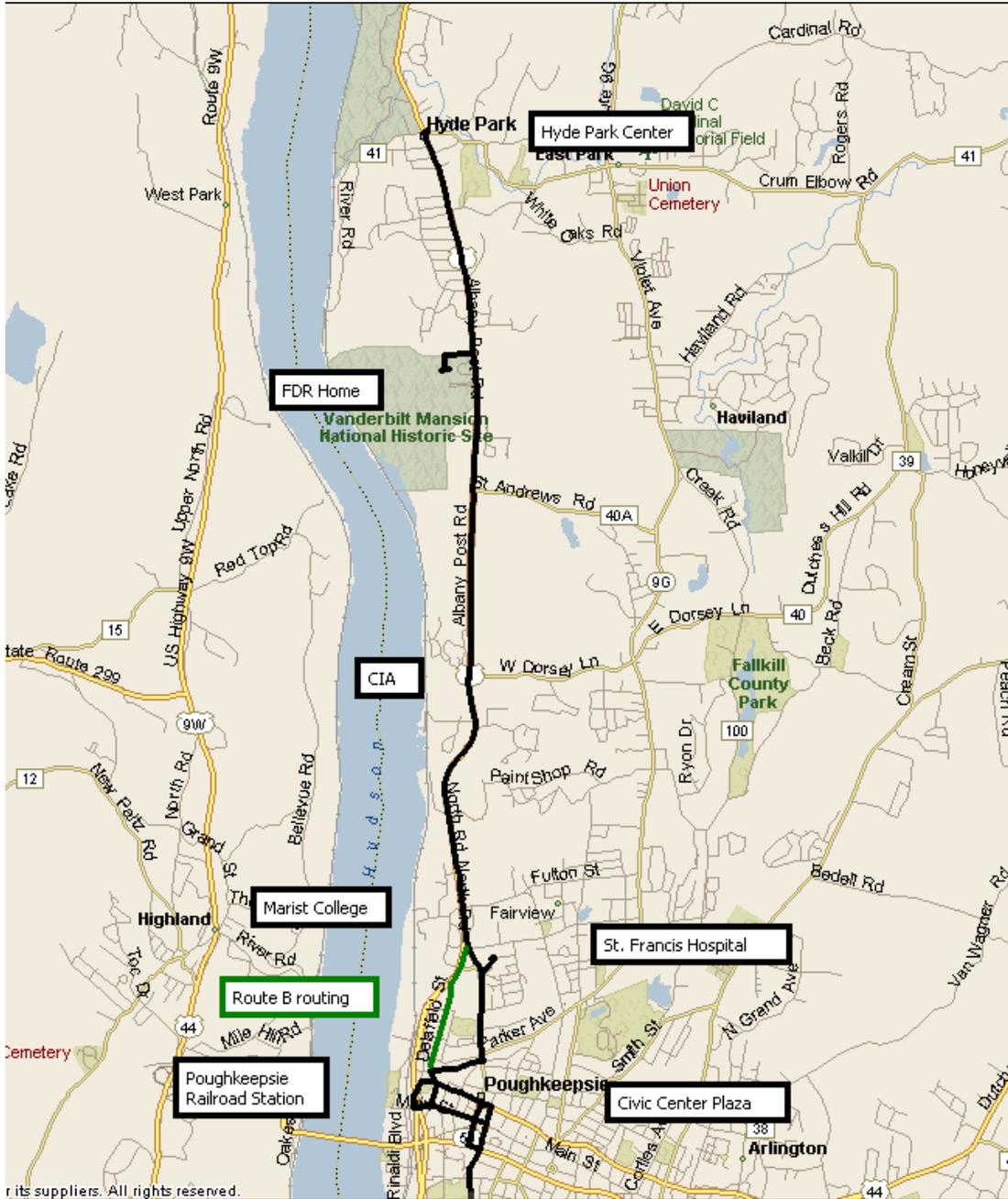


Figure 4.7  
Routes A and B between Hyde Park and Civic Center Plaza



- **Route B – Poughkeepsie-Beacon via Route 9 and Route 9D** - Route B would operate between the center of Hyde Park (Route 9 and CR 41) and Beacon via downtown Poughkeepsie and the Poughkeepsie Galleria Mall along Route 9 and Route 9D. Route B would become the second of the two primary north-south bus services along the Route 9 corridor which, when combined, will provide an enhanced frequency of service along this important trunk corridor.

Southbound trips on Route B would begin at the intersection of CR 41 and Route 9 in Hyde Park and travel south on Route 9 then Delafield Street, Mill Street, Davies Place and Railroad Avenue to the Poughkeepsie Railroad Station. Route B would exit the railroad station onto eastbound Main Street and utilize this street back to Civic Center Plaza.

From Civic Center Plaza, southbound trips on Route B would travel Civic Center Plaza, Columbus Drive, Church Street and Market Street to South Street, then South Street, Reade Place and Lincoln Avenue to serve Vassar Brothers Medical Center, then Lincoln Avenue and Livingston Avenue back to South Avenue. From there, Route B would travel via South Avenue to Academy Street, and Old South Road onto southbound Route 9. Route B would then continue on southbound Route 9 and serve the Poughkeepsie Galleria Mall. From the Poughkeepsie Galleria Mall, Route B would serve the South Hills Mall and operate along Route 9 and Route 9D – serving Wappingers Falls – to a turn-around loop in Beacon via Beekman Street, Wolcott Avenue, Teller Avenue and Main Street.

Route B would operate northbound from Beacon through Wappingers Falls to the South Hills Mall and the Poughkeepsie Galleria Mall, from which it would continue northbound on Route 9. It would serve downtown Poughkeepsie from Route 9 onto South Avenue, then Reade Place, Lincoln Avenue and Livingston back to South Avenue. Route B would then return to northbound South Avenue which directly feeds into Market Street. Route B would then follow Market Street to Civic Center Plaza.

From Civic Center Plaza, northbound trips on Route B would travel via Mill Street, Davies Place and Railroad Avenue to directly serve the Poughkeepsie Railroad Station. It would exit the railroad station onto eastbound Main Street but would then immediately utilize Davies Place northbound to eastbound Mill Street, then Delafield Street to Route 9. Route B would then continue on northbound Route 9 to the center of Hyde Park at the intersection of Route 9 and CR 41.

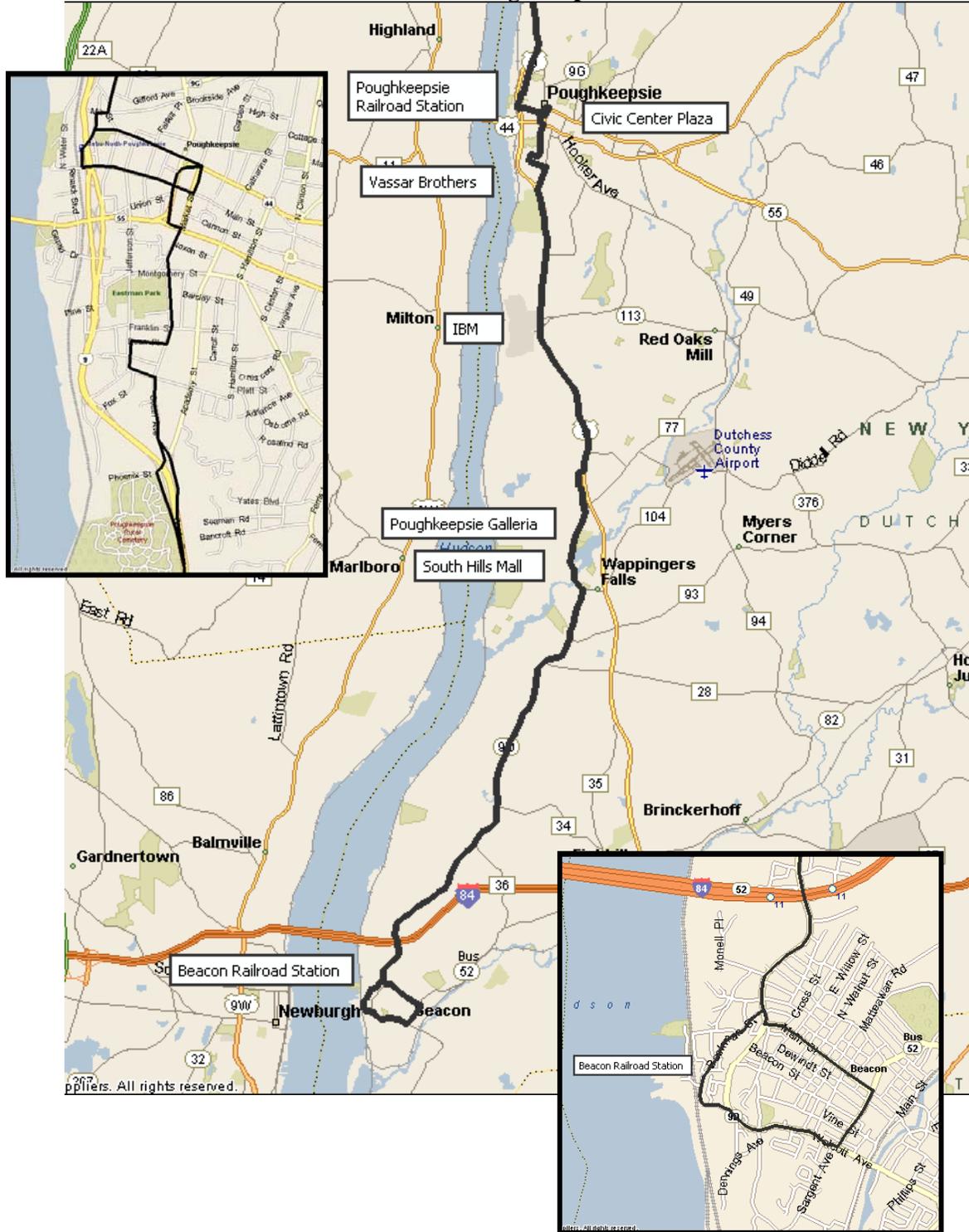
Route B should directly serve the Henry A. Wallace Visitors Center of the National Historic Site in Hyde Park in both directions of travel by using Estates Lane off of Route 9. However, this would be difficult in the northbound direction, since this would require a left turn onto Route 9 northbound at an intersection with no traffic control. The installation of a traffic signal at this intersection should be pursued to facilitate transit service to this major tourism site in the county.

Service would also be provided to the Castle Point VA Center upon request. Passengers could request the stop be made at Castle Point upon boarding the bus. To be picked up at Castle Point, the passenger would have to call LOOP ahead of time to request that a particular trip serve Castle Point. All trips in the weekday AM and PM peak periods would also serve the IBM-Poughkeepsie campus off Route 9.

The route would serve the Beacon Railroad Station (i.e., off of Beekman Street) and would utilize this facility, as well as the Poughkeepsie Galleria Mall, as transfer locations with the demand responsive feeder services.

Route B would operate every 60 minutes between Hyde Park and Beacon throughout its service day on weekdays and weekends. Because Route B and Route A both operate between Hyde Park and the Poughkeepsie Galleria Mall via the downtown Poughkeepsie transit center, the frequency of service between these destinations would be every 30 minutes. The two routes would be scheduled to depart Hyde Park and the Civic Center plaza in downtown Poughkeepsie 30 minutes apart. The span of service on Route B would be from 7:00AM to 11:00PM from Monday through Saturday. No Sunday service would be operated. Route B is shown in Figure 4.8.

Figure 4.8  
Route B between Poughkeepsie and Beacon



- **Route C – Poughkeepsie-Tivoli via Route 9, Route 9G & Dutchess Community College** - Route C would begin at the Civic Center Plaza and operate via Washington Street to Parker Avenue (i.e., Route 9G). It would then operate via Parker Avenue, Buckingham Avenue, and Cedar Street back to Route 9G southbound. Route C would then utilize Pendell Road, and Creek Road to serve the bus stop at Parking Lot E on the east side of Creek Road at Dutchess Community College. From there, Route C would continue north on Creek Road and Cottage Road to return to Route 9G. Route C would then return to northbound Route 9G, and utilize St. Andrew's Road into Hyde Park where the route would connect with Routes A and B at the Hyde Park Stop-and-Shop.

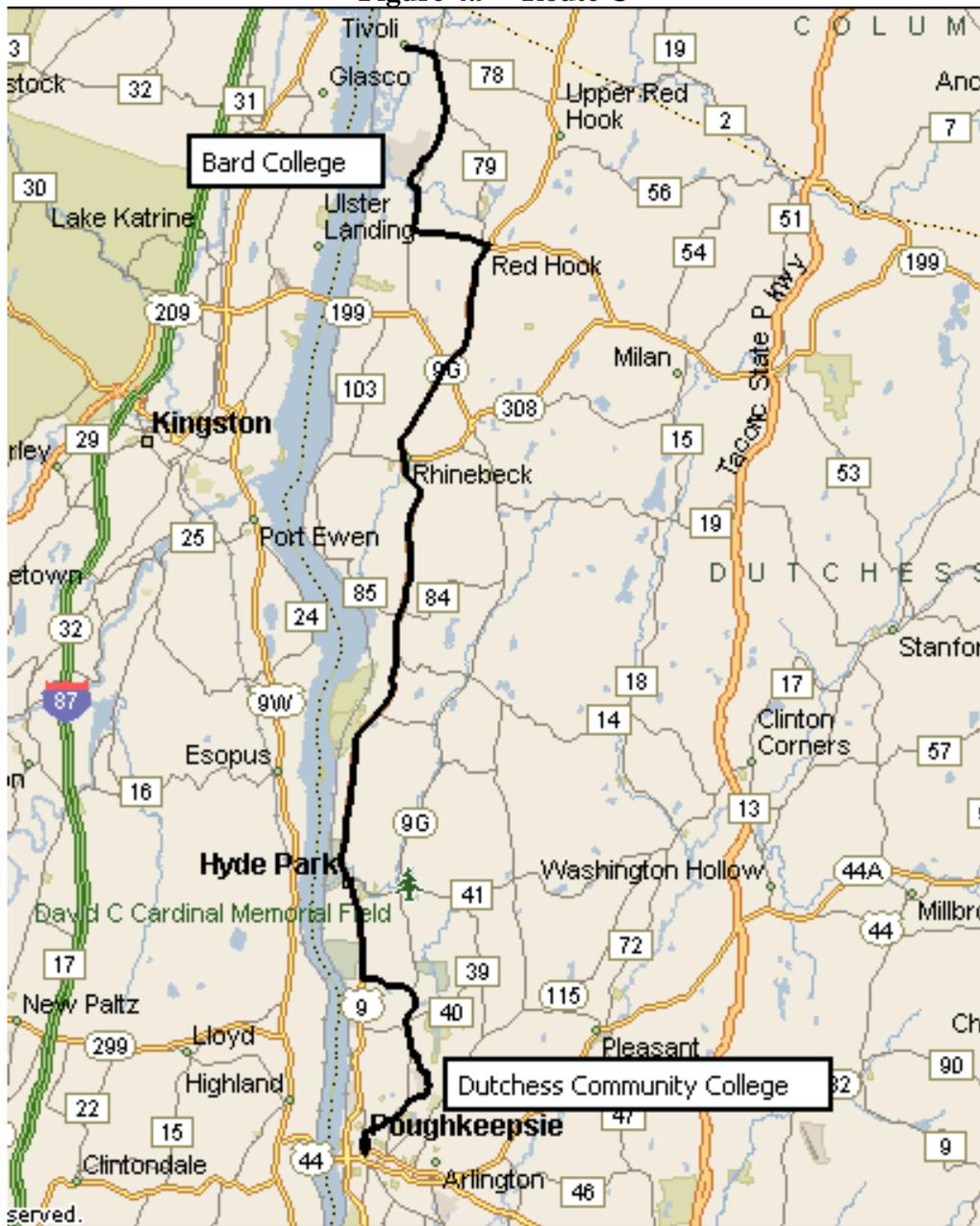
From Hyde Park, Route C would continue north along Route 9 into Red Hook, utilize Route 199 and Route 9G to operate through the Bard College campus via Annandale Road (i.e., CR 103), and continue north on Route 9G and CR 78 to Tivoli where the route would serve a turn-around loop utilizing Broadway (i.e., CR 78), Woods Road, Elizabeth Drive and Greentree Road.

Route C would return to Poughkeepsie via the same route alignment. The Stop-and-Shop in Hyde Park would function as a transfer location with the demand responsive feeder services. Route C is shown in Figure 4.9.

Route C would operate every 120 minutes from 7:00AM to 7:00PM from Monday through Friday, and 7:00AM to 5:00PM on Saturday. No Sunday service would be provided.

