

Broome County Rural Paratransit Analysis

Final Report



Submitted to
Binghamton Metropolitan Transportation Study

Submitted by
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In association with
SG Associates

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Chapter 1 Introduction

The first chapter of the Broome County Rural Paratransit Service Analysis introduces the study and provides an overview of current conditions with regard to both transportation services and transportation needs.

1.1 Background

The Binghamton Metropolitan Transportation Study (BMTS) coordinates planning activities for public transit service in the Binghamton, NY metropolitan area. BMTS has performed analyses of both fixed-route and paratransit systems for Broome County, NY. (See Figure 1.1 for an orientation map of Broome County.)

Rural paratransit service in the County was initiated in 1981-82 by the recommendations of the BMTS study *Public Transportation for Rural Broome County*. This study led to the creation of BC Country, which is operated by the Broome County Department of Public Transportation (BCDOPT) and has been serving the rural portion of Broome County for almost twenty years with relatively unchanged operations. During this period, BC Country has become more visible in the community and the demographic profile of rural Broome County has changed. As a result, BMTS has observed new unmet transportation needs among rural residents. Among the goals of this Rural Paratransit Analysis are a description of current service levels, an examination of unmet needs, and an identification and evaluation of improvement or modification options available to BC Country.

This Rural Paratransit Analysis is an element of the approved BMTS Unified Planning Work Program. It will be the product of cooperation with the BCDOPT, as well as other social service agencies providing transportation in Broome County.

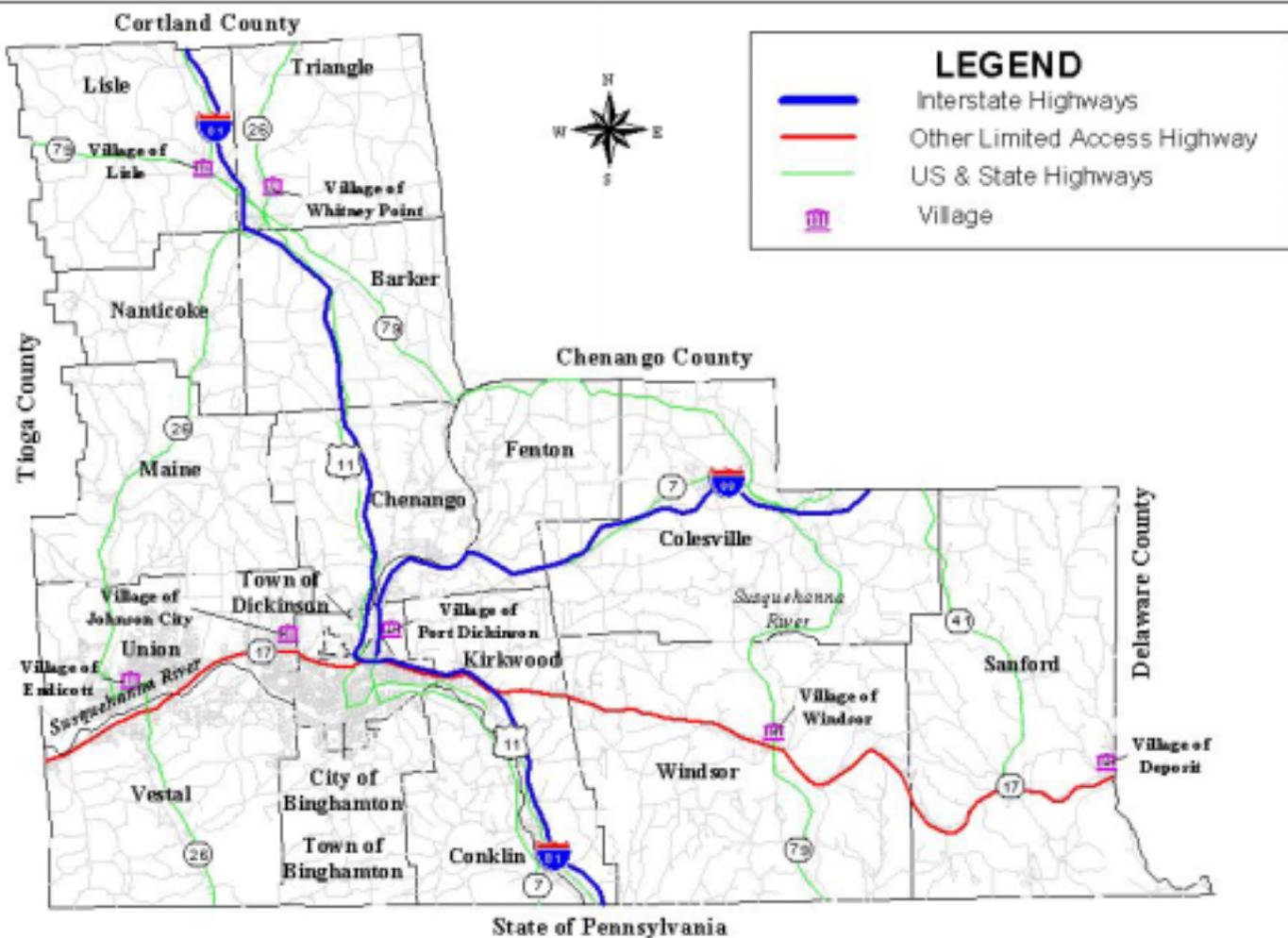
1.2 Study Approach

The project was divided into three phases, each of which culminated in a document presented to members of the study advisory committee for review and input. The first document, Technical Memorandum #1, presented the results of the first phase. This first phase consisted of a service inventory and assessment of the major transportation providers in Broome County, and an assessment and quantification of different categories of transportation need. The following items were addressed:

- A review of relevant existing studies
- A review of BC Country, which included a fleet inventory, a description of operating characteristics, and an overview of maintenance, scheduling, record keeping, and training procedures

Figure 1.1 Broome County Cities, Towns and Villages

0 5 10 Miles



- A review of other transportation resources in the rural part of the County, which included a few small-scale paratransit providers and volunteer transportation programs
- A transportation analysis, which included an analysis of BC Country on the basis of operating and financial data, an analysis of weekly vehicle utilization, and an evaluation of existing agency routes
- A transportation needs analysis, which quantified transportation demand for health and human service programs, non-program needs, employment, and out-of-County medical trips

Phase 2 involved the development of conceptual alternatives for meeting transportation needs identified in Phase 1. This required documenting both the identified unmet needs and key issues and developing alternative recommendations that meet those needs. A technical memorandum, which was the result of Phase 2, was presented to the study advisory committee on June 6, 2002.