To provide service to the Amtrak Rhinecliff Station, LOOP could make Route C service available to the station upon request. This should be available only during the peak tourism season. Other options to serve the station would be to use a Flex Service (described later) vehicle to respond to any requested trips to the station during designated times or to have Route C serve the Poughkeepsie Rail Station during the summer months. This would maintain the connection between Amtrak service and the northwestern portion of the county. Another option would be to have a dedicated vehicle running between the station, Red Hook, and Bard College on days when there are events. This could be supported through a funding partnership with Dutchess County Tourism or Bard College.

Figure 4.9 – Route C



- **Route D – Poughkeepsie-Pleasant Valley/Millbrook via Route 44** - Route D would operate from the Civic Center Plaza loop in Poughkeepsie and operate along Route 44 as far east as Route 44 A, then CR 44A, and back to Route 44, through Millbrook, and to the Eastern Dutchess Government Center in the Town of Washington located on Summit Road south of the intersection of Routes 82 and 343 near Millbrook. It would return to Poughkeepsie via the same route alignment. The route will also serve Adams on Route 44 and Stop & Shop on Tucker Drive.

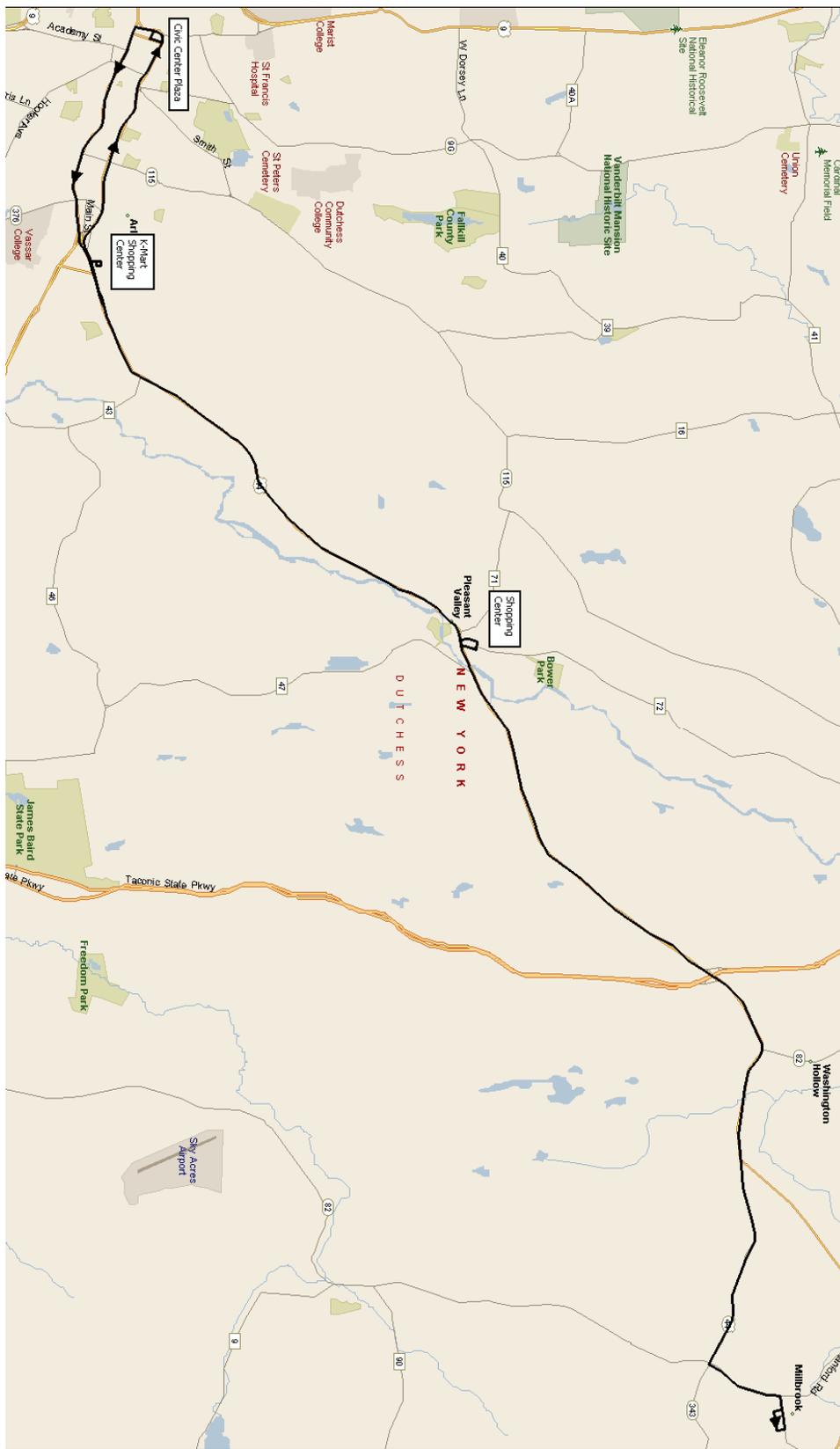
The Millbrook office building would function as a transfer location with the demand responsive feeder services, as would the shopping center in Pleasant Valley located at the intersection of CR 72 and Route 44.

Route D would operate hourly between Poughkeepsie and Millbrook throughout its service day on weekdays and weekends. Between Poughkeepsie and Pleasant Valley, the span of service would be from 7:00AM to 11:00PM from Monday through Friday, 7:00AM to 7:00PM on Saturday, and 9:00AM-7:00PM on Sunday. Service to Millbrook would be provided from 7:00AM to 7:00PM from Monday through Saturday, with no Sunday service.

In addition, two round trips will be operated on Route D to the Wassaic Development Center. The first trip will leave downtown Poughkeepsie at approximately 5:00AM with the second trip leaving downtown Poughkeepsie at approximately 1:00 PM.

Route D is shown in Figure 4.10.

Figure 4.10 – Route D

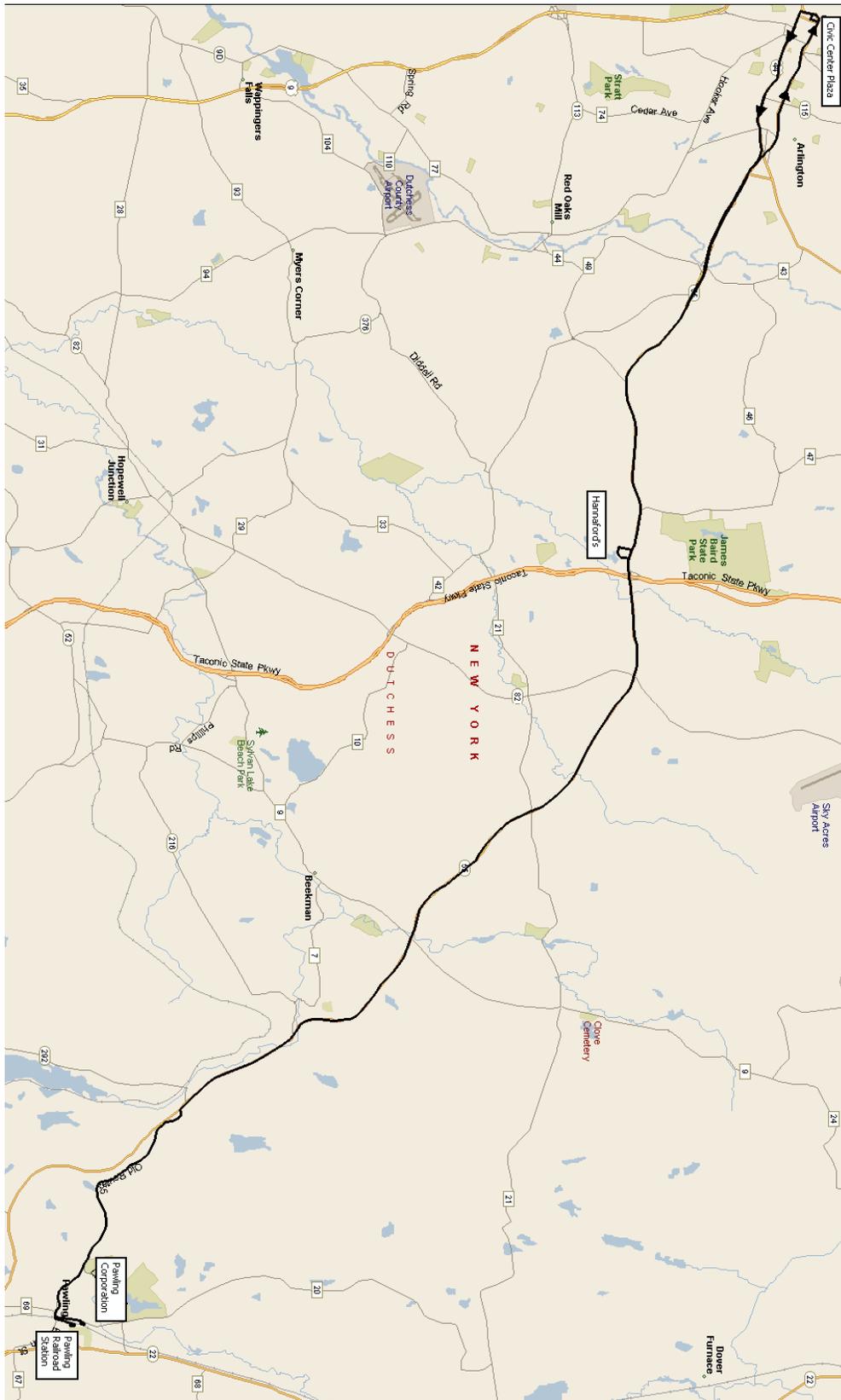


- **Route E – Poughkeepsie-Freedom Plains/Pawling via Route 55** - Route E would operate from the Civic Center Plaza loop in Poughkeepsie, serving the bus transfer center, and along Route 55 as far east as the Pawling Railroad Station. This route would access the Pawling Railroad Station via Route 55, CR 69, West Main Street and Memorial Avenue. All trips in both directions will utilize Charles Colman Boulevard to serve the Pawling Corporation. The extension to Pawling Corporation should be carefully monitored and eliminated if ridership does not meet expectations. It would return to Poughkeepsie via the same route alignment.

The Pawling Railroad Station would function as a transfer location with the demand responsive feeder services, as would the Hannaford's at the intersection of Route 55 and Stringham Road in LaGrange.

Route E would operate hourly between Poughkeepsie and the Hannaford's at Stringham Road throughout its service day on weekdays and weekends. Service beyond Hannaford's to Pawling would be operated every two hours. Upon full implementation of the service plan, Route E would operate from 7:00AM to 7:00PM from Monday through Friday. On Saturday, the span of service would be from 7:00AM to 7:00PM; no service would operate past Hannaford's on Saturday. There would be no Route E service on Sunday. Route E is shown in Figure 4.11.

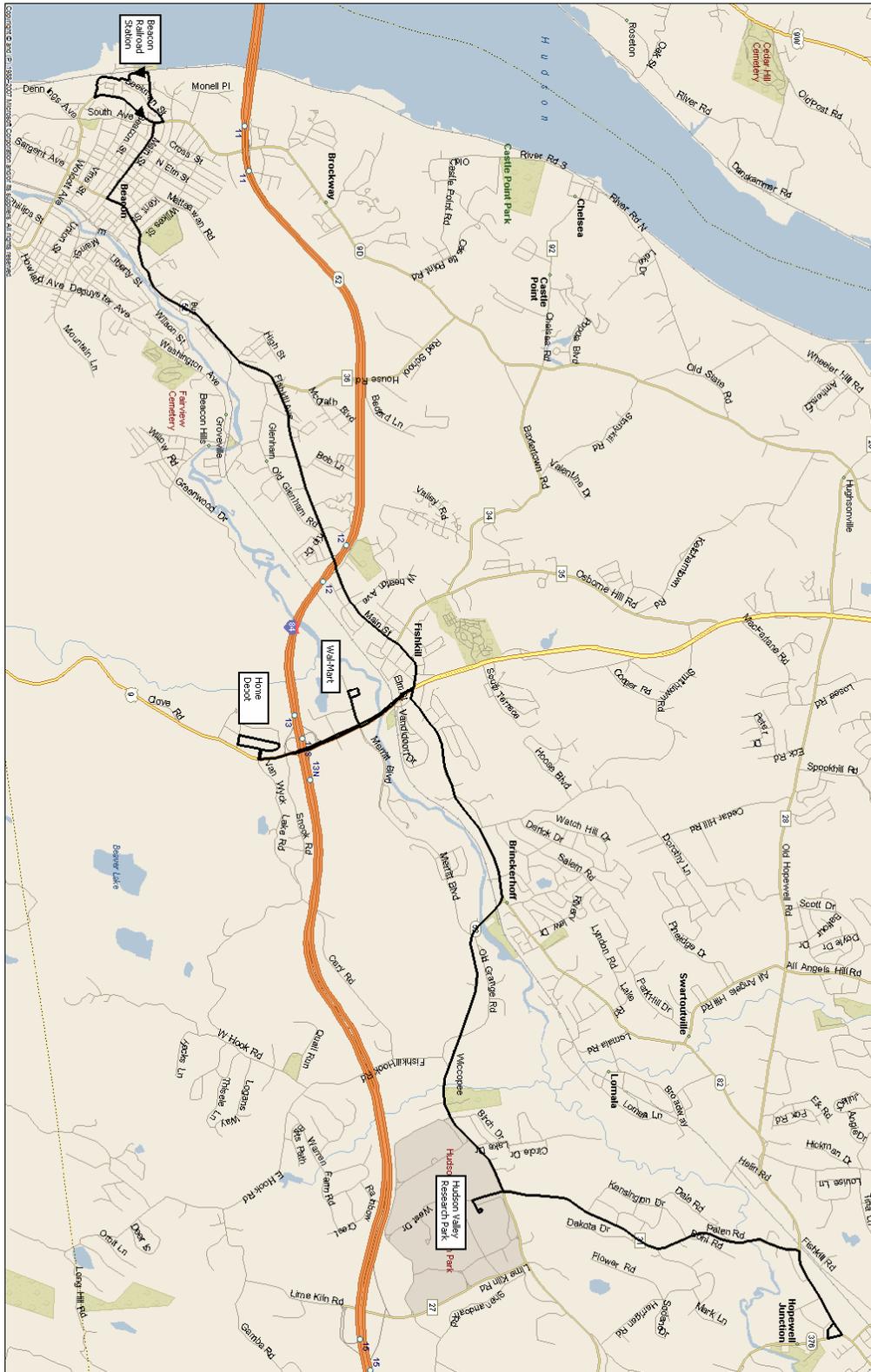
Figure 4.11 – Route E



- **Route F – Beacon-Hopewell Junction via Fishkill/Home Depot & Hudson Valley Research Park** - Route F would connect with Route B at the Beacon Railroad Station and would operate from there via Beekman Street and Wolcott Avenue to Main Street (i.e., Route 52) and follow Route 52 through Fishkill to Route 9, from which it would serve the Wal-Mart on Merritt Boulevard, as well as destinations on Merritt Boulevard east of Route 9, and then the Home Depot-Fishkill. It would then return to Route 9 northbound and utilize Route 52 to serve the circular driveway on Administration Court at the Hudson Valley Research Park. Route F would then depart the Hudson Valley Research Park via CR 31 and utilize Route 82 to terminate at the Unity Plaza in Hopewell Junction. It would return to Beacon via the same route alignment. The Beacon Railroad Station, the Home Depot and the shopping center in Hopewell Junction would all function as transfer locations with the demand responsive feeder services.

Route F would operate every 120 minutes between 7:00AM and 7:00PM Monday through Saturday. There would be no Sunday service on Route F. Route F is shown in Figure 4.12.

Figure 4.12 – Route F



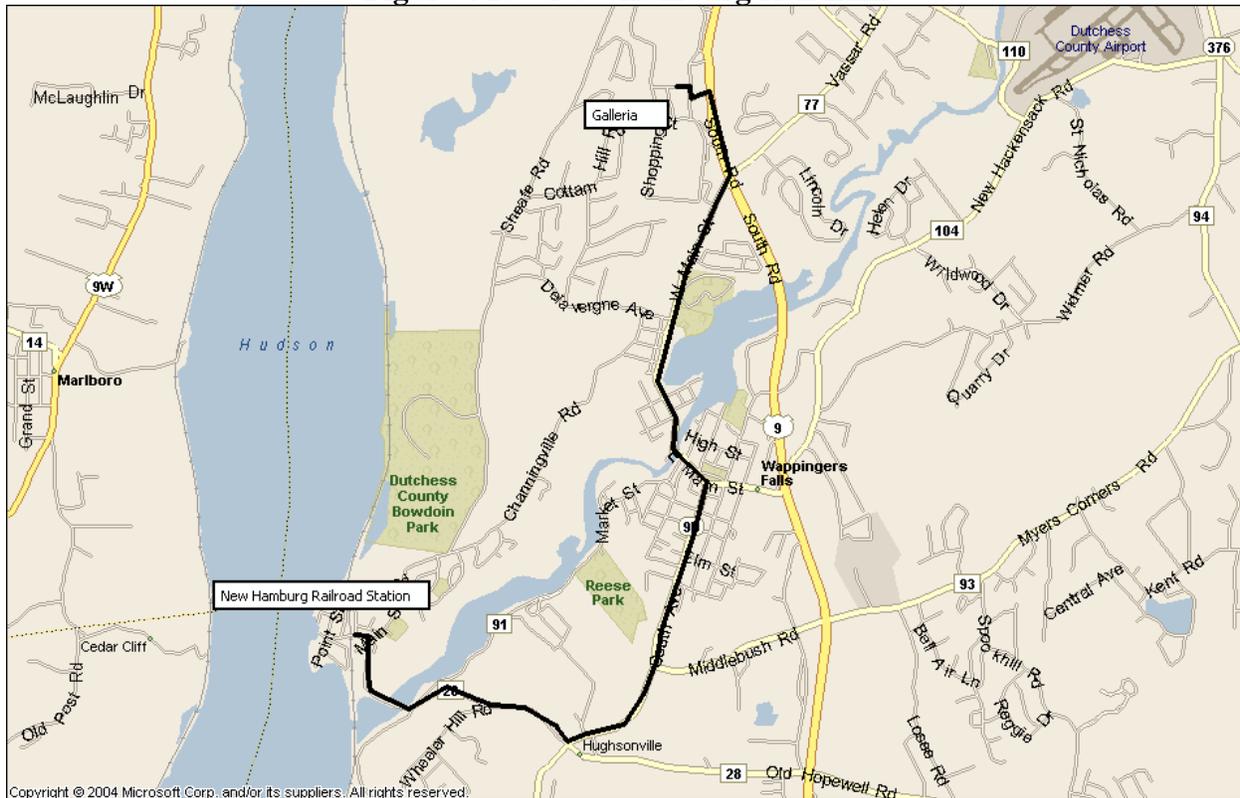
- **Commuter Train Connection (CTC) Services** - As was previously mentioned, the Hyde Park CTC service is eliminated under the Base Service Improvement Plan. Of the remaining three CTC services, two – Poughkeepsie (Apple Valley) and Beacon – will continue to operate with no modifications. The current Apple Valley CTC will be renamed the Poughkeepsie CTC. As the LaGrange Town Center is developed, it may be beneficial to extend this route to begin at the Hannaford's. It will also be beneficial to publicize the various ways passengers can connect from the new downtown Poughkeepsie transit center to the Poughkeepsie Railroad Station. A special public information effort including signage and printed information should be undertaken to explain to passengers the various routes that will be available to make this connection. This will include the Poughkeepsie CTC, Route 1, Route 4, Route A, Route B, and Route C.

In addition, all CTC services will be rebranded as “Rail Link” services to better emphasize the fact that trips on MTA Metro-North Railroad can be made for purposes other than commuting to Manhattan. This will also be consistent with similar bus services provided in the New York metropolitan area that are designed to connect with Metro-North rail services.

The New Hamburg Rail Link will be modified as illustrated in Figure 4.13. The route will serve Wappingers Falls and will meet five AM peak period trains and five PM peak period trains on weekdays. The new routing will allow for shorter travel time between the Village of Wappinger and the rail station, and will also allow for bi-directional service between these two destinations.

This proposal would eliminate the Angels Hill Road portion of the current CTC route. Ride checks showed very little demand from that area.

Figure 4.13 – New Hamburg Rail Link



- LOOP Curb-to-Curb Services** - The six fixed routes would be complemented by an expansion of the Dutchess County LOOP curb to curb services available to the general public (i.e., an expansion of the current Rural Paratransit service). Under this service, passengers wishing to make a trip within designated service zones (i.e., groups or municipalities) will be afforded curb-to-curb service. For those passengers traveling beyond the defined service zone, they will be brought to one of the suburban transfer points noted above where they can transfer to the fixed route network to complete their trip.

The first item to note would be that the name of the current program would be changed. The name Rural Paratransit could be misleading and affect demand for the service. The service, as proposed, will operate in suburban and rural areas. Also, the designator of “paratransit” often creates the impression that the service is for specific populations, whereas this service will be open to the public. Other transit systems have adopted names such as Flex Service or Hopper Service for this service model. For the remainder of this document, the name Flex Service will be used to describe this program. Dutchess County could elect to use a different name.

Based on the experience of other transit systems, flexible service zones begin to lose effectiveness after they exceed 25 square miles, with the limits of the zone being approximately 5 miles apart. In consideration of these observed patterns, the proposed expansion of the Rural Paratransit Program (now Flex Service Program)

breaks Dutchess County into various zones. Passengers traveling within that zone would be afforded curb-to-curb service. Passengers traveling outside of the zone would be brought to a location where they could transfer to fixed route services. Table 4.1 lists the zones and the location at which passengers could transfer to proposed fixed route services. In addition, the table lists the number of days per week when Flex Service would be made available in the zones upon full implementation of the program. As the table shows, each zone will be afforded service on two days per week.

Table 4.1 also separates the various zones into four categories: Northwest Zones, Northeast Zones, Southeast Zones, and Suburban Zones.

**Table 4.1**

<b>Zone</b>	<b>Fixed Route Transfer Point</b>	<b>Days per week</b>
<b>Northwest Zones</b>		
Town of Red Hook, Village of Red Hook, Village of Tivoli, Town of Milan	Red Hook	2
Town of Rhinebeck, Village of Rhinebeck, Town of Clinton	Rhinebeck or Hyde Park	2
Town of Washington, Village of Millbrook	Millbrook	2
<b>Northeast Zones</b>		
Town of Pine Plains, Town of Stanford	Millbrook	2
Town of North East, Town of Amenia, Village of Millerton	Millbrook	2
<b>Southeast Zones</b>		
Town of Union Vale, Town of Beekman	Beekman	2
Town of Dover, Town of Pawling, Village of Pawling	Pawling	2
<b>Suburban Zones</b>		
Town of Wappinger, Village of Wappingers Falls	Various locations	2
Town of Fishkill, Town of East Fishkill, Village of Fishkill	Various locations	2
Town of Pleasant Valley, Town of LaGrange	Various locations	2
Town of Hyde Park	Various locations	2

It is proposed that the Flex Service Program be coordinated with existing Dial-a-Ride vehicle runs. Excess capacity on these runs could be used to meet the demand of the Flex Service. The study process included a detailed analysis of how Flex Service could be implemented in conjunction with the Dial-a-Ride program. The results are provided in the Flex Service Implementation Plan report. Additional implementation details are provided in the Recommended Plan chapter. One important development to note is that, as of 2009, the Towns of Dover Union Vale are no longer participating in the Dial-a-Ride program.

In the initial phase I of implementation, Flex Service would be made available over the current span of service of the Dial-a-Ride program (8:00AM – 4:00PM). Future phases of the Flex Service program would extend the span of Flex Service later into the evening, Monday through Friday, where demand warrants.

The Flex Service model could also be used to extend service to specific locations such as schools or employment sites. These Flex Service runs could meet fixed route services at a particular transfer location and provide connections to the specified destination at particular times of the day. This model could be used for a destination such as Lourdes High School in the Town of Poughkeepsie, which would no longer be served by fixed route service under the proposals described above. One way to restore service would be to make a Flex Service run available at the downtown Poughkeepsie transit hub at certain times in the morning. Students could then use LOOP or City Bus routes to travel to the transit hub and then transfer to the Flex Service run. A return trip could be provided in the afternoon. Under this model, a cost sharing arrangement could be pursued with the school, employer, or other institution requesting this service.

An example of the use of Flex Service for an employment site would be the need to transport employees to the Gap Distribution site during the holiday season. A Flex Service vehicle could be used to transport employees to the employment site during hours in which fixed route service is not operating. The vehicle could operate on a flexible basis in a particular zone, such as the City of Poughkeepsie, then continue straight to the Gap location. Employees could then be picked up at the Gap site and brought to locations in the specified zone for their commute home, again, during the hours when fixed route is not available. As noted, it is recommended that these uses of Flex Service be funded through cost sharing arrangements. Potential funding sources for the public sector contribution could be the Federal Transit Administration's Job Access Reverse Commute (JARC) program (Section 5316).

## **Enhanced Service Improvement Proposals**

Throughout the planning horizon of this document, certain enhancements could be made to the proposed routes described above. These enhancements would increase the overall operating cost of the transit system in the county and would require additional financial support. These enhancements, which together will be referred to as the Enhanced Service Improvement Plan, are described below:

- **Routes 1, 4, and 5** – Under the Enhanced Service Improvement Plan, the weekday span of service on Routes 1, 4 and 5 would be extended to 12 hours. Also, Saturday service would be introduced on Route 5 between the hours of 8:00AM and 4:00PM. This would offer a consistent schedule on each of the City Bus routes, adding to the user friendliness, convenience, and utility of the system.

- **Route A – Hyde Park-Fishkill via Route 9** – Under the Enhanced Service Improvement Plan, Sunday evening service along the entire route would be extended from 8:00AM to 10:00PM.
- **Route B – Hyde Park-Beacon via Route 9 and Route 9D** – Under the Enhanced Service Improvement Plan, Sunday service would be offered on Route B 9:00AM to 7:00PM. This would result in 30 minute service between Hyde Park and the Poughkeepsie Galleria Mall during those hours on Sunday.
- **Route D – Poughkeepsie-Pleasant Valley/Millbrook via Route 44** – Under the Enhanced Service Improvement Plan, service on Saturday evening would be provided between Poughkeepsie and Pleasant Valley until 11:00 PM.
- **Route F – Beacon-Hopewell Junction via Fishkill/Home Depot & Hudson Valley Research Park** – Under the Enhanced Service Improvement Plan, Route F would operate every 60 minutes between 7:00AM and 7:00PM from Monday through Friday and between 7:00AM and 7:00PM on Saturday. There would be no Sunday service on Route F. Earlier westbound trips could be added to provide a Commuter Train Connection (now called Rail Link) type trip connecting Hopewell Junction and Fishkill with the Beacon Train Station. Later evening eastbound trips could also be added. The last two to three eastbound trips in the evening could be scheduled to wait for the arrival of specific trains at the Beacon Train Station to serve homebound commuters. The socioeconomic and demographic analysis prepared as part of this study effort did show a potential commuter market in Fishkill and East Fishkill.

### Longer Term System Expansion Proposals

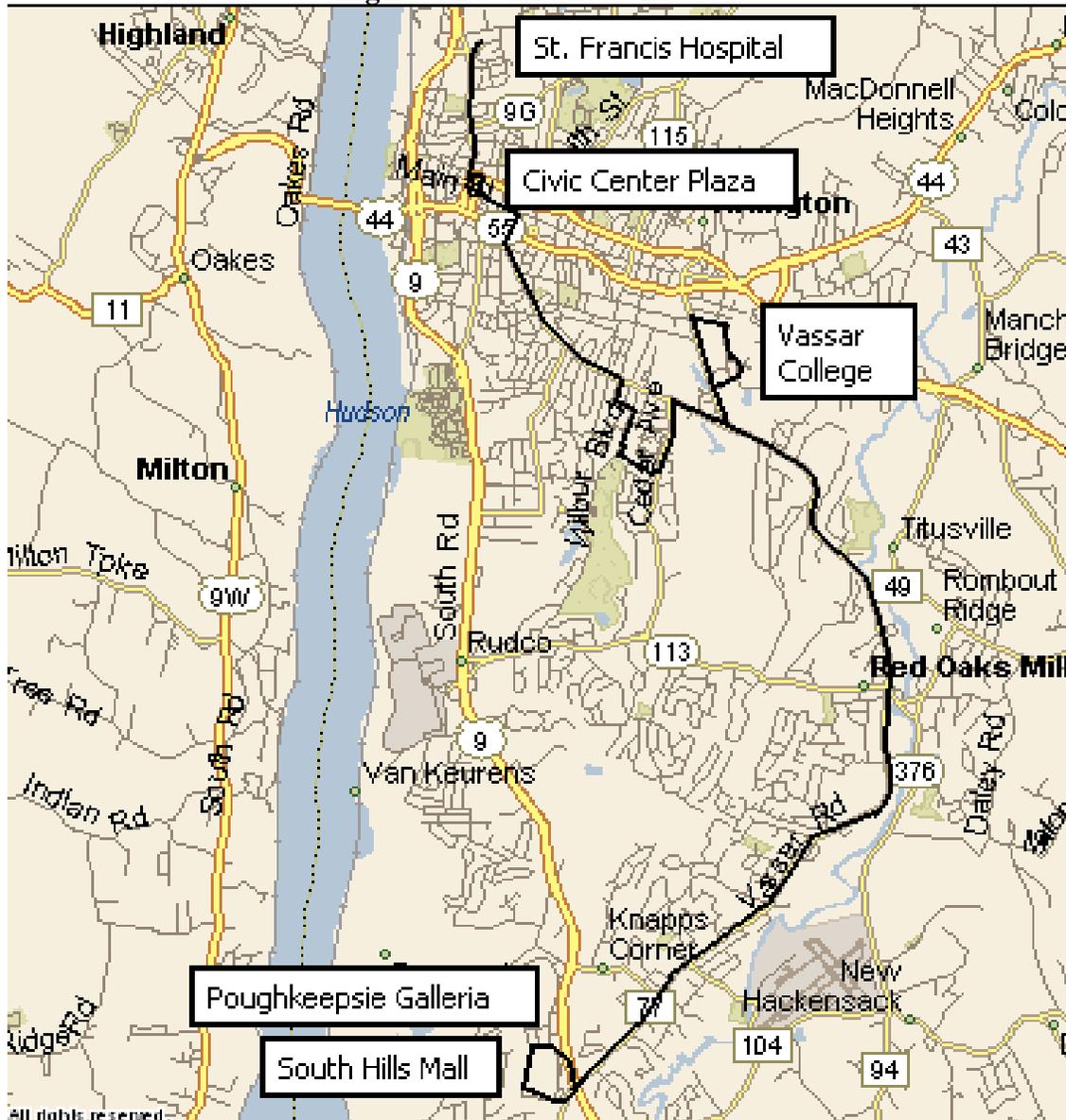
Along with the enhancements described above, this plan identifies various system expansion proposals which may be implemented during the planning horizon of this document (five years), or over a longer term. Available resources and perceived demand will guide the decision as to whether and when these proposals would be implemented. Each proposal for a new route is provided a route designator (i.e., Route G); however, each new route in the system should be designated appropriately in the order of implementation. One proposal concerns a current route, Route 3.

- **Route 3 – Hooker Avenue/Galleria-** Route 3 would operate the routing proposed under the Base Service Improvement Plan to the intersection of Cedar Avenue and Hooker Avenue, from where the route would utilize Raymond Avenue to access Vassar College via the south gate and exit via the north gate on Collegeview Avenue. Route 3 would then return to Raymond Avenue and follow Route 376 to CR 77 to Spring Road to Route 9 to serve the Poughkeepsie Galleria Mall, where it would connect with Routes A and B. It would return to Poughkeepsie via the same route alignment.

With this extension, Route 3 would allow Vassar College to have a one-seat ride to either downtown Poughkeepsie or the Poughkeepsie Galleria Mall. This proposed extension also provides enhanced transit coverage to the Town of Poughkeepsie.

Upon full implementation of the service plan, Route 3 would operate every 60 minutes from 7:00AM to 11:00PM from Monday through Friday. Service would operate every 60 minutes between 8:00AM and 7:00PM on Saturday and Sunday. Again, if City Bus could not operate the extended span of service (i.e., weekday evenings and Sundays); LOOP could potentially operate the route during these extended service periods. The extended Route 3 is shown in Figure 4.14.

Figure 4.14 - Extended Route 3



- **Route C –Poughkeepsie-Tivoli via Route 9, Route 9G & Dutchess Community College - Smith Street/Dutchess Community College** – Under an expansion option, Route C could be used to further meet the needs of Dutchess Community College (DCC) students. This is especially the case as the college expands its facilities. To address this market, Route C would operate every 60 between the downtown Poughkeepsie transit hub and the DCC campus. Service would be operated from 7:00AM to 11:00PM from Monday through Friday, and from 8:00AM to 7:00PM on Saturday and Sunday. This expansion option could be a candidate for implementation through a new revenue source generated from the DCC, such as a U-Pass program. Service would continue to be operated every 120 minutes along the full length of Route C over the span of service described in the Base Service Improvement Plan.
- **Route G – Harlem Valley** - Route G would operate from the Pawling Railroad Station, utilizing East Main Street and Coulter Avenue to access Route 22, and along Route 22 to a turn-around loop in Millerton utilizing Main Street, North Maple Avenue, Century Boulevard and Dutchess Avenue. Route G would also serve the MTA Metro-North Railroad Harlem Line Stations at Harlem Valley-Wingdale, Dover Plains (utilizing Mill Street and Railroad Avenue), Tenmile River (utilizing State Route 105) and Wassaic. The turn-around location in Millerton, as well as the Pawling Railroad Station, would function as transfer locations with the demand responsive feeder services.