Phase 3 consisted of the conceptual service guidelines for the alternatives developed in Technical Memorandum #2. The product of this phase included guidelines for operations, organizational and management improvements, capital improvements, and future budgets, and is included in the final chapter of this report.

1.3 Review of Existing Data and Studies

The Binghamton Metropolitan Transportation Study conducted the first assessment of BC Country service in its *An Evaluation of the BC Country Rural Bus Service*, from January 1984, fourteen months after BC Country service was initiated. This study includes a profile of riders and their usage of the system, a measure of the effectiveness of marketing the system, an examination of operational and financial data, and a review of the quality of service. One mail survey and one telephone survey provide much of the data for this study's observations. This study reviews several alternatives for the future of BC Country, including maintaining current levels of service and discontinuing service. It is concluded that since BC Country adequately serves the transportation disadvantaged in the County, BC Country should continue to offer demand responsive service.

The Center for Governmental Research undertook a review of the management and operations of all County transportation services in its *Broome County Department of Public Transportation* from May 1995. With respect to BC Country in specific, this study notes that the service is greatly overburdened by the number of regular prescheduled trips it provides, thereby allowing limited opportunities for occasional trips to be accommodated. Additionally, the study recommends greater coordination with local human service agencies to both reduce costs and provide transportation services to a larger population in the County's rural areas.

The *Broome County Department of Public Transportation Transit Service Alternatives Study* from 1996 makes a more comprehensive attempt to evaluate BCDOPT as a whole. This report includes a full demographic and employment analysis, productivity statistics for County paratransit services, and a section summarizing community leader interviews.

A full chapter of this report is dedicated to a “Paratransit Improvement Plan”. The results of a paratransit rider survey are presented in this chapter. In this survey, riders voice their satisfaction with BC Country with similar levels of enthusiasm as BC Lift and OFA Minibus riders.

Chapter 2 County Demographic Profile

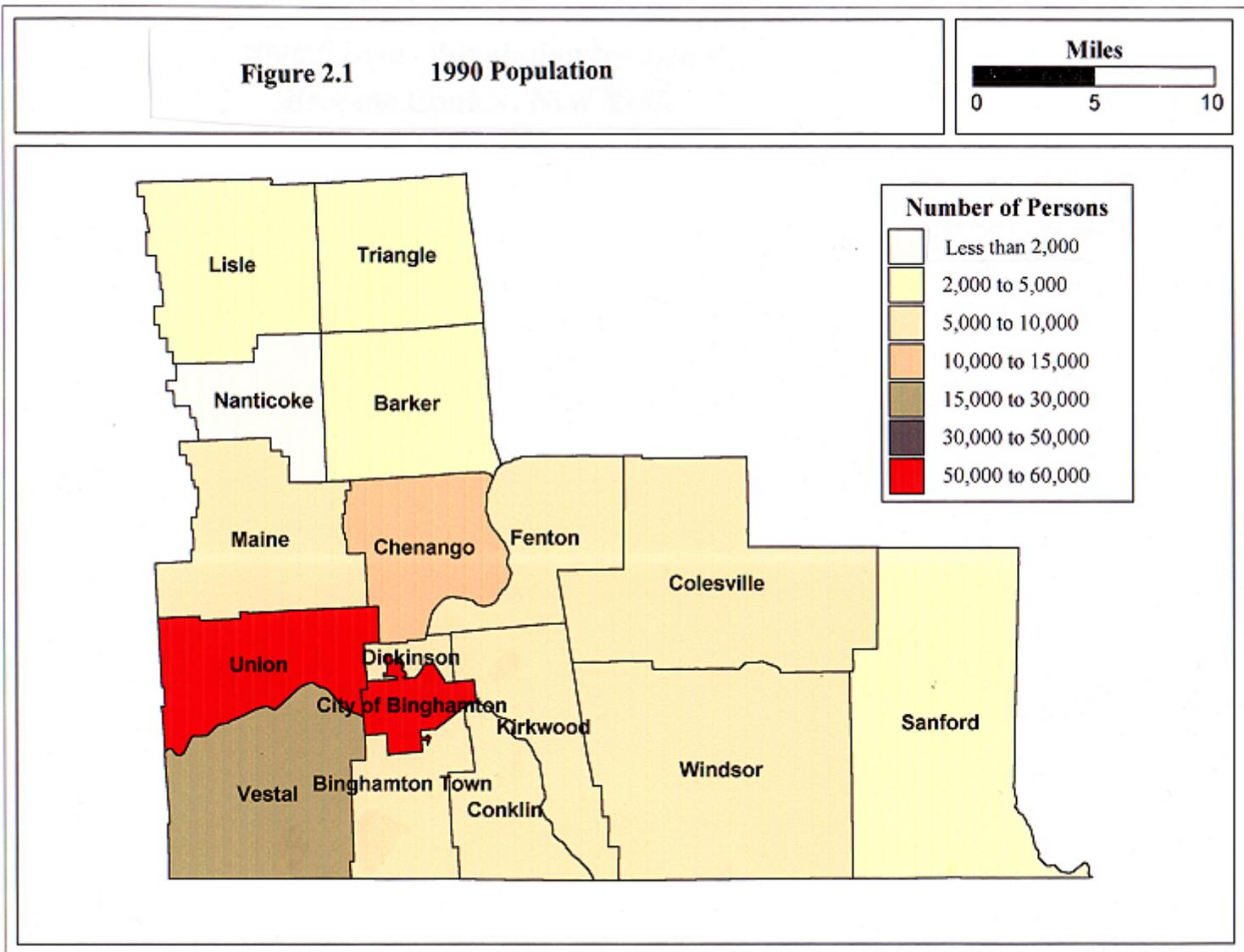
In order to prepare relevant recommendations for transit services, an overview of the populations and destinations currently served must be completed. This chapter presents findings in these areas based on our analysis of the available data.