Route G would operate every 120 minutes from 7:00AM to 7:00PM from Monday through Friday.

- **Route H – Poughkeepsie Galleria Mall-Hopewell Junction via Wappingers Falls** - Route H would connect with Routes A and B at the Poughkeepsie Galleria Mall and operate along Route 9, Route 9D, CR 104 (through Wappingers Falls), CR 94, CR 28 and Route 82 to a turn-around loop in Hopewell Junction at the shopping center located at Routes 82 and 376. It would return to the Poughkeepsie Galleria Mall via the same route alignment. The turn-around location in Hopewell Junction, as well as the Poughkeepsie Galleria Mall, would function as transfer locations with the demand responsive feeder services.

Route H would operate hourly service from 7:00AM to 7:00PM from Monday through Friday, and from 8:00AM to 7:00PM on Saturday, with no Sunday service. Route H is shown in Figure 4.15.

Figure 4.15 – Route H



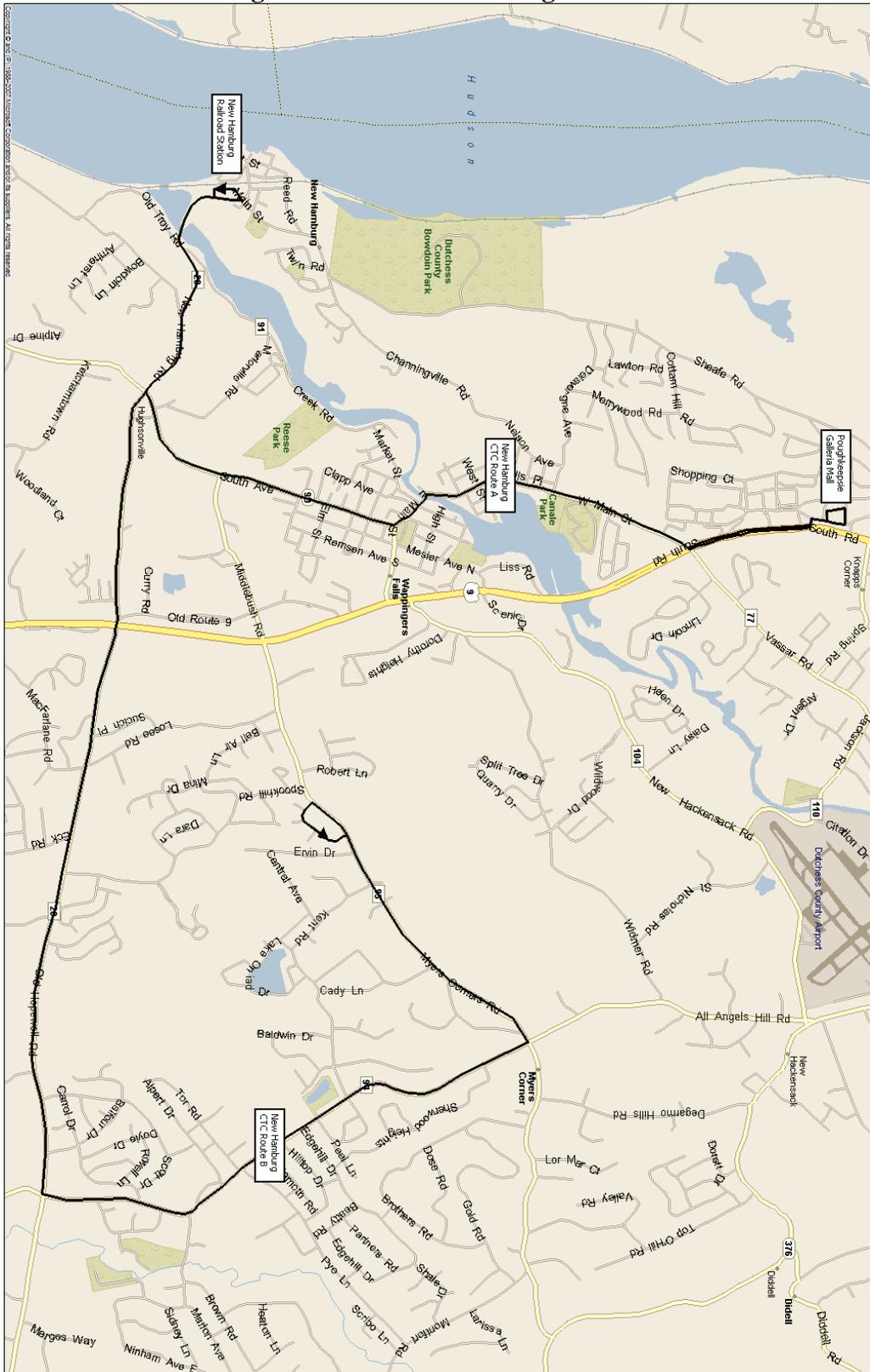
- **Route J – Millerton – Tivoli via Route 199** - Route J would operate from the Main Street and Maple Street in Millerton, then operate a loop via Maple Street, Century Boulevard, Dutchess Avenue, and Main Street, then along Route 22 to Route 199, and utilize Route 199 as far west as Route 9G, where it would head north, serve Bard College (via Annandale Road/CR 103) and serve a turn-around loop in Tivoli utilizing Broadway (i.e., CR 78), Woods Road, Elizabeth Drive and Greentree Road.

The turn-around location in Millerton would function as a transfer location with the demand responsive feeder services, as would the intersection of Route 199, Route 82, and CR 83A in Pine Plains. The turn-around loop in Tivoli would also function as a transfer location with the demand responsive feeder services.

Route J would operate hourly service from 7:00AM to 7:00PM from Monday through Friday and from 8:00AM to 6:00PM on Saturday.

- **New Hamburg Rail Link B** - The proposed routing for the New Hamburg Rail Link will eliminate the All Angels Hill Road portion of the current CTC route. Ride checks showed very little demand from that area. However, the All Angels Hill Road is a growing corridor. A proposal for a second New Hamburg Rail Link, which is depicted in Figure 4.16 as “Route B” could be implemented as further development takes place in that corridor. Under the Enhanced Service Improvement Plan, the All Angels Hill Road alignment would be implemented and would be scheduled to meet two AM peak period trains and two PM peak period trains on weekdays. Additional trips could be added as demand warrants.

Figure 4.16 – New Hamburg Rail Link



- **Hudson Valley Research Park Rail Link** – One potential expansion to the Rail Link services would be a Rail Link route would to connect the IBM-East Fishkill complex with the Beacon train station.

### College/University Oriented Enhancements

Dutchess County is the location of several colleges and universities. In the past, some institutions have expressed interest in establishing some other type of program which provides funding to the local transit systems in exchange for enhanced transit services to and from campus. One such arrangement that has been used in other host communities of colleges and universities is a U-Pass program. Under a U-Pass program, a local college or university will provide the local transit system with a revenue stream. In exchange, the students (and often the faculty and staff) can gain unlimited access to the transit system with the use of their school identification. In many instances, the transit system will provide enhanced service to campus. Typically, U-Pass programs are funded through a per-semester transportation fee charged to students. The plan described above will improve transit service to the campuses of the five institutions of higher learning in Dutchess County: Bard College; Culinary Institute of America; Dutchess Community College; Marist College; and Vassar College. Below is a summary of how these institutions will benefit from the proposed plan and what additional enhancements could be made with additional revenue through a program similar to U-Pass.

- **Bard College** – Under the proposed service plan, Route C will provide a direct connection between Bard College and the Rhinecliff Station as well as downtown Poughkeepsie. Connections can also be made to Red Hook and Tivoli from campus. Under the current plan, these connections can be made every two hours (120 minutes). Given funding through a U-Pass program, or other revenue generating arrangement, frequency on Route C could be enhanced to every 60 minutes. In addition, extra trips could be added to Route C at the beginning and end of major holiday weekends and school breaks to allow students to connect to the rail stations as well as the intercounty bus services in Poughkeepsie.
- **Culinary Institute of America** – Under the proposed plan, the CIA will be served every 30 minutes until 11:00 PM by the Routes A and B. Under an enhanced revenue scenario, additional trips could be added to Routes A and B on weekend nights connecting the Poughkeepsie riverfront to the CIA campus to allow CIA students working in riverfront restaurants to return to campus.
- **Dutchess Community College** – Dutchess Community College will be afforded service every 30 minutes during the daytime hours under the proposed base plan. The proposed long term expansion options would extend service to 10:00 PM and will provide weekend service. These enhancements could be implemented on shorter timeframe under if additional resources were made available through a U-Pass type program.

- **Marist College** – Marist College will be served every 30 minutes on Route 9 by Route A and Route B. Service will be available until 11:00 PM on weekdays. Saturday and Sunday service will also be available. Route 3 will also provide service directly to campus during the daytime hours on weekdays and Saturdays. Given additional revenue, additional trips could be added to Route A and Route B, or Route 3, on weekend nights connecting downtown Poughkeepsie to the Marist campus to allow Marist students to access entertainment in Poughkeepsie. In addition, extra trips could be added to Route A and Route B, or Route 3, at the beginning and end of major holiday weekends and school breaks to allow students to connect to the rail station as well as the intercounty bus services in Poughkeepsie.
- **Vassar College** – Under the Enhanced Service Improvement Plan, the campus of Vassar College will be directly served by the Route 3. This will provide a direct connection between campus and downtown Poughkeepsie and the Galleria Mall. Under the enhancement, service would be available every 60 minutes until 11:00 PM on weekdays. Saturday and Sunday service will also be available. Given additional resources, frequency could be enhanced on Route 3.

## Summary

Under the Base Service Improvement Plan, there will be five full service Poughkeepsie City Bus routes, and one limited service route, six Dutchess County LOOP fixed routes, three Rail Link (Commuter Train Connection) services, and defined service areas where curb-to-curb service would be available to the general public on specific days of the week. These curb-to-curb services could be used to make complete trips within a defined service area or to connect to the fixed route LOOP services.

Tables 4.2 and 4.3, below, provide a summary of the proposed services and the level of service that will be provided under the Base Service Improvement Plan. All LOOP Routes will operate until at least 7:00PM on weekdays. This is in accordance with the service guidelines prepared as part of this study. On Sunday, Route A and Route D would operate until 7:00 PM to allow workers at the Galleria Mall to return home. While only Route A and Route D will provide Sunday service in the initial phase of implementation, the proposed service enhancements call for four routes to offer Sunday service (Route 3, Route A, Route B, and Route D). It is envisioned that all routes operating on Sunday will operate until at least 7:00 PM. To provide simple and consistent schedules, routes that provide Sunday service, but not Saturday evening service, will end at 7:00PM under the proposed enhancements. This is a longer span than the 6:00PM called for in the service guidelines.

Figures 4.17 and 4.18 depict the service that would be provided between 7:00PM and 11:00PM on weekday evenings in the county and the City of Poughkeepsie, respectively, as part of the initial phase of implementation. As the figures show, the service model provides coverage to most major streets in the City of Poughkeepsie until 11:00PM, Monday through Friday.

**Table 4.2**  
**Proposed Route Descriptions**  
**Base Service Improvement Plan**

<b>Route</b>	<b>Description</b>
<b>City Routes</b>	
1	Main Street
2	Smith Street/Dutchess Community College
3	Hooker Avenue/Saint Francis Hospital
4	Mansion Street/Vassar Brothers Medical Center
5	Cherry Street
6	Special
<b>LOOP Routes</b>	
A	Poughkeepsie-Fishkill & Home Depot-Fishkill via Route 9
B	Poughkeepsie-Beacon via Route 9 and Route 9D
C	Poughkeepsie-Hyde Park/Tivoli via Dutchess Community College and Route 9G
D	Poughkeepsie-Pleasant Valley/Millbrook via Route 44
E	Poughkeepsie-Freedom Plains/Pawling via Route 55
F	Beacon-Hopewell Junction via Fishkill/Home Depot & Hudson Valley Research Park
<b>Rail Link</b>	
Beacon	Current Beacon CTC route
Poughkeepsie	Current Apple Valley CTC route
New Hamburg	Galleria - New Hamburg Station via Wappingers Falls
<b>Flex Service (Curb-to-Curb)</b>	
Curb-to-curb, reservation based, Flex Service will operate two weekdays per week in each of the identified zones	

**Table 4.3  
Proposed Frequency and Span of Service  
Base Service Improvement Plan**

Route	Frequency (minutes)	Span of Service		
		Weekday	Saturday	Sunday
<b>City Routes</b>				
1	60	7:00AM-5:30PM	8:00AM-4:00PM	No Service
2	30	6:30AM-6:30PM	8:00AM-4:00PM	No Service
3	60	6:30AM-6:30PM	8:00AM-4:00PM	No Service
4	60	7:00AM-6:00PM	8:00AM-4:00PM	No Service
5	60	7:00AM-5:00PM	No Service	No Service
6	As needed			
<b>LOOP Routes</b>				
A	60	7:00AM-11:00PM	7:00AM-11:00PM	9:00AM-7:00PM
B	60	7:00AM-11:00PM	7:00AM-11:00PM	No Service
C	30	7:00AM-7:00PM	7:00AM-5:00PM	No Service
D	60	7:00AM-11:00PM	7:00AM-7:00PM	9:00AM-7:00PM
E	60	7:00AM-7:00PM	7:00AM-7:00PM	No Service
F	120	7:00AM-7:00PM	7:00AM-7:00PM	No Service
<b>Rail Link</b>				
The span and frequency of all Rail Link services will be designed to provide service to and from designated commuter trains Monday through Friday				
<b>Flex Service</b>				
Curb-to-curb Flex Service will operate between 8:00 AM and 4:00 PM wherever it is made available as part of the initial phase of implementation.				

**Table 4.4  
Daily Round Trips**

Route	Daily Round Trips
A	16
B	16
C	6
D	16
E	12
F	6

Figure 4.17  
Weekday Evening Service

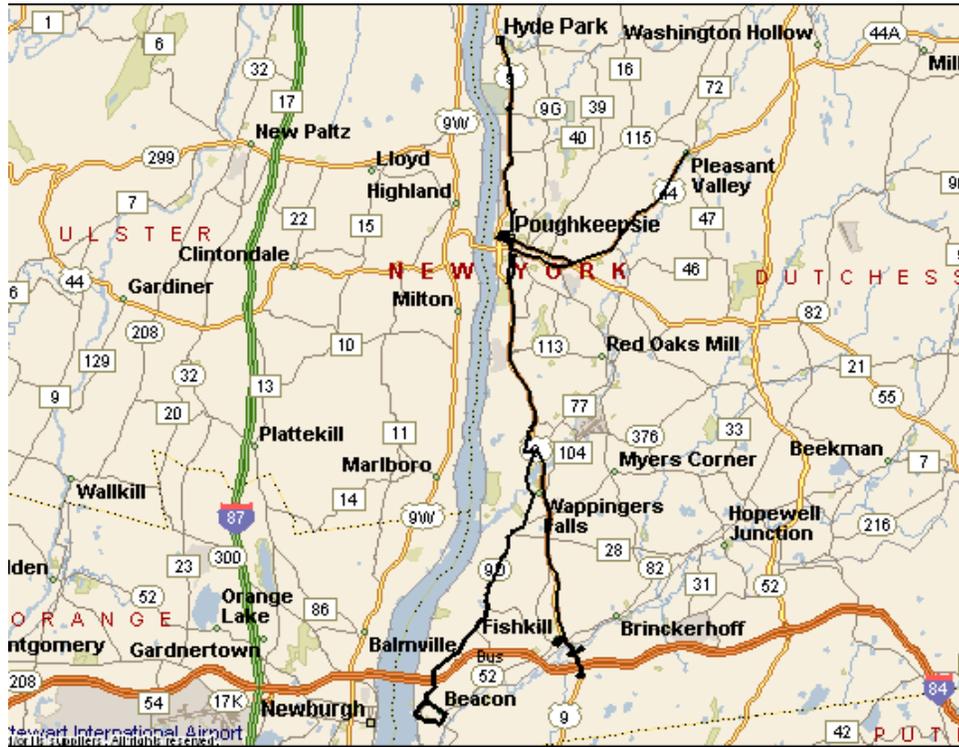
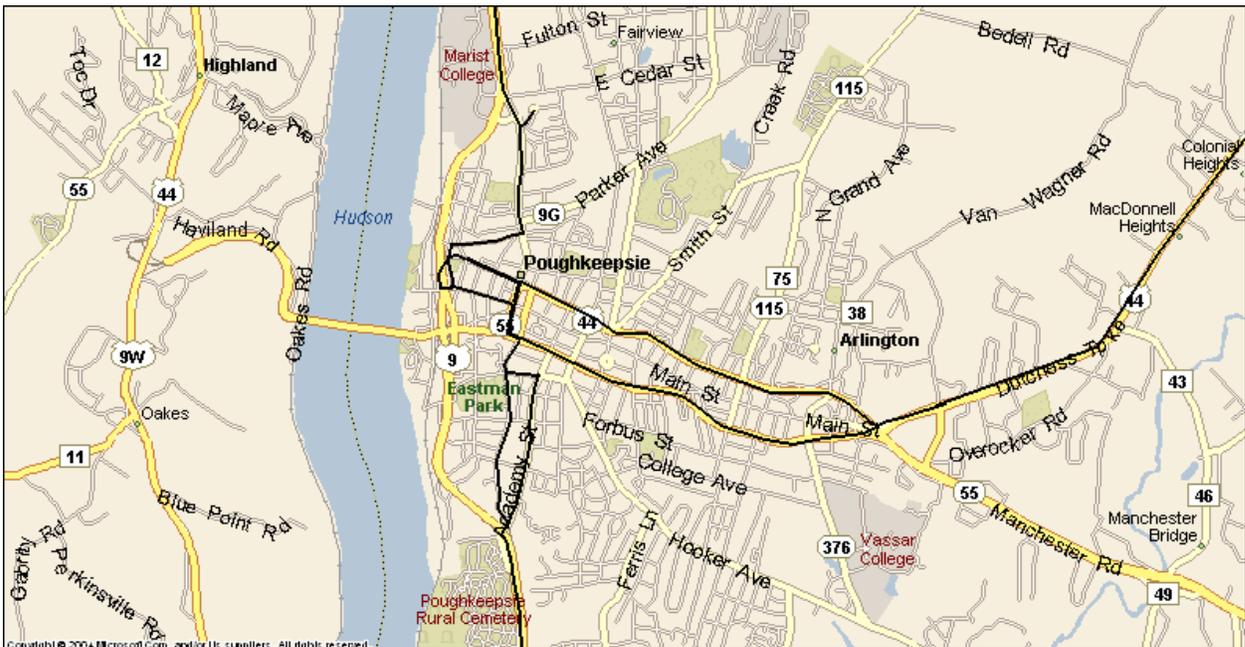


Figure 4.18  
Weekday Evening Service – City of Poughkeepsie



## CHAPTER 5 RECOMMENDED PLAN

Previous chapters presented considerable information regarding Dutchess County's transit system and the setting in which it operates. A comprehensive examination of existing service both at the route and system level was performed for both LOOP and City Bus. Based on this thorough examination, which consisted of various analyses, service improvement proposals for both systems were developed and presented in the Service Proposals chapter.