2.1 Socioeconomic Profile

A transit system is most likely to be effective in meeting community goals if it is operated in the areas that house population groups with the greatest propensity for transit use. In order to identify these transit-supportive environments, population, elderly persons, mobility-limited persons, and persons living below the poverty level from the US Census data are examined. The study area includes Broome County and the surrounding counties of Cortland, Tioga, and Chenango. All data are analyzed at the County subdivision or town level. Both 1990 and 2000 demographic data are analyzed to determine significant trends.

In 1990, Broome County had a population of 212,160. Figure 2.1 displays the County's 1990 population by town. Union (which includes Johnson City and Endicott) and the City of Binghamton had between 50,000 and 60,000 persons each, while Nanticoke had fewer than 2000 persons. Overall, the northern part of the County was the least dense and the southwest was the most heavily populated. In 2000, the population of Broome County decreased by 5.8% to 200,536 persons. Figure 2.2 shows the County's 2000 population by town. The general density patterns described above for 1990 remain the same for 2000. Figure 2.3 reveals the changes between 1990 and 2000. The northern part of the County increased slightly, particularly Lisle with an increase of 5% to 10%. However, the City of Binghamton decreased by more than 10%. Figure 2.4 displays the 2000 population for Broome County and the surrounding Counties of Cortland, Tioga and Chenango. Tioga has a 2000 population of 51,784, Cortland has a 2000 population of 48,599 and Chenango has a 2000 population of 51,401. The majority of the towns in the 3 counties have fewer than 5,000 persons, excluding Owego and the City of Cortland with 15,000 to 30,000 persons each.

Figures 2.5 through 2.8 display the population age 60 and over. Figure 2.5 shows the elderly population of 42,087 for Broome County in 1990. Elderly concentrations tend to be highest in the most heavily populated areas. Therefore, Union and the City of Binghamton each had between 10,000 and 20,000 elderly persons in 1990. Figure 2.6 displays the elderly population of 41,542 for Broome County in 2000. Figure 2.7 reveals significant changes in the County's elderly population between 1990 and 2000. The northern part of the County saw a small increase in elderly persons, particularly Lisle with an increase of 5% to 10%. However, elderly persons in the City of Binghamton decreased by more than 10%. Figure 2.8 displays the 2000 population age 60 and over for Broome County and the surrounding counties of Cortland, Tioga and Chenango. Tioga has a 2000 elderly population of 9,116, Cortland has a 2000 elderly population of 7,933 and Chenango has a 2000 elderly population of 10,035. The majority of towns in