This Recommended Plan chapter provides a recommended schedule for the implementation of the service improvement proposals described in the Service Proposals chapter. These recommendations also address issues which support and enhance transit services in Dutchess County. This includes such issues as a capital improvement program that provides recommendations for vehicles and other capital items needed to support the operation of services which can assist with the preparation of the Transportation Improvement Program (TIP) document for the region. Other issues addressed by the recommendations involve marketing, fare structure, land use/development considerations.

### **Service Improvement Recommendations**

The service plan presented in the Service Proposals chapter included a Base Service Improvement Plan. Table 5.1 and Table 5.2 provide the route structure and schedule for the proposed fixed route and Flex Services which comprise the Base Service Improvement Plan.

**Table 5.1**  
**Base Service Improvement Plan Details**

Route	Frequency (minutes)	Span of Service		
		Weekday	Saturday	Sunday
<b>City Routes</b>				
1	60	7:00AM-5:30PM	8:00AM-4:00PM	No Service
2	30	6:30AM-6:30PM	8:00AM-4:00PM	No Service
3	60	6:30AM-6:30PM	8:00AM-4:00PM	No Service
4	60	7:00AM-6:00PM	8:00AM-4:00PM	No Service
5	60	7:00AM-5:00PM	No Service	No Service
6	As needed			
<b>LOOP Routes</b>				
A	60	7:00AM-11:00PM	7:00AM-11:00PM	9:00AM-7:00PM
B	60	7:00AM-11:00PM	7:00AM-11:00PM	No Service
C	120	7:00AM-7:00PM	7:00AM-5:00PM	No Service
D	60	7:00AM-11:00PM	7:00AM-7:00PM	9:00AM-7:00PM
E	60	7:00AM-7:00PM	7:00AM-7:00PM	No Service
F	120	7:00AM-7:00PM	7:00AM-7:00PM	No Service
<b>RailLink</b>				
The span and frequency of all RailLink services will be designed to provide service to and from designated commuter trains Monday through Friday				

**Table 5.2  
Recommended Flex Service Zone Structure**

Zone	Fixed Route Transfer Point	Days per week
Curb-to-Curb service will operate between 8:00 AM and 4:00 PM wherever it is made available as part of the initial phase of implementation.		
<b>Northwest Zones</b>		
Town of Red Hook, Village of Red Hook, Village of Tivoli, Town of Milan	Red Hook	2
Town of Rhinebeck, Village of Rhinebeck, Town of Clinton	Rhinebeck or Hyde Park	2
Town of Washington, Village of Millbrook	Millbrook	2
<b>Northeast Zones</b>		
Town of Pine Plains, Town of Stanford	Millbrook	2
Town of North East, Town of Amenia, Village of Millerton	Millbrook	2
<b>Southeast Zones</b>		
Town of Union Vale, Town of Beekman	Beekman	2
Town of Dover, Town of Pawling, Village of Pawling	Pawling	2
<b>Suburban Zones</b>		
Town of Wappinger, Village of Wappingers Falls	Various locations	2
Town of Fishkill, Town of East Fishkill, Village of Fishkill	Various locations	2
Town of Pleasant Valley, Town of LaGrange	Various locations	2
Town of Hyde Park	Various locations	2

The Service Proposals chapter also outlined an Enhanced Service Improvement Plan which included the following route structure and schedules:

**Table 5.3**  
**Enhanced Service Improvement Plan Details**  
**(Enhancements are Bold and Underlined)**

Route	Frequency (minutes)	Span of Service		
		Weekday	Saturday	Sunday
<b>City Routes</b>				
1	60	7:00AM- <b><u>7:00PM</u></b>	8:00AM-4:00PM	No Service
2	30	6:30AM-6:30PM	8:00AM-4:00PM	No Service
3	60	6:30AM-6:30PM	8:00AM-4:00PM	No Service
4	60	7:00AM- <b><u>7:00PM</u></b>	8:00AM-4:00PM	No Service
5	60	7:00AM- <b><u>7:00PM</u></b>	<b><u>8:00AM-4:00PM</u></b>	No Service
6	As needed			
<b>LOOP Routes</b>				
A	60	7:00AM-11:00PM	7:00AM-11:00PM	<b><u>8:00AM-10:00PM</u></b>
B	60	7:00AM-11:00PM	7:00AM-11:00PM	<b><u>9:00AM-7:00PM</u></b>
C	30	7:00AM-11:00PM	7:00AM-5:00PM	No Service
D	60	7:00AM-11:00PM	7:00AM- <b><u>11:00PM</u></b>	9:00AM-7:00PM
E	60	7:00AM-7:00PM	7:00AM-7:00PM	No Service
F	<b><u>60</u></b>	7:00AM-7:00PM	7:00AM-7:00PM	No Service
<b>Rail Link</b>				
The span and frequency of all RailLink services will be designed to provide service to and from designated commuter trains Monday through Friday				
<b>Flex Service</b>				
Curb-to-Curb service will operate between 8:00AM and 4:00 PM wherever it is made available. <b><u>Span of service of Flex Service in certain zones could be enhanced based on observed demand.</u></b>				

**ABC** indicates recommended enhancements

Last, the service proposals included a set of system expansion options outlined under the Longer Term Service Expansion Plan. It is not specifically recommended that any of the service expansion options be implemented within the planning horizon of this document. The implementation of these proposals will be dependent upon local priorities and available resources. The projected impacts of each of the system expansion options are identified in a later section of this report.

**Recommended Implementation Schedule** - Provided below is a potential five-year implementation schedule for the recommendations described in the Base Service Improvement Plan and the Enhanced Service Improvement Plan.

**Table 5.4  
Recommended Implementation Schedule**

Period	Service Improvement Implemented
<b>LOOP</b>	
Year 1	<ul style="list-style-type: none"> <li>• Base Service Improvement Plan is implemented as a complete package</li> </ul>
Year 2	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>• Sunday service is added to Route B</li> <li>• Sunday span of service is extended on Route A</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>• Saturday evening service to Pleasant Valley is introduced on Route D</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Weekday and Saturday frequency of service is enhanced on Route F</li> </ul>
<b>City Bus</b>	
Year 1	<ul style="list-style-type: none"> <li>• Base Service Improvement Plan is implemented as a complete package</li> </ul>
Year 2	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>• No recommended changes</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Weekday span of service is extended to 12 hours on Route 1, Route 4, and Route 5</li> <li>• Saturday service is introduced on Route 5</li> </ul>

This recommended implementation schedule is referred to in this report as the Recommended Plan. The actual date of implementation of the Year 1 recommendations will be dependent upon local conditions and decision making. However, since the Base Service Improvement Plan represents a complete redesign of LOOP’s route structure in Dutchess County, the complete package must be implemented together. While it is not necessary for the proposed changes to the City Bus routes to be implemented at the same time as the changes to LOOP, coordinated implementation would provide the greatest benefit to the rider. It should also be noted that, while the proposed changes to LOOP could be implemented prior to the proposed changes for City Bus, the proposed changes to City Bus services could not be implemented until the proposed LOOP changes are put in place. This is due to the fact that service changes proposed for City Bus would remove City Bus service from certain corridors and destinations, with the intent that they would be served by redesigned LOOP routes.

The implementation of the Recommended Plan will require a significant planning, marketing, and public awareness effort. This process will include the following steps:

- County approval
- Operations preparation
  - Running time checks of proposed route alignments
  - Building schedules
  - Building vehicle blocks and assigning driver runs
- Designate and mark bus stops along route alignments
- Design and print new schedules and system maps
- Conduct marketing and public outreach activities

To allow current passengers and the general public to become accustomed to the new route structure, no further service changes or enhancements are recommended for a two-year period following the initial implementation of the Base Service Improvement Plan other than

fine tuning adjustments. After the initial two-year period, the Recommended Plan calls for the implementation of new services or service enhancements once per year for the remainder of the five year period. Recommended changes are limited to once per year to minimize the number of times that public information and marketing material regarding the system need to be updated, reprinted, and distributed. It should also be noted that the same process as outlined above will need to be followed for the implementation of each service change and enhancement.

None of the proposals outlined as part of the Longer Term System Expansion Plan have been included in the five year implementation schedule. It is envisioned that these proposals would be implemented either beyond the five year horizon of this study or as specific financial resources are identified to support their implementation. A subsequent section of this report does provide resource requirement projections for each element of the Longer Term System Expansion Plan.

The following sections provide the projected impacts on LOOP and City Bus for fixed route and Flex Services.

### **Projected Impacts for Fixed Route Services**

This section contains five year financial projections for the Recommendation Plan for annual periods beginning with Year 1 for the fixed route network. Projections for operating costs, ridership, farebox revenue as well as operating deficits are presented for both LOOP and City Bus. For each of the projections, a baseline year of 2007 has been used for comparison purposes for LOOP and City Bus. These figures were the most recent complete year data available at the time of this report. The following paragraphs provide projected calculations for various measures based on the recommended implementation schedule above and the calculated impacts of the various proposals presented in the Base Service Improvement Plan and the Enhanced Service Improvement Plan.

- **Vehicle Hours and Vehicle Miles** – Using the detailed service proposals presented in the Service Improvement Proposals report, the number of annual vehicle hours and vehicle miles required for each service change and enhancement was calculated. Using the recommended implementation schedule presented in Table 4 and the impact values calculated for each proposed service improvement, the number of annual vehicle hours and vehicle miles that would be operated by LOOP and City Bus have been calculated. Increases in vehicle hours and vehicle miles were apportioned to the year in which the service improvement is recommended for implementation. Table 5.5 provides these year to year projected figures.

**Table 5.5  
Projected Annual Vehicle Hours and Vehicle Miles**

Annual Period	Annual Vehicle Hours	Change from Baseline (%)	Annual Vehicle Miles	Change from Baseline (%)
<b>LOOP</b>				
Baseline	58,910	-	1,192,400	-
Year 1	74,910	27.2	1,212,800	1.7
Year 2	74,910	27.2	1,212,800	1.7
Year 3	78,360	33.0	1,264,000	6.0
Year 4	78,580	33.4	1,267,700	6.3
Year 5	82,640	40.3	1,341,000	12.5
<b>City Bus</b>				
Baseline	16,160	-	201,600	-
Year 1	16,430	1.7	145,300	(27.9)
Year 2	16,430	1.7	145,300	(27.9)
Year 3	16,430	1.7	145,300	(27.9)
Year 4	16,430	1.7	145,300	(27.9)
Year 5	18,030	11.6	158,600	(21.3)

The projections show that, under the recommended plan, LOOP will be operating approximately 82,640 vehicle hours and 1,341,000 vehicle miles of fixed route service annually in Year 5 of the planning period. This represents an increase of 40.3 percent in annual vehicle hours and 12.5 percent in annual vehicle miles compared to the baseline year of 2007. The discrepancy in the growth of vehicle hours and vehicle miles indicates that, under the service proposals, fixed route service will be more concentrated in the urban and suburban areas of the county.

Projections for City Bus show that the system will be operating 18,030 vehicle hours and 158,600 vehicle miles annually in Year 5 of the planning period. These figures represent an increase of 11.6 percent in vehicle hours and a decrease of 21.3 percent in vehicle miles over the baseline figure of 2006. Under the Recommended Plan, City Bus would be operating far fewer miles than is currently operated by the system. This is due to the fact that the routes proposed as part of the Recommended Plan are concentrated in the City of Poughkeepsie, and City Bus would no longer be operating the significantly longer current routes including Northside, Southside, and Galleria.

- Ridership** - Ridership forecasts were prepared for each year of the planning horizon. To prepare the ridership projections for the proposed LOOP routes, a model was developed to estimate the overall productivity (i.e., passengers per vehicle hour) of LOOP services under the Recommended Plan. The model uses the current LOOP routes which serve the corridors that would be served by fixed route services under the Recommended Plan. The 2007 productivity of these routes was then calculated. Table 5.6 lists the applicable routes and shows the productivity calculation.

**Table 5.6**  
**2007 Productivity of Applicable LOOP Routes**

Route	Unlinked Passenger Trips	Vehicle Hours	Passengers per Vehicle Hour
LOOP 1	13,481	1,663	8.1
LOOP 2	221,444	8,775	25.2
LOOP 3	92,583	6,908	13.4
LOOP 3B	109,953	6,823	16.1
LOOP 4	5,774	1,605	3.6
LOOP 10	30,881	3,392	9.1
Express A	22,174	2,953	7.5
Apple Valley CTC	12,893	2,762	4.7
New Hamburg CTC	7,599	2,880	2.6
Beacon CTC	8,409	1,547	5.4
<b>Total</b>	<b>525,191</b>	<b>39,308</b>	<b>13.4</b>

Based on these calculations, the overall productivity for the proposed LOOP routes under the Recommended Plan is projected to be 13.4 passengers per vehicle hour.

A similar ridership projection model was developed for City Bus services. Since City Bus will no longer be serving the Poughkeepsie Galleria under the Recommended Plan, the overall productivity of the remaining current City Bus routes (with the exception of the Special) was calculated. Table 5.7 lists these routes and shows the productivity calculation.

**Table 5.7**  
**2007 Productivity of Applicable City Bus Routes**

Route	Unlinked Passenger Trips	Vehicle Hours	Passengers per Vehicle Hour
Main Street	111,465	3,802	29.3
Northside	82,146	3,728	22.0
Southside	61,487	3,728	16.5
Shopper's Special	32,945	2,154	15.3
<b>Total</b>	<b>288,043</b>	<b>13,412</b>	<b>21.5</b>

These projected productivity rates were then applied to the number of vehicle hours that would be operated as part of the Recommended Plan in each year. For LOOP, it was assumed that all new vehicle hours above the 39,308 currently operated on the routes listed in Table 6 would garner a productivity rate equal to 50 percent of the 13.4 passengers per vehicle hour figure. It was also assumed that productivity on each new vehicle hour added would grow by five percent of the projected overall productivity rate each year. For example, services added in Year 1 would garner 50 percent of the 13.4 passengers per vehicle hour, or 6.7 passengers per hour. In Year 2, the services added in Year 1 would garner 55 percent of the 13.4 passengers per hour figure, or 7.4 passengers

per vehicle hour. This trend was then projected through Year 5.

The same assumptions were made for City Bus routes for all hours above the 13,412 vehicle hours operated annually on the routes listed in Table 5.7.

The ridership projection results from this model are shown in the Table 5.8. It should be mentioned that these projected ridership gains do not include any gains that could be attributable to improved public information and marketing for which recommendations are provided later in this chapter. These projections also do not include any potential ridership losses resulting from fare increases that may occur over the planning period.

**Table 5.8  
 Projected Annual Ridership**

Annual Period	Annual Unlinked Passenger Trips	Change from Baseline (%)
<b>LOOP</b>		
Baseline	590,150	-
Year 1	763,010	29.3
Year 2	786,790	33.3
Year 3	833,580	41.2
Year 4	861,190	45.9
Year 5	914,500	55.0
<b>City Bus</b>		
Baseline	375,700	-
Year 1	335,780	(10.6)
Year 2	338,690	(9.9)
Year 3	341,600	(9.1)
Year 4	344,510	(8.3)
Year 5	364,530	(3.0)

With the implementation of all service changes at the beginning Year 5, ridership on LOOP fixed route service is projected to increase by approximately 330,000 annual passengers over the baseline level. This indicates that LOOP’s annual fixed route ridership would equal roughly 915,000 annual unlinked passenger trips. This represents a total increase in ridership of 55.0 percent above 2007 level.

Under the Recommended Plan, it is projected that ridership on the City Bus system would actually decrease. This is due to the fact that a major destination route, the Galleria route, would no longer be operated. Instead, City Bus would be operating more neighborhood-oriented services, which would garner lower productivity rates than the Galleria route.

It should be noted, however, that overall public transportation ridership (i.e., combined LOOP and City Bus ridership) is projected to increase throughout the service area from 958,260 passenger trips annually to 1,098,790 annually in Year 1 and to 1,279,030 in Year 5. This represents an overall increase in public transportation ridership in the service area of 33.5 percent in Year 5 over the baseline year.

- **Operating Costs** - Transit operating costs for the five year planning period were estimated to reflect future service levels under the Recommended Plan as set by the recommended implementation schedule. The multiple variable cost model for LOOP and City Bus operations prepared as part of this study effort, and presented in the Route Diagnostics Reports, was used to prepare these cost projections. These are shown below:

### **LOOP**

$$\text{Cost} = (\$30.26 * \text{Vehicle Hours}) + (\$0.82 * \text{Vehicle Miles})$$

### **City Bus**

$$\text{Cost} = (\$46.39 * \text{Vehicle Hours}) + (\$2.01 * \text{Vehicle Miles})$$

The applicable costs per vehicle hour and per vehicle mile were applied to the figures shown in Table 5.5. For both systems, these cost estimates reflect only those expenses associated with the fixed route system (i.e., motorbus mode as reported to the National Transit Database). Other costs such as the proposed Flex Services or ADA complementary paratransit services are not included. Table 5.9 shows the growth in operating costs over the five year period in baseline year dollar terms. That is, the figures have not been adjusted for cost inflation. The administrative costs for the motorbus mode reported by LOOP and City Bus to the National Transit Database have been included in the figures below.

**Table 5.9**  
**Projected Annual Operating Costs – Baseline Year Dollars**  
**Motorbus Mode (Fixed Route Services)**

Annual Period	Annual Operating Costs (\$)	Change from Baseline (%)
<b>LOOP</b>		
Baseline	3,333,900	-
Year 1	3,834,900	15.0
Year 2	3,834,900	15.0
Year 3	3,981,200	19.4
Year 4	3,991,100	19.7
Year 5	4,173,900	25.2
<b>City Bus</b>		
Baseline	1,320,200	-
Year 1	1,219,100	(7.7)
Year 2	1,219,100	(7.7)
Year 3	1,219,100	(7.7)
Year 4	1,219,100	(7.7)
Year 5	1,319,800	(0.03)

To account for inflation and present costs in current year dollars, an annual inflationary figure of 4.6 percent was applied to the growth in LOOP’s projected operating costs. This figure is based on an analysis of cost trends for LOOP over the past six years. This analysis shows that from 2002 to 2004, LOOP’s operating costs, on a per unit basis, increased at an average annual rate of approximately 4.6 percent. During the later part of the six year period (2005-2007), LOOP’s per unit operating costs increased by an average of 14.6 percent per year. The trend in the later years was viewed as an outlier, with the assumption that the causes of which would be addressed by LOOP management. A continuation of those cost escalation trends would essentially preclude the implementation of this plan. Therefore, it was assumed that policy and procedural changes at LOOP would return average cost increases to the more stable level observed in previous years. In consideration of these factors, the trend from the earlier half of the analysis period was used for the purposes of the projections below.

A similar analysis was performed for City Bus. Cost figures from City Bus show that between 2004 and 2007, City Bus’ per unit operating costs increased at an average annual rate of 4.7 percent. This figure was used for the City Bus projections. The anticipated annual operating costs for the five year planning period are shown in Table 5.10. This includes the effect of implementing all of the Recommended Plan by the beginning of Year 5.

Under this inflation adjusted projection, operating costs in Year 5 are 64.0 percent higher than the baseline for LOOP, and 31.7 percent higher for City Bus. Table 5.10 notes that this increase is due both to increases in service level according to the recommended implementation schedule as well as the expected cost inflation built into the model. A total of 60.6 percent of the growth in LOOP operating costs, and 99.0 percent of the growth in City Bus operating costs, are due to inflation. Another point to note is that the Year 1 figure has been adjusted twice to represent two years worth of inflation beyond 2007.

**Table 5.10**  
**Projected Annual Operating Costs – Inflation Adjusted**  
**Motorbus Mode (Fixed Route Services)**

Annual Period	Annual Operating Costs (\$)	Change from Baseline (%)	% from System Growth	% from Inflation
<b>LOOP</b>				
Baseline	3,333,900	-		
Year 1	4,195,800	25.9	58.1	41.9
Year 2	4,388,800	31.6	47.5	52.5
Year 3	4,765,800	42.9	45.2	54.8
Year 4	4,997,500	49.9	39.5	60.5
Year 5	5,466,700	64.0	39.4	60.6
<b>City Bus</b>				
Baseline	1,272,600	-	-	-
Year 1	1,336,400	1.2	0.0	100.0
Year 2	1,399,200	6.0	0.0	100.0
Year 3	1,465,000	11.0	0.0	100.0
Year 4	1,533,800	16.2	0.0	100.0
Year 5	1,738,500	31.7	1.0	99.0

- Fixed Route Farebox Revenue and Operating Deficit** – Farebox revenue and deficit forecasts for the planning period under the recommended plan were also prepared. As noted earlier, no fare increases were assumed during the five year period. It was assumed that the average fare would remain constant. The 2007 average fare of \$0.617 was used for LOOP passenger fare revenue projections, and the 2007 average fare of \$0.75 was used for City Bus. Revenue generated by LOOP and City Bus from sources other than passenger fares was not included in the projections. The farebox revenue, farebox recovery and operating deficit projections are presented in Table 5.11. The operating costs shown in Table 5.11 are the inflation-adjusted figures.

**Table 5.11  
Projected Annual Revenue, Farebox Recovery, Operating Deficit**

Year	Operating Cost (\$)	Passenger Revenue (\$)	Change from Baseline (%)	Operating Deficit (\$)	Change from Baseline (%)	Farebox Recovery (%)
<b>LOOP</b>						
Baseline	3,333,900	364,300	-	2,969,600	-	10.9
Year 1	4,195,800	471,000	29.3	3,724,800	24.4	11.2
Year 2	4,388,800	485,700	33.3	3,903,100	31.4	11.1
Year 3	4,765,800	514,600	41.3	4,251,200	43.2	10.8
Year 4	4,997,500	531,600	45.9	4,465,900	50.4	10.6
Year 5	5,466,700	564,500	55.0	4,902,200	65.1	10.3
<b>City Bus</b>						
Baseline	1,320,200	282,000	-	1,038,200	-	21.4
Year 1	1,336,400	247,200	(12.3)	1,089,200	4.9	18.5
Year 2	1,399,200	249,400	(11.6)	1,148,800	10.7	17.8
Year 3	1,465,000	251,600	(10.8)	1,213,400	16.9	17.2
Year 4	1,533,800	253,800	(10.0)	1,280,000	23.3	16.5
Year 5	1,738,500	268,800	(4.7)	1,469,700	41.6	15.5

Passenger revenue for LOOP fixed route service is projected to increase to a level of approximately \$564,500 in Year 5. This represents an increase of approximately \$200,000 over the baseline figure. Given the inflation-adjusted increases in operating costs, and the passenger revenue projections, the annual operating deficit is projected to increase to approximately \$4,902,200. Based on the operating cost and farebox revenue projections, the farebox recovery rate would be 10.3 percent in Year 5, which is a slight decrease from 10.9 percent in the baseline year. This decrease in farebox recovery is attributable to operating cost increases outpacing revenue gains. As shown in Table 10, LOOP’s operating costs will rise by 64.0 percent over the five year period (60.6 percent of which is due to cost inflation), while revenue will increase by 55.0 percent. It should be noted that this does not assume fare increases. When using annual operating costs figures not adjusted for inflation, LOOP’s farebox recovery in Year 5 would be 13.5 percent.

Due to the projected decrease in ridership on the City Bus system during the first four years of the five year planning period, it is also projected that farebox revenue will decline. However, given the service enhancements recommended for Year 5 of the plan, passenger revenue is projected to be approximately \$268,800 in Year 5, an decrease of approximately \$13,000 from the baseline. Based on the operating cost and farebox revenue projections, the farebox recovery rate for City Bus would be 15.5 percent in Year 5, which is a decrease from 20.8 percent in the baseline year. As with LOOP, this decrease is attributable to costs outpacing revenue, and assumes no change in the fare structure. Using non-adjusted cost figures, City Bus’ Year 5 farebox recovery would be 20.4 percent.

This decrease in farebox recovery on LOOP and City Bus could be averted through greater ridership gains garnered from continued improvements to public information, marketing, and specialty fare arrangements which are discussed later. This demonstrates the need for continuous public information and public awareness efforts and the identification of other revenue sources.

**Comparison of Impacts to a “No Action” Scenario** – The projected operating and performance statistics for the area-wide fixed route network under the recommended plan (i.e., combined LOOP and City Bus fixed route services) have been compared to a scenario in which no service improvements are implemented. The no action scenario assumes that no changes will be made to the services offered by either system. That is, the same route structure will be operated at the same level as is currently.

To estimate ridership under a no action scenario, the overall productivity (passengers per vehicle hour) trends for fixed route service in Dutchess County was examined. Operating statistics for LOOP and City Bus show that the combined productivity for fixed route services in Dutchess County declined from 14.6 in 2002 to 12.9 in 2006. This is an average annual decline of 2.4 percent. Given the complex nature of the current route structure of both systems and their limited appeal to the general public, it was assumed that this trend in declining productivity would continue. This trend was then carried through from the baseline year through Year 5 and applied to the number of vehicle hours operated in the baseline year. The same cost inflation trend that was used for the Recommended Plan, 4.6 percent annual cost inflation, was used to estimate the inflation adjusted operating costs for the no action scenario each year through Year 5. Passenger revenue was then projected by calculating the overall average fare for the two systems, which was \$0.67, and applying that figure to the projected number of passenger trips. No changes to the base fare of either system were assumed. Table 5.12 presents the results of these trends at the end of the planning horizon (Year 5) for the recommended and the “no action” scenarios.

**Table 5.12**  
**Projections – Fixed Route Recommended Plan Compared to No Action Scenario**

Measure	Recommended Plan Year 5	No Action Scenario Year 5
Annual Vehicle Hours	100,660	75,060
Annual Operating Costs	\$7,205,200	\$6,095,700
Annual Ridership	1,279,030	855,370
Annual Passenger Revenue	\$833,300	\$572,400
Farebox Recovery	11.6%	9.4%
Annual Operating Deficit	\$6,371,900	\$5,523,300
Passengers per Vehicle Hour	12.7	11.4
Cost per Passenger	\$5.63	\$7.13
Deficit per Passenger	\$4.98	\$6.46

The annual operating costs in Year 5 would be approximately \$1,110,000 higher (or 19.4 percent) under the Recommended Plan than under the “no action” scenario. However, the fixed route transit network in Dutchess County would carry more than 425,000 additional passengers

and obtain a higher farebox recovery rate under the Recommended Plan. Dutchess County's fixed route service network would also attain higher productivity and cost effectiveness under the Recommended Plan scenario measured in terms of passengers per vehicle hour, cost per passenger and deficit per passenger.

### **Projected Impacts for Flex Service**

A detailed Flex Service Implementation Plan report was completed as part of this planning effort, and submitted under a separate cover. The report examined the organizational capacity of LOOP to address the implementation of Flex Service, and analyzed the most appropriate implementation strategy. As a result of the analysis, it was recommended that the Flex Service be provided, to the greatest extent possible, using current Dial-a-Ride vehicle runs. The following impacts were calculated using the assumption that this implementation model will be utilized in providing the Flex Service outlined in the Recommended Plan.

It is also recommended that a premium fare that is 50 to 100 percent higher than LOOP's base cash fare be charged for the use of the Flex Service. In exchange for the premium fare, passengers should be allowed to reserve a trip up to the day prior to the desired date of travel; and, on a space available basis, on the desired date of travel.

The following sections provide projected impacts for vehicle hours and vehicle miles; ridership; and operating costs for Flex Service given these assumptions.

**Flex Service Vehicle Hours and Vehicle Miles** – The analysis of ridership on the current Dial-a-Ride runs, along with the projections for demand on Flex Service, showed that demand from Flex Service could be addressed through the use of Dial-a-Ride vehicles already in service. However, since not all municipalities participate in the Dial-a-Ride program, it will be necessary to add a certain number of vehicle runs. Given the estimated demand, it is proposed that three new runs be added as follows:

- Two additional vehicle runs covering the northeastern section of the county including: Town of Washington; the Village of Millbrook; the Town of Pine Plains, the Town of Stanford; and the Town of Amenia (two days per week).
- One additional vehicle run covering the Town of Rhinebeck, Village of Rhinebeck, and the Town of Clinton (two days per week).
- The current Town of Red Hook Dial-a-Ride run would be expanded to cover the Village of Red Hook, the Village of Tivoli, and the Town of Milan.
- The current Town of Dover Dial-a-Ride run would be expanded to cover the Town of Pawling, and the Village of Pawling.

These changes would result in four additional vehicle runs each week, which would require one additional peak period vehicle. To estimate the level of vehicle hours and vehicle miles that would be operated as part of the Flex Service on vehicle runs, a one month sample of Dial-a-Ride operating statistics was used to calculate the average operating speed of the Dial-a-

Ride runs, the ratio between revenue miles and non-revenue miles, the ratio between revenue hours and non-revenue hours. The results are shown in Table 5.13.

**Table 5.13**  
**Dial-a-Ride Vehicle Run Operating Measures**

Measure	Amount
Revenue Miles	11,493
Revenue Hours	763
Revenue Operating Speed (MPH)	15.1
Non-Revenue Miles	3,437
Non-Revenue Hours	153
Vehicle Miles	14,930
Vehicle Hours	916
Rev Miles/ Vehicle Miles Ratio	1.29
Rev Hours/Vehicle Hours Ratio	1.20

It is proposed that in the early phases of Flex Service implementation, service would be made available for eight hours throughout the day. Based on that figure, and using the trend data above, operating measures for a typical Flex Service vehicle run have been estimated. These estimates are provided in Table 5.14.

**Table 5.14**  
**Measure per Flex Service Vehicle Run**  
**(Per Zone per Service Day)**

Measure	Amount
Revenue Hours	8
Non-Revenue Hours	2
Vehicle Hours	10
Revenue Miles	121
Non-Revenue Miles	36
Vehicle Miles	157

**Flex Service Ridership** - A reliable method to project demand on a public transportation service is to examine the ridership activity on a similar type of service operating in a similar environment. The Rhode Island Public Transit Authority (RIPTA), which is the statewide public transportation provider in Rhode Island, operates a variety of routes which employ the same model proposed for the Flex Service in Dutchess County.

One of the defined zones in which RIPTA provides this service, the Tiverton/Island Park zone, is similar to the zones in which the service model would be employed in Dutchess County in terms of demographic and land use characteristics. In FY 2007, RIPTA's Tiverton/Island Park Flex Service carried 1.86 passengers per revenue hour. This would translate into 14.9 passengers

over an eight-hour service day. While this provides a good indication of the potential level of demand on the proposed Flex Service in Dutchess County, adjustments must be made to this figure to account for various factors. This is described in Table 5.15.

**Table 5.15**  
**Flex Service Demand Projection**

Influencing Factor	Effect	Passengers per Hour
Current demand on similar service	-	1.86
The RIPTA service was implemented in 2001 (i.e., has been operating for six years), a new service would garner a reduced rate of demand.	Reduce observed rate on similar service by 25%	1.40
The RIPTA service operates five days per week. The proposed Dutchess County Flex Service would operate two days per week in each zone.	Reduce observed rate on similar service by 20%	1.12
The RIPTA service charges the system's base fare for the use of	Assuming a 50% premium fare and an elasticity of -0.35*	0.92

\* Transit Cooperative Research Program Report #95 – *Transit Pricing and Fares: Traveler response to Transportation System Changes*

As shown in Table 5.15, the projected demand on the proposed Flex Service in Dutchess County would be approximately 0.92 passengers per hour. This would result in approximately eight passenger trips over a service day of eight revenue hours.