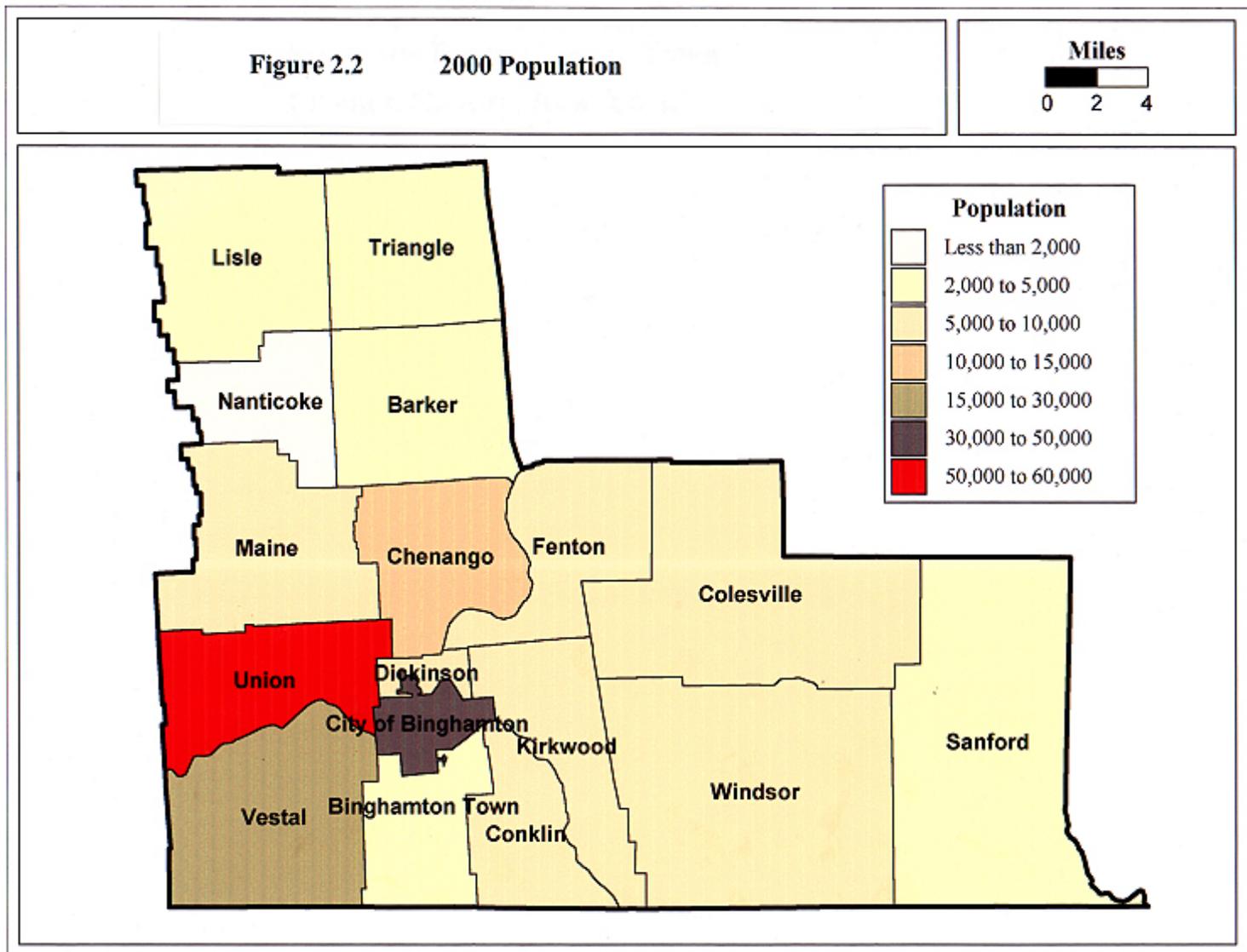


Figure 2.3 Percent Change in Population, 1990 – 2000

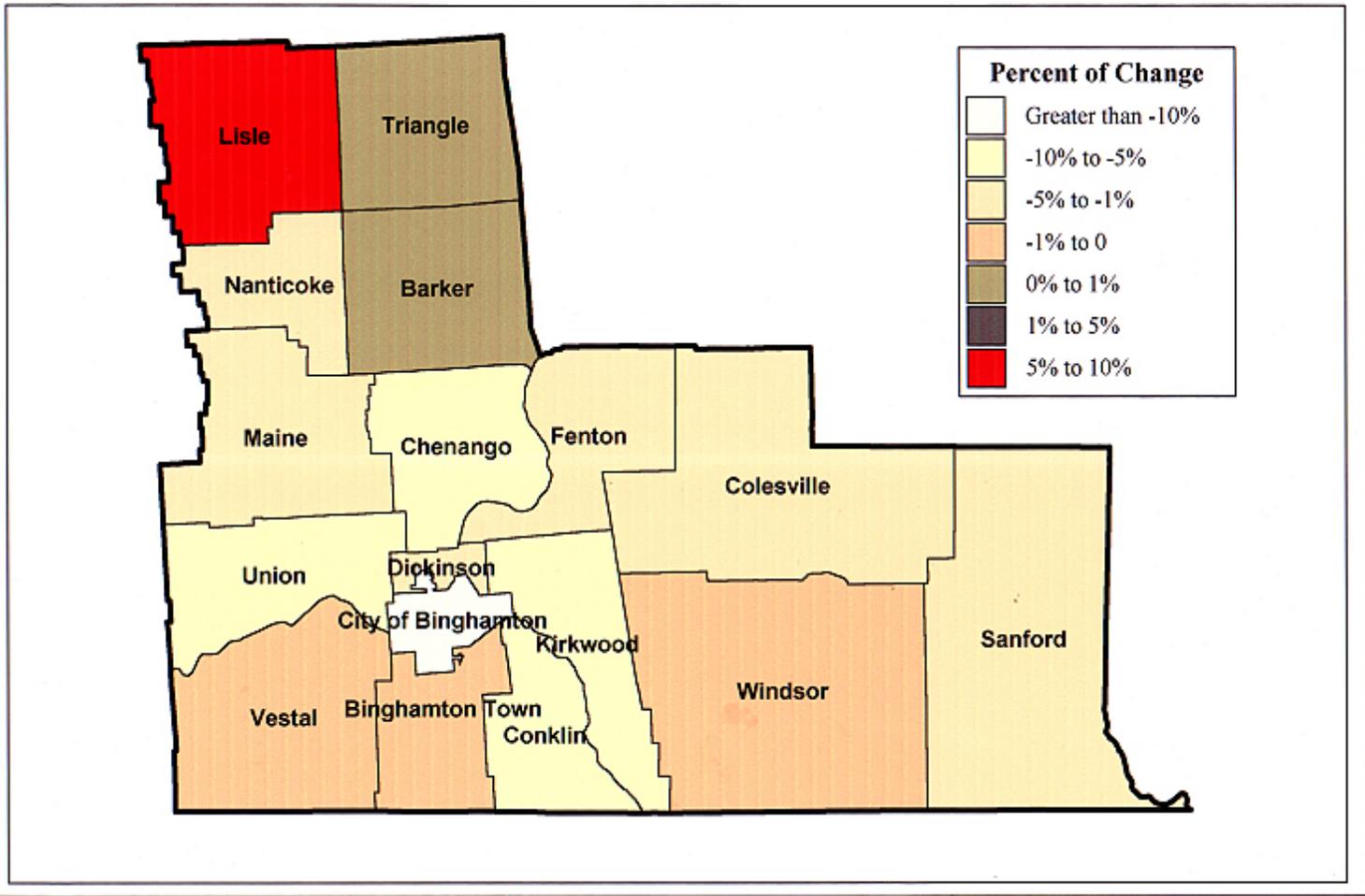
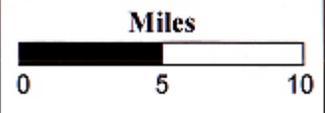


Figure 2.5 1990 Senior Population, Age 60 and Over

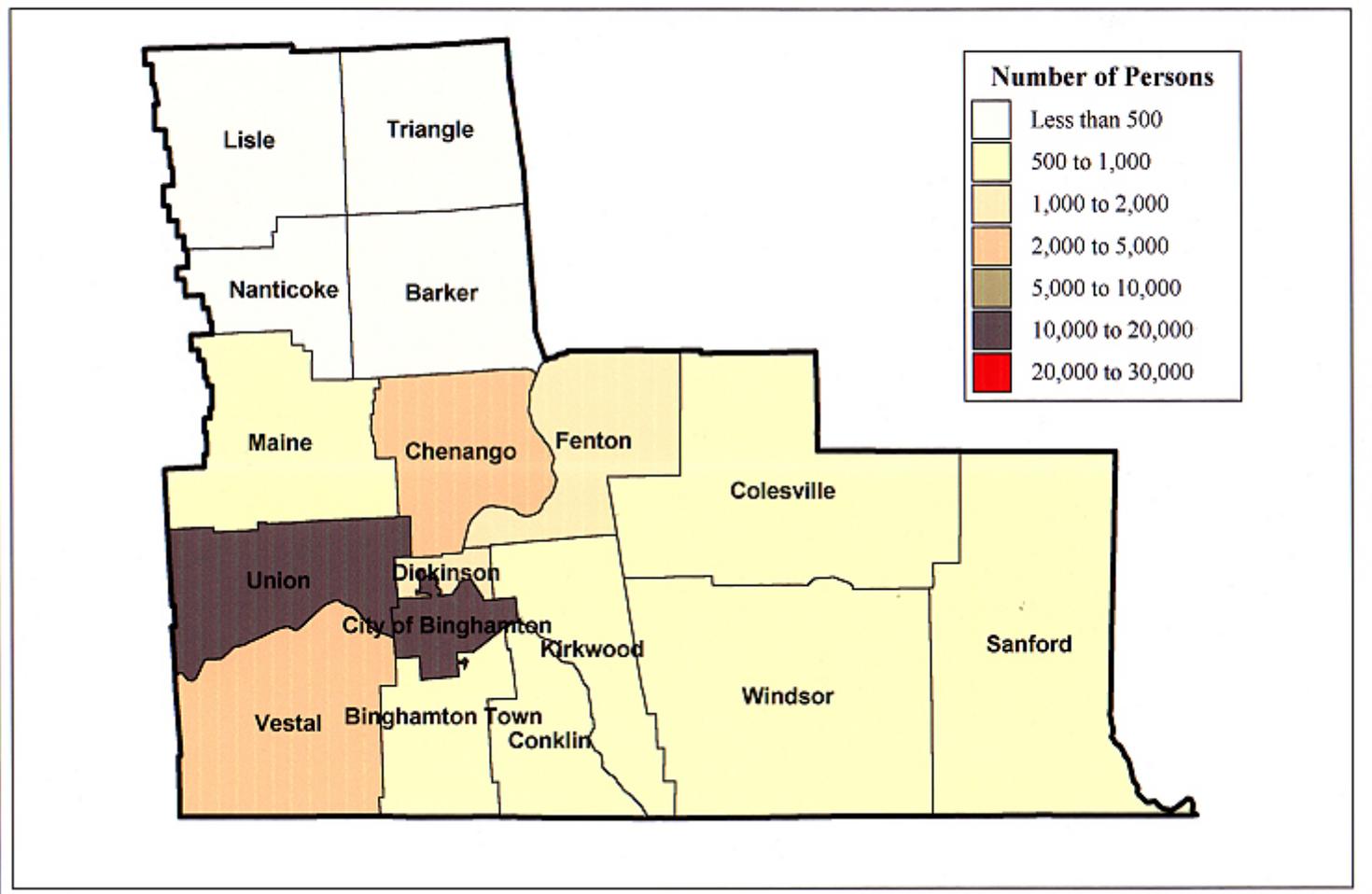
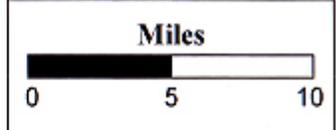