**Flex Service Operating Costs** - It is envisioned that the implementation of the Flex Service model will not have a significant impact on the size of LOOP administration and should not impact the system's fixed costs. Therefore, the variable cost allocation model should be used to estimate the cost of each Flex Service vehicle run. LOOP's 2007 National Transit Database report was used to develop this cost model which is more thoroughly described in the Flex Service Implementation Plan document. The estimated figures for vehicle hours and vehicle miles are used along with the cost model to provide the estimated cost per vehicle run. This is shown in Table 5.16.

**Table 5.16**  
**Flex Service Vehicle Run Cost Estimate**

Unit	Amount	Cost per Unit (\$)	Cost (\$)
Vehicle Hours	10	40.24	386
Vehicle Miles	157	1.17	183
<b>Total</b>	-	-	<b>570</b>

Using these figures, along with the variable cost model, shows that each Flex Service vehicle run (for runs operated separately from other reservation based services) would be approximately \$570. The changes outlined above would result in four Flex Service vehicle runs

per week, or one run on four weekdays per week. This represents a total of 208 vehicle runs throughout the year. Using the cost model projection of \$570 per vehicle run, this would result in an annual cost of approximately \$119,000 to provide service on two weekdays in each zone.

This cost would be offset, to some extent, by revenue generated from passenger fares. To project the amount of passenger fare revenue that would be generated by Flex Service, it is first necessary to estimate the average fare which would be collected per passenger. LOOP's 2007 National Transit Database report shows that LOOP carried 590,142 passengers on the bus system and collected \$364,259 in passenger fare revenue. This is an average fare per passenger of \$0.617. This figure represents 61.7 percent of LOOP's base cash fare of \$1.00. Assuming that a premium fare of \$1.50 would be charged for Flex Service, it can be estimated that the average fare per passenger collected on the service would be \$0.925.

The demand projections for the Flex Service assumed that each Flex Service run would carry approximately 8 passengers. Assuming 208 vehicle runs annually, it can be estimated that the Flex Service would carry approximately 1,664 passengers. Given the average fare per passenger of \$0.925, the estimated amount of passenger fare revenue generated by the Flex Service would be \$1,540.

In the event of a fare increase, Flex Service should not lose any demand due to the increase in the base cash fare since the service will not be made available until after the new fare is in place. Therefore, if LOOP were to raise its base cash fare to \$1.50, and the Flex Service base fare to \$2.25 it can be assumed that the average fare collected on Flex Service would be \$1.39. Under this scenario, fare revenue generated by the Flex Service would be \$2,300. A \$1.75 base cash fare, and \$2.50 Flex Service Fare, would garner an average fare of \$1.54 and a total fare revenue collected figure of \$2,550.

After implementation, observed demand within each of the defined zones may be such that zones can be combined, thereby reducing the number of vehicle runs that are necessary.

Also, cost efficiencies could be realized through the use of the vehicle runs LOOP designates as paratransit runs or other Dial-a-Ride/Flex Service runs to provide trips in low demand zones. Under this scenario, LOOP could address Flex Service zones with low demand by serving trips on an as-needed basis using paratransit or other Dial-a-Ride/Flex Service vehicle runs that are in the vicinity. This would eliminate the need to dedicate a vehicle for an entire vehicle run to a zone where demand does not warrant such a resource commitment. This could be facilitated by making fuller use of the scheduling aspects of the Trapeze software.

**Additional Flex Service Implementation Recommendations** –It is recommended that with the implementation of Flex Service, the Dial-a-Ride program be discontinued as a distinct transportation service. Instead, Flex Service would be the only reservation-based, curb-to-curb service available in the county. This model would make it easier for LOOP to communicate the public information regarding the network of services available. This would allow for the use of the Trapeze scheduling software, currently used by LOOP for its demand responsive services, to

combine communities and pools of passengers to use the vehicle runs in the most efficient manner.

Since Dial-a-Ride would no longer exist as a distinct service, the county could develop a cost sharing model utilizing county transportation funding, Dutchess County Office for the Aging funding, along with funding from participating communities to fund the single program. In addition, communities could choose to provide a subsidized fare for their senior residents through additional municipal funding. Communities could also purchase additional days of service based on the cost model described earlier. Flex Service in the City of Poughkeepsie and Town of Poughkeepsie would only be available to seniors on a subsidized fare arrangement with these municipalities. However, a potential future expansion would be to make Flex Service available to the general public in these municipalities during late evening hours or on weekends. This would allow for an expansion of coverage without the cost of additional fixed route services.

**Long Term System Expansion Proposals**

The Service Improvement Proposals report described four new routes or route expansions options that were not included in the Recommended Plan. It was envisioned that these expansion proposals would be implemented if resources were made available or new conditions warrant implementation. Table 5.17 provides the impacts of the four proposals. Annual cost projections are shown in baseline year dollars. Cost estimates for the Route 3 extension to the Poughkeepsie Galleria are based on the City Bus per unit costs (i.e., vehicle hours and vehicle miles).

**Table 5.17  
Projected Impacts of System Expansion Proposals**

Route	Net Impacts			
	Annual Vehicle Hours	Annual Vehicle Miles	Annual Operating Costs	Peak Vehicle Requirement
LOOP				
C: DCC via 9G	5,820	27,800	198,900	1
G: Harlem Valley via 22	6,730	118,700	301,000	2
H: Galleria – Hopewell Jct.	4,000	103,500	205,800	1
J: Cross-County North	6,730	112,130	295,700	2
New Hamburg Rail Link B	3,930	31,500	144,700	2
City Bus				
Route 3 to Galleria	8,100	139,000	654,500	1

The projections provided above show that the implementation of the Route 3 extension to the Poughkeepsie Galleria, along with the improvements to the span of service on the route would add approximately \$654,500 in annual operating costs to the City Bus system, and increase the peak vehicle requirement on the system by one vehicle. It should also be noted that LOOP could be used to operate the additional hours on the expanded Route 3. In that case, the projected operating costs would be lower. The projections also show that the implementation of

the other service expansion options could add as much as \$1,146,100 in annual operating costs to LOOP and increase the peak vehicle requirement by eight vehicles.

The timeline for the implementation of any of the system expansion options will need to be based on local priorities and available resources.

## **Fare Policy Recommendations**

Fare policy is an important element of the Recommended Plan in that aspects of the fare program can improve the accessibility and convenience of the system, while promoting ridership overall and among particular groups. Fare policy for LOOP and City Bus must consider:

- consistent and coordinated fare structures;
- the fare media products to be made available to riders and sales outlets; and
- specialty fare arrangements and media.

This section provides policy recommendations for each of these areas.

**Coordinated Fare Structure** - To realize the benefits of the coordination of route alignments and schedules, the fare structures of the two systems need to be integrated in a way that allows passengers to use a single fare media to access either system. Currently, the base cash fare for both systems is the same. Also, LOOP sells multi-ride pass media that can be used on the City Bus system. As the Recommended Plan is implemented, LOOP and City Bus should maintain a common base cash fare and should issue joint multi-ride fare media products.

While the ridership, revenue, and deficit projections presented above did not assume any fare increases for either system in the five year planning horizon, it should be noted that there is currently a proposal to raise the base cash fare on LOOP. Various proposals are being considered which would increase LOOP's base cash fare to \$1.50 or \$1.75. It is recommended that, if LOOP implements a fare increase, the same increase should be implemented on City Bus.

To modify the projected ridership, revenue, and deficit impacts of a fare increase, it was necessary to estimate the demand elasticity of LOOP and City Bus riders. That is, what would be the ridership effect on the two systems in response to the fare increase? Transit industry research summarized in the Transit Cooperative Research Program (TCRP) document *TCRP Report #95: Transit Pricing and Fares: Traveler Response to Transportation System Changes* was used to generate these estimations.

The TCRP report shows that the average demand elasticity for small to medium sized urban areas is (0.43). However, industry research summarized in the report also shows that demand elasticity among more transit dependent riders is much lower, and can be as low as (0.15). To provide a conservative estimate of the affect on demand, an elasticity rate of (0.25) was assumed for the transit dependent portion of the ridership base on LOOP and City Bus. The results of LOOP and City Bus rider surveys, conducted as part of this study effort, were used to make this determination. The survey results showed that approximately 80 percent of LOOP

riders, and 90 percent of City Bus riders could be considered transit dependent based on whether or not the rider had a driver’s license and if they had any other option to make the trip they were making. These assumptions were then applied to the ridership projection model described earlier.

It was then assumed that the fare increase would be implemented along with the service improvements in Year 1, with the affect of the fare increase occurring in that year. The same ridership projection assumptions were made as were described in the Projected Impacts for Fixed Route Services section for subsequent years. Table 5.18 shows revised impact projections for Year 5 of the Recommended Plan for LOOP and City Bus under the three fare scenarios.

**Table 5.18**  
**Year 5 Projections Adjusted for Fare Increase by System**

Measure	Base Fare Scenario		
	\$1.00	\$1.50	\$1.75
<b>LOOP</b>			
Passenger Trips	914,500	783,730	718,340
Operating Costs (\$)	5,466,700	5,466,700	5,466,700
Fare Revenue (\$)	564,500	725,700	776,000
Deficit (\$)	4,902,200	4,741,000	4,690,700
<b>City Bus</b>			
Passenger Trips	364,530	318,190	295,010
Operating Costs (\$)	1,738,500	1,738,500	1,738,500
Fare Revenue (\$)	268,800	346,400	372,200
Deficit (\$)	1,469,700	1,392,100	1,366,300

Based on the model used, it is projected that an increase of fare from \$1.00 to \$1.75 results in a decrease in the Year 5 deficit of approximately \$210,000 for LOOP and \$140,000 for City Bus. However, under a \$1.75 base fare scenario, LOOP would carry 200,000 fewer passengers and City Bus would carry approximately 52,000 fewer passengers.

Table 5.19 compares the combined LOOP and City Bus operating statistics to those of the no action scenario under the three fare situations. The projections show that the Recommended Plan, under any fare scenario, will carry more passengers and garner higher productivity and cost efficiency figures than the no action scenario.

**Table 5.19**  
**Year 5 Projections Adjusted for Fare Increase**  
**Combined System and No Action Scenario**

Measure	Base Fare Scenario		
	\$1.00	\$1.50	\$1.75
<b>Combined LOOP and City Bus</b>			
Passenger Trips	1,279,030	1,101,910	1,013,350
Operating Costs (\$)	7,205,200	7,205,200	7,205,200
Fare Revenue (\$)	833,300	1,072,100	1,148,100
Deficit (\$)	6,371,900	6,133,100	6,057,100
Farebox Recovery (%)	11.6	14.9	15.9
Passengers/Vehicle Hour	12.7	10.9	10.1
Cost per Passenger (\$)	5.63	6.54	7.11
Deficit per Passenger (\$)	4.98	5.57	5.98
<b>No Action</b>			
Passenger Trips	855,370	736,050	676,380
Operating Costs (\$)	6,095,700	6,095,700	6,095,700
Fare Revenue (\$)	572,400	738,800	792,000
Deficit (\$)	5,523,300	5,356,900	5,303,700
Farebox Recovery (%)	9.4	12.1	13.0
Passengers/Vehicle Hour	11.4	9.8	9.0
Cost per Passenger (\$)	7.13	8.28	9.01
Deficit per Passenger (\$)	6.46	7.28	7.84

**Fare Media** – The results of the rider survey conducted as part of this study effort showed that approximately 80 percent of the riders on both systems paid some type of cash fare when boarding the bus. Facilitating more expanded use of multi-ride fare media among passengers not only improves the attractiveness and convenience of the transit service, but it provides an operational benefit by reducing the amount of time a bus is stopped waiting for passengers to board. Administratively, expanded use of multi-ride fare media reduces the amount of cash that must be processed each day.

When developing fare media products, it is also important that the fare product effectively meet the needs of the particular target market. LOOP currently offers a commuter pass which is used by less than one percent of riders. This indicates that either the pricing or the availability of the pass do not meet the needs of this particular market. To offer a flexible fare structure while minimizing the administrative burden, it is recommended that LOOP and City Bus implement a joint fare media program which includes monthly, weekly, daily, and ten-trip pass options. Using typical industry pricing techniques (i.e. discounts granted for multi-ride media, with longer timeframe passes receiving the greatest benefit), Table 5.20 provides a recommended fare media program. It should be noted that these figures are based on a \$1.00 base cash fare. The applicable rates should be applied to determine pricing under different base fare scenarios.

**Table 5.20**  
**Proposed Multi-Ride Fare Media Structure**  
**Under \$1.00 Base Cash Fare**

Type	Price (\$)	Assumed Number of Rides	Effective Fare (Cost per Ride - \$)	Discount (%)
Monthly Pass	34.00	42	0.81	19.0
Weekly Pass	8.50	10	0.85	15.0
10 Trip Pass	9.00	10	0.90	10.0
Daily Pass	2.70	3	0.90	10.0
Uniticket	Dependent upon MetroNorth pricing			

Senior, disabled, and student discounts would continue to be applied to the price of any of the above pass options.

The fact that so few passengers make use of the current multi-ride pass options indicates a lack of available locations to purchase these products, as well as a lack of awareness of the products among riders. LOOP and City Bus should also implement a joint program to make these fare media options available for sale at various outlets throughout the service area. This should include the two offices of the transit system as well as a staffed ticket and customer service window at the main transit hub in downtown Poughkeepsie. This could also include area grocery stores, pharmacies, and other retail outlets. The systems should also pursue installing ticket vending machines at major transit stops such as the downtown hub, the train stations, and the Poughkeepsie Galleria. Internet sales should also be pursued.

The availability of these fare media products should be heavily publicized. The newly designed timetables and system map should provide information about the fare products and where they can be purchased. Information should also be prominently displayed on all LOOP and City Bus vehicles. The internet website can also be used to inform the public about the fare products.

Some type of per trip reimbursement arrangement should be developed to provide revenue to each system based on the level of usage among the passes. One arrangement would be to have all revenue from pass sales be deposited into a common account. Registering fareboxes should be used to track ridership by fare type. Each system would then be required to report the number of boardings per fare type each month. Each system would then be reimbursed based on an agreed upon per trip reimbursement rate.

**Specialty Fare Arrangements and Media** - Under the recommended plan, transit service to the various college campuses in Dutchess County will be improved. The system expansion options also outlined service improvement which would further enhance connections to the campuses. The Service Improvement Proposals report noted that the implementation of expansion options or further service enhancements could be done in conjunction with the establishment of some type of supplementary funding program through the different colleges. One possible funding arrangement would be a U-Pass program.

Under a U-Pass program, each student is assessed a per semester transportation fee. The proceeds of this fee are then directed to the transit system to be used to fund the enhanced services. In exchange for the per semester fee, all students would have unlimited access to the fixed route system. Other types of programs that have been established in other communities which host college campuses include the use of student parking fees or discretionary funds to fund enhanced transit service. Similar types of arrangements could be pursued with Marist College, Culinary Institute of America, Bard College, Vassar College, or Dutchess Community College.

Successful programs of this type have been implemented by transit systems throughout the country. U-Pass programs provide an opportunity to significantly increase transit ridership in an area. To estimate the potential usage of a U-Pass program in Dutchess County, U-Pass ridership data was collected from two systems with established programs, the Rhode Island Public Transit Authority (RIPTA), the statewide transit provider in Rhode Island, and the Metropolitan Transit Utility (MTU) in Lacrosse, Wisconsin. Ridership information for institutions currently participating in these that are similar to the institutions in Dutchess County was examined and is presented in Table 5.21.

**Table 5.21**  
**U-Pass Performance Statistics**

<b>Institution</b>	<b>System</b>	<b>Annual Rides</b>	<b>Enrollment</b>	<b>Rides per Student</b>
<b>Small, Liberal Arts Institutions</b>				
Viterbo College	MTU	8,530	3,090	2.8
Salve Regina University	RIPTA	88,549*	2,500	35.4
Roger Williams University	RIPTA	35,959	3,800	9.5
Overall	-	133,036	9,388	14.2
<b>Technical/Community College</b>				
Western Technical College	MTU	52,763	6,500	8.1
<b>Culinary/Hospitality</b>				
Johnson & Wales University	RIPTA	296,320*	16,100	18.4

\* Extrapolated from monthly totals

Applying these rates to the institutions in Dutchess County can provide some idea of the potential ridership impact to Dutchess County's transit network. As shown in Table 5.22, the experience of other transit systems with U-Pass programs suggest that transit ridership in Dutchess County could grow by as much as 210,000 passenger trips each year.