Figure 2.6 2000 Senior Population, Age 60 and Over

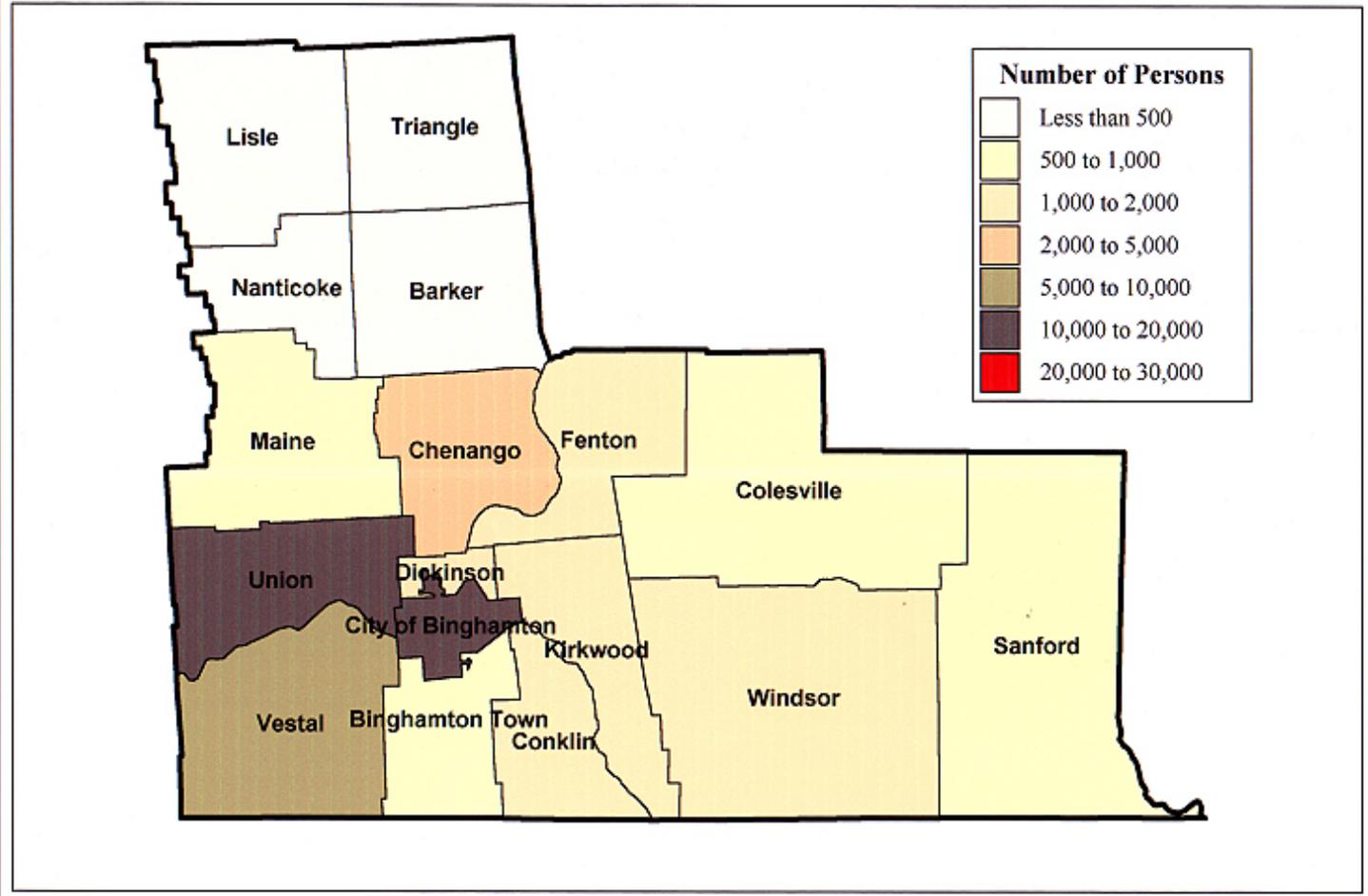
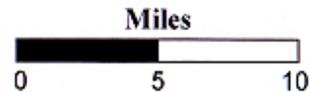
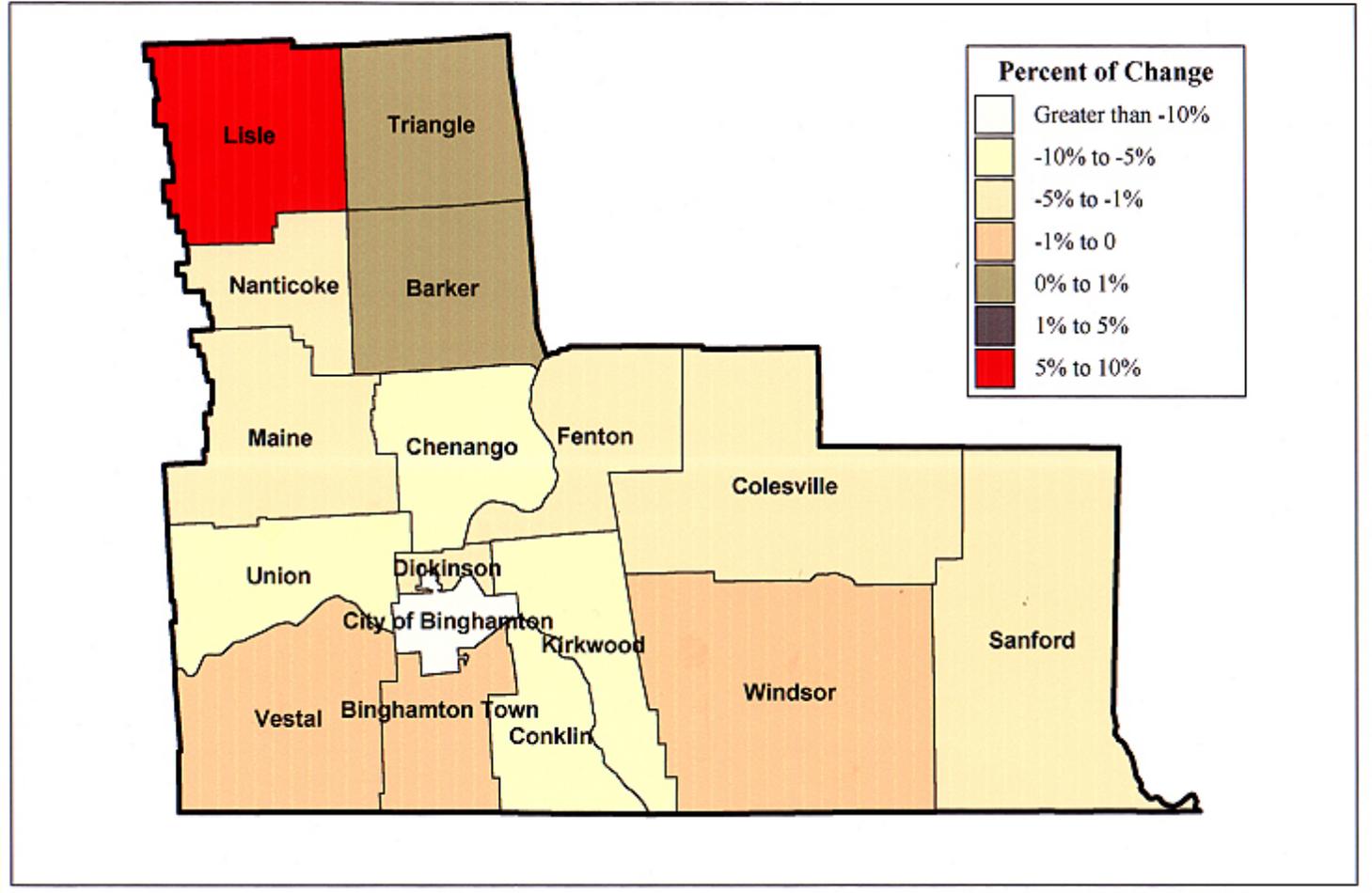
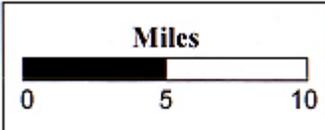


Figure 2.7 Percent Change in Senior Population, 1990 – 2000



the 3 counties have fewer than 1,000 elderly persons, and all the towns have fewer than 5,000 elderly persons.

Figures 2.9 through 2.11 represent persons age 16 to 64 with mobility limitations. Mobility-limited person concentrations tend to be highest in the most heavily populated areas. Therefore, the highest 1990 concentrations of mobility-limited persons were found in Union and the City of Binghamton (400 to 500 persons each). These data for Broome County are displayed in Figure 2.9. Broome County had a total of 1,459 mobility-limited persons in 1990. Figure 2.10 displays the estimated 2000 persons with mobility limitations. These data are currently unavailable at the town level for 2000, but will be released by the Census Bureau soon. The estimated number of mobility-limited persons was derived using the population percentage change from 1990 to 2000 and the 1990 mobility limited data. In 2000, Broome County has an estimated 1,370 mobility-limited persons. Union and the City of Binghamton continue to have the highest concentration of mobility-limited persons. However, Figure 2.11 displays two significant changes between 1990 and 2000. The number of persons with mobility limitations is estimated to have increased by 5% to 10% in Lisle and decreased by 10% in the City of Binghamton.

Figures 2.12 through 2.14 show persons age 18 to 64 living below the poverty level. In 1990, Broome County had 19,078 persons living below the poverty level. Figure 2.12 displays the 1990 poverty levels by town. Poverty levels are often highest in heavily populated urban areas. The City of Binghamton had between 9,000 and 10,000 persons living below the poverty level in 1990. Similarly, Union had between 3,000 and 6,000 persons living in poverty in 1990. Towns in the northern part of Broome County, as well as Dickinson and the town of Binghamton, each had fewer than 300 persons living in poverty in 1990. Figure 2.13 shows the estimated distribution of persons living in poverty for the year 2000. The estimated number of persons in poverty was derived using the population percentage change from 1990 to 2000 and the 1990 poverty data. In 2000, Broome County has an estimated 17,742 persons living below the poverty level. The City of Binghamton has between 6,000 and 9,000 persons in poverty and Union has between 3,000 and 6,000 persons in poverty. Seven townships have fewer than 300 persons in poverty. Figure 2.14 reveals the changes in poverty levels between 1990 and 2000. The northern part of the Broome County's population below poverty is estimated to have increased slightly with only a significant increase in Lisle (5% to 10%). In contrast, the City of Binghamton's population below poverty is estimated to have decreased by more than 10%.

Patterns affecting the provision of paratransit or demand-response transit services that can be gleaned from the data presented above are:

- The population, and also the transit-dependent population, has increased in the northern municipalities of Lisle, Triangle, and Barker, and decreased in other parts of the County
- The northern and eastern areas of the County remain the most sparsely populated; they continue to have less population to serve