**Table 5.22  
Projected U-Pass Ridership in Dutchess County**

Institution	Enrollment	Rides per Student	Annual Rides
<b>Small, Liberal Arts Institutions</b>			
Bard College	1,800	14.2	25,560
Marist College	4,300	14.2	61,060
Vassar College	2,500	14.2	35,500
<b>Technical/Community College</b>			
Dutchess Community College	7,850	8.1	63,600
<b>Culinary/Hospitality</b>			
Culinary Institute of America	2,800	9.2*	25,760
<b>Area Total</b>	<b>19,250</b>	<b>-</b>	<b>211,480</b>

\* Used 1/2 the rate observed at Johnson & Wales, since Johnson & Wales is a downtown campus with parking limitations.

**Marketing/Public Information Recommendations**

As noted earlier, the implementation of the Recommended Plan will require a significant and continuous marketing and public awareness effort. An effective marketing and public awareness program will be necessary to keep current riders informed of planned service changes, as well as to attract new riders to the system. To attract new riders, the system must be easily accessed and recognizable. Also, public information regarding the system must be prevalent throughout the community and comprehensible to the first time or infrequent user. Information that allows regular users to learn of other trips they can make on the area transit system must also be readily available. The following paragraphs provide some recommendations for the important elements of such a program.

- Image** – One core tenet of the Recommended Plan is to use the combined resources of LOOP and City Bus to improve the overall level of service available to the general public. However, the public meeting process conducted as part of this planning effort showed that there is an entrenched riding habit in Dutchess County in that passengers feel that they are City Bus riders or LOOP riders. To communicate to the riding public that a seamless transit network is available to them, it may be necessary to create some type of umbrella branding which encompasses both systems. This would not require an organizational merge of the two systems, but rather, both systems would be a part of the overall brand. For example, the brand could be called “Dutchess Transit” or “Hudson Valley Transit” which would encompass LOOP and City Bus. The logo of the umbrella brand could be used on all public information, internet websites, bus stop signs, and fare media to communicate the idea of there being one overall transit network.
- System Map/Public Timetables** - An integral part of the success of this plan is the effective updating of the public information program for the two systems to reflect the proposed changes. Ideally, there would be a joint public information effort for

LOOP and City Bus under the uniform brand described above. While both systems could continue to publish their own individual timetables, there should also be jointly published information, such as a system map, that includes information for both systems. It should also be noted that the quality and availability of information regarding LOOP was an issue of major concern among the general public and stakeholders. The quality of information regarding the City Bus system was not as much an issue; however, the availability of that information was seen as insufficient.

With the implementation of the recommended service changes, LOOP should develop separate timetables for each individual route. Each timetable should include a map of the route and the route schedule. The map should identify each street on which, and the direction in which, the route operates. Scheduled time points should be approximately five to ten minutes apart and should be noted on the route maps. Route maps should also indicate locations that provide transfer opportunities to other LOOP, City Bus, and intercounty bus and rail service providers.

Due to the nature of the City Bus routes, City Bus could continue to publish a single timetable for its routes. However, City Bus should redesign its timetable to include a map of the routes meeting the specifications noted above for LOOP materials.

LOOP and City Bus should also develop and distribute a joint system map. A system map is a highly useful document that every transit system should publish and make readily available. A transit marketing firm should be consulted in the design of the system map to ensure the document complies with best practices in the industry. Due to the unique nature of Dutchess County, the joint system map should also show the intercounty bus and rail services which serve county. Potential transfer points from LOOP and City Bus services to the intercounty bus and rail services should be marked on the system map and on route timetables. Contact information for the other service providers should be listed on the system map document.

Of equal importance is the distribution of these recommended materials. LOOP and City Bus should develop a comprehensive, and joint, distribution program to make individual route timetables and system map readily available at a variety of locations. The system map should be posted at all major transit stops and in all bus shelters. The system map and route timetables should also be made available at all pass sales outlets, major generators (e.g., Poughkeepsie Galleria), public buildings, student centers on college campuses, and on LOOP and City Bus vehicles. Along with the system map, LOOP and City Bus should post the schedules of the applicable routes at these key bus stops. In buses equipped with a screen behind the driver's seat, a version of the system map could be posted.

Information was obtained from Brecon Hill Consulting, a firm specializing in transit marketing, regarding the typical costs for printed materials for small to medium sized transit systems. Based on the information, it is estimated that the design and printing of the recommended individual route timetables (one for each LOOP route, and one combined timetable for the City Bus routes) would cost between \$10,450 and

\$20,350. The range would depend on the color schemes used and the quality of the paper. The design and printing of the recommended system map document is estimated to cost between \$17,050 and \$22,880. Again, the range would depend on the quantity printed, paper stock, number of folds, and number of colors used. The tables below provide a breakdown of these estimates:

**Table 5.23**  
**Cost Estimate - Individual Route Timetables**

Budget Item	Per Unit Cost	Estimated Range
10 Routes: Proposed LOOP A-F, 3 Rail Link routes, 1 combined City Bus timetable		
Design	\$250-\$450 per route	\$2,500 - \$4,500
Planning	\$400 per route	\$4,000
Printing (10,000 copies per route)	\$0.03 - \$0.10 per copy	\$3,000 - \$10,000
Contingency	10% of costs	\$950 - \$1,850
<b>Total</b>		<b>\$10,450 - \$20,350</b>

**Table 5.24**  
**Cost Estimate - System Map**

Budget Item	Per Unit Cost	Estimated Range
1 combined LOOP and City Bus System Map document		
Design (1 document)	\$4,500 - \$6,800	\$4,500 - \$6,800
Planning (1 document)	\$6,000	\$6,000
Printing (20,000 copies)	\$0.25 - \$0.40 per copy	\$5,000 - \$8,000
Contingency	10% of costs	\$1,550 - \$2,080
<b>Total</b>		<b>\$17,050 - \$22,880</b>

- Other Printed Information** - Before the implementation of major service changes, LOOP and City Bus should develop a single booklet that describes all of the service changes along with maps depicting new route alignments. This service changes booklet should be made available at least three weeks before the implementation of the major service changes recommended as part of this plan. During the lead up to the implementation of service changes, LOOP and City Bus should also post signs and posters alerting passengers to the fact that changes to the service are coming on a particular date and to consult the booklet or contact LOOP and City Bus for information.
- Internet Website** – Currently, LOOP and City Bus information can be located on the Dutchess County and City of Poughkeepsie websites, respectively. However this information is not easily accessible and the formats do not comply with current best practices in the industry. A common website for both systems should be developed under the umbrella brand described above. The layout of the new website should take into consideration sites such as [gocitybus.com](http://gocitybus.com), the site developed by City Bus in Lafayette, Indiana, which won a 2008 marketing award from the American Public Transportation Association.

The new site should include individual maps for each route along with individual route timetables. The system map should also be available through the website. Mutual links to the websites of the intercounty bus and rail service providers in Dutchess County should also be available. LOOP and City Bus should also work with major institutions in the area to provide links to the new transit website. This would include local colleges, government agencies, Dutchess Tourism, and all local hospitals.

- **Targeted Marketing** – As noted in the fare policy recommendations section, a key target market in the service area is college students. LOOP and City Bus should design an outreach program designed to target these area students and begin to cultivate relationships that could result in U-Pass type programs.

Another market that could be specifically addressed is the tourism industry. The implementation of the Recommended Plan will significantly improve the connections between the Poughkeepsie Railroad station and the major tourism sites in Hyde Park. In addition, the hotels along the Route 9 corridor will be served at a more consistent frequency and in a more user friendly manner. LOOP and City Bus should work with Dutchess County Tourism to develop promotional materials for this market.

## Capital Improvement Recommendations

Along with service design and policies, the improvement of service delivery is dependent upon the capital assets used by LOOP and City Bus. This section provides various recommendations for how capital asset investments could be used to further enhance the Dutchess County transit system.

- **Revenue Vehicles** –The Recommended Plan for LOOP requires 17 vehicles for the fixed route service. Over the five year period, the Recommended Plan only calls for one additional peak vehicle for LOOP's fixed route services. This would increase the peak vehicle need for fixed route services to 18 vehicles. As noted earlier, the recommended implementation model for Flex Service (i.e., the use of current Dial-a-Ride vehicle runs for the provision of Flex Service) would require an additional one peak vehicle, which would increase the demand responsive peak vehicle need to 21 vehicles. This represents a total system peak vehicle need of 39 vehicles.

Dutchess County's vehicle replacement plan for LOOP calls for the purchase and replacement of 42 transit vehicles between 2008 and 2012. This includes: six full size transit coaches (\$340,000 per vehicle); 15 thirty-passenger buses (\$112,000 per vehicle); 19 smaller transit buses (\$125,000 per vehicle); and two hybrid buses (\$225,000 per vehicle). This represents a fleet replacement program of approximately \$6,545,000 over the next five years. Along with the seven 2004 Coach transit vehicles in the current fleet, this would represent a fleet of 47 vehicles throughout the five year planning horizon. This represents a spare fleet of approximately 20 percent, which is in compliance with Federal Transit

Administration recommendations. City Bus replaced all but one of its fleet of full sized transit vehicles in 2008.

It should also be noted that fixed route system expansion options could add as many as nine additional peak vehicles. The services proposed could most likely be accommodated with smaller transit vehicles, which would cost approximately \$125,000 each. This should be taken into consideration when deciding the timeline for the implementation of the various expansion options. Also, if communities request additional Flex Service vehicle runs beyond the level identified in the Recommended Plan, this could impact the number of peak vehicles required to operate the service. Again, this may require the expansion of the revenue fleet with additional small transit vehicles.

It should be noted that the Recommended Plan will not significantly impact the need for additional capacity at City Bus and LOOP's current operating facilities. However, if system expansion options are implemented, a review of the capacity and functionality of these facilities should be conducted.

- **Bus Stops and Bus Stop Signage** – Another important aspect of the public information and public awareness efforts is the need for consistently designated and marked bus stops. Neither LOOP nor City Bus currently marks their bus stops with bus stop signs in a consistent manner. Both LOOP and City Bus should undertake an effort to specifically identify the locations of each of their bus stops. All bus stops in the urban and suburban areas should be marked with a bus stop sign. Bus stop signs should include: the logo, telephone information number, and website address of the umbrella brand and system which serves the stop; the international symbol for a bus stop; and possibly the route numbers which serve the stop. Flag stops could continue to be used in the rural areas of the county.

Currently, on shared route segments, the City Bus and LOOP systems do not have common designated bus stops. To maximize the convenience of the overall system, City Bus and LOOP should designate common bus stops along shared segments. These bus stops should then be marked accordingly with a bus stop sign indicating that both systems serve the stop.

To estimate the cost of identifying and installing bus stop signs at all urban suburban bus stops, the proposed route structure for LOOP and City Bus was examined. The number of miles on which six stops per mile, four stops per mile, and two stops per mile are appropriate were identified. This information is provided below along with the total number of bus stop signs that would be necessary to sign each of the bus stops.

**Table 5.25**  
**Bus Stop Sign Requirement**

Miles w/ 6 stops per mile	Stops	Miles w/ 4 stops per mile	Stops	Miles w/ 2 stops per mile	Stops	Total
85	510	75	300	8	16	826

The above table shows that there would be a need to install approximately 850 bus stop signs. A total cost estimate for the bus stop installation program was then calculated using cost information from the Capital District Transit Authority (CDTA), in Albany. This is provided in Table 5.26.

**Table 5.26**  
**Cost Estimate – Bus Stop Signage Program**

Budget Item	Cost per Unit (\$)	Units	Estimated Cost (\$)
Sign Printing	20.00	850	17,000
Sign Installation	100.00	850	85,000
<b>Total</b>	<b>120</b>	<b>850</b>	<b>102,000</b>

While the CDTA is a much larger system than Dutchess County, it is in the same region. Therefore, costs of goods and services should be similar. Based on the information provided above, it can be estimated that the bus stop installation program would cost in excess of \$100,000.

- **Passenger Amenities** – LOOP and City Bus should implement a program to install 20 bus waiting shelters at major transit stops throughout the service area. These shelters should be furnished with the system map and, preferably, with the timetable for the routes which serve that particular stop. The installation of shelters at major stops will improve the image of the transit system and make riding more convenient. This program will also serve to establish a greater transit presence in the service area. Again using cost information from the CDTA, an estimated cost for this program was calculated. As Table 5.27 shows, it is estimated that this program would cost approximately \$160,000.

**Table 5.27**  
**Cost Estimate – Bus Shelter Installation Program**

Budget Item	Cost per Unit (\$)	Units	Estimated Cost (\$)
Shelter Purchase	6,000	20	120,000
Shelter Installation	2,000	20	40,000
<b>Total</b>	<b>8,000</b>	<b>20</b>	<b>160,000</b>

- **Park n Ride Lots** – Another capital improvement that LOOP will need to address is the identification of new park and ride locations. This may entail the development of new stand alone sites or agreements with retail establishments to allow for the use of parking spaces during day for park and ride purposes. The need for such arrangement may develop in the Hyde Park area for commuters using the Poughkeepsie Railroad

station. The location and timing of these lots will depend on parking conditions and demand at the rail stations.

Table 5.28 provides a summary of the capital program for the Dutchess County transit system which would result from the recommendations included in this report.

**Table 5.28  
Capital Program**

Budget Item	Description	Estimated Cost (\$)
Planned LOOP Fleet Replacement	40 transit vehicles	6,545,000
Potential Fleet Expansion	8 transit vehicles	1,000,000
Bus Stop Signage Program	Print and install 850 bus stop signs	102,000
Bus Shelter Installation Program	Purchase and install 20 waiting shelters	160,000
<b>Total</b>		<b>7,807,000</b>

**Land Use/Development Policy Considerations**

While all of the above recommendations will improve transit service in Dutchess County, it must be noted that the two transit systems operate in an environment over which they have little control. There are various policies which Dutchess County, and the land-use decision making bodies of the various municipalities, can pursue to further facilitate and promote the use of transit. Three such policy areas are described below.

- Pedestrian Infrastructure** – Results of the rider survey conducted as part of this planning effort showed that over 90 percent of LOOP and City Bus riders walk to complete some portion of their trip. This suggests that overall transit ridership in Dutchess County cannot be maintained or expanded without proper attention to the needs of pedestrians. To provide a safe and convenient pedestrian environment, sidewalks should be provided on all major arterials. Also, the county and municipalities should pursue policies that require sidewalks in all new developments that connect to main roads. Sidewalks, or at least a cement pad, should exist at major boarding locations, if not at all bus stops. This allows for a safer and more convenient experience for the passenger while waiting for the bus. Also, the existence of a sidewalk or cement pad allows for the effective deployment of wheelchair ramps.

Crosswalks should be installed, and pedestrian phases in traffic signals should be implemented wherever possible. Pedestrian refuges should be provided on all four lane roads. These improvements are especially important along the Route 9 corridor between Hyde Park and Fishkill.

The county and municipalities should also monitor the pedestrian environment and identify areas that need new sidewalks, sidewalk replacements or expansions, or the

installation of pedestrian amenities. The transit systems should be prepared to show how the poor pedestrian environment affects transit use in the region and make the case for the use of transportation enhancement funding to address these issues.

- **Site Design** – Related to the pedestrian infrastructure is the issue of site design. The municipalities, and the county to the greatest extent possible, should require transit consideration in site plans of major new retail or other developments. As part of the site design review, developers should be asked to position buildings on a site in such a way as to allow convenient access to the building by foot from the street. New developments should also provide a pedestrian connection from the street to the storefronts. These site design elements would allow transit vehicles to serve establishments from the street rather than having to enter each individual development. This would greatly reduce the running time needed to serve growing corridors. Some jurisdictions in other areas of the country have implemented programs which provide incentives, such as a reduction in the amount of needed parking, for developments which include transit friendly design elements.
- **Transit First Improvements** – A third policy that could be pursued by Dutchess County and the municipalities would be to institute a transit first improvement program. Transit first improvements can consist of a variety of policies all designed to reduce impediments to the flow of transit vehicles. This would include such physical improvements as bus bulb-outs along major corridors. Bulb outs allow a bus to make a stop to board or de-board passengers then continue on without needing to leave and re-enter traffic.

Another transit first improvement is the introduction of signal prioritization. This is the use of radio technology to allow traffic signals to give priority to transit vehicles. This technology would not only allow LOOP and City Bus vehicles to move along certain corridors more rapidly, but would also allow the system to serve more suburban locations in a less time consuming manner. For example, serving the commercial corridor along Route 9 in the Town of Poughkeepsie and East Fishkill can take a significant amount of time due to the number of traffic lights and traffic congestion. If traffic signal prioritization were installed along this corridor, it would be possible for the transit vehicle to make it through various signals in fewer cycles. This would allow the bus to serve this corridor more effectively without affecting the frequency of service.

Any of these policies could be pursued at any time during the implementation of the Recommended Plan. Any one, or a combination of these policies, could add to the convenience and reliability of the system resulting in further ridership increases.