Figure 2.9 1990 Population with Mobility Limitations

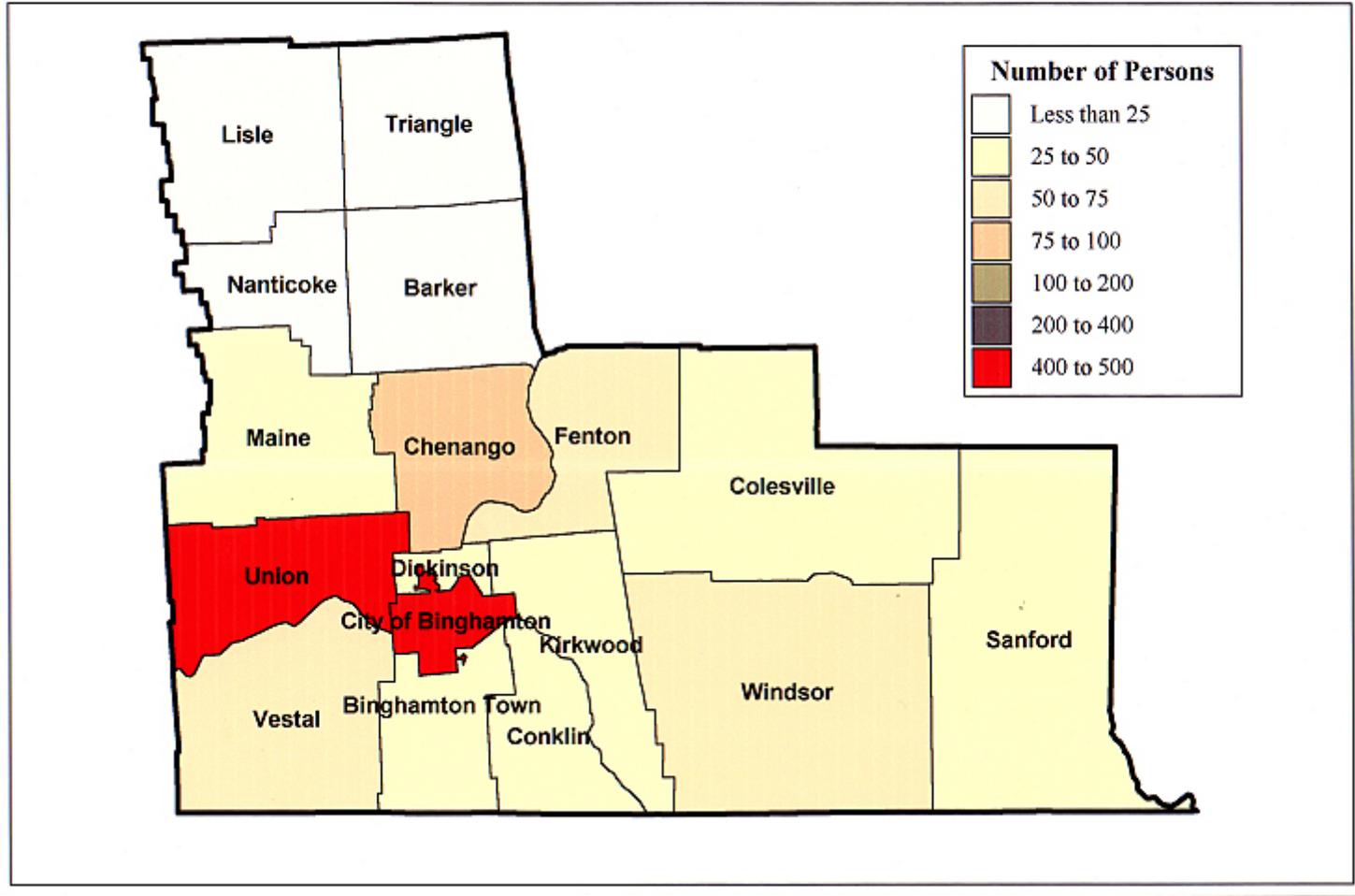
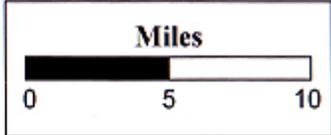
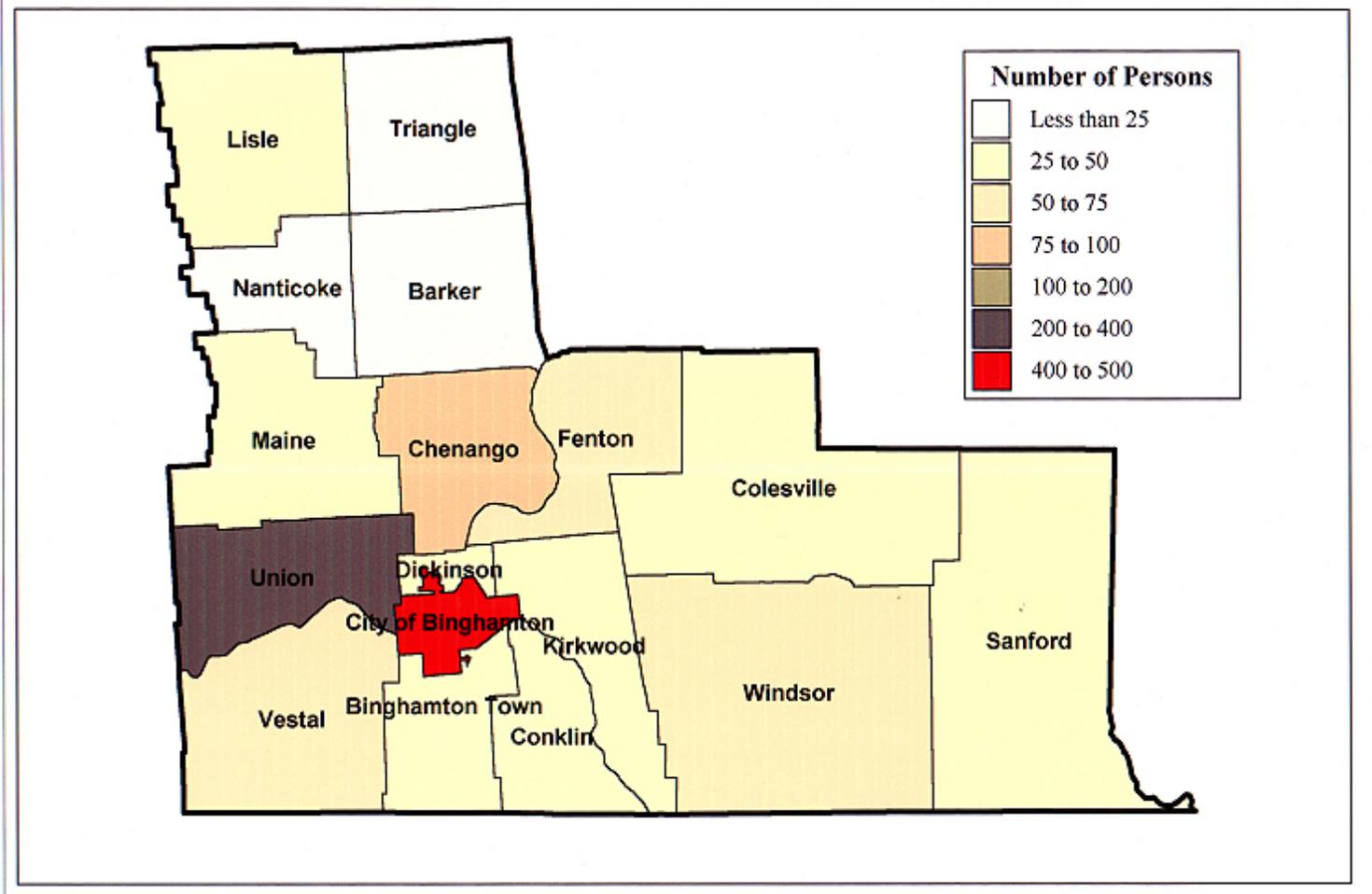
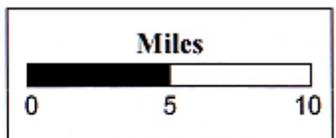


Figure 2.10 2000 Estimated Population with Mobility Limitations



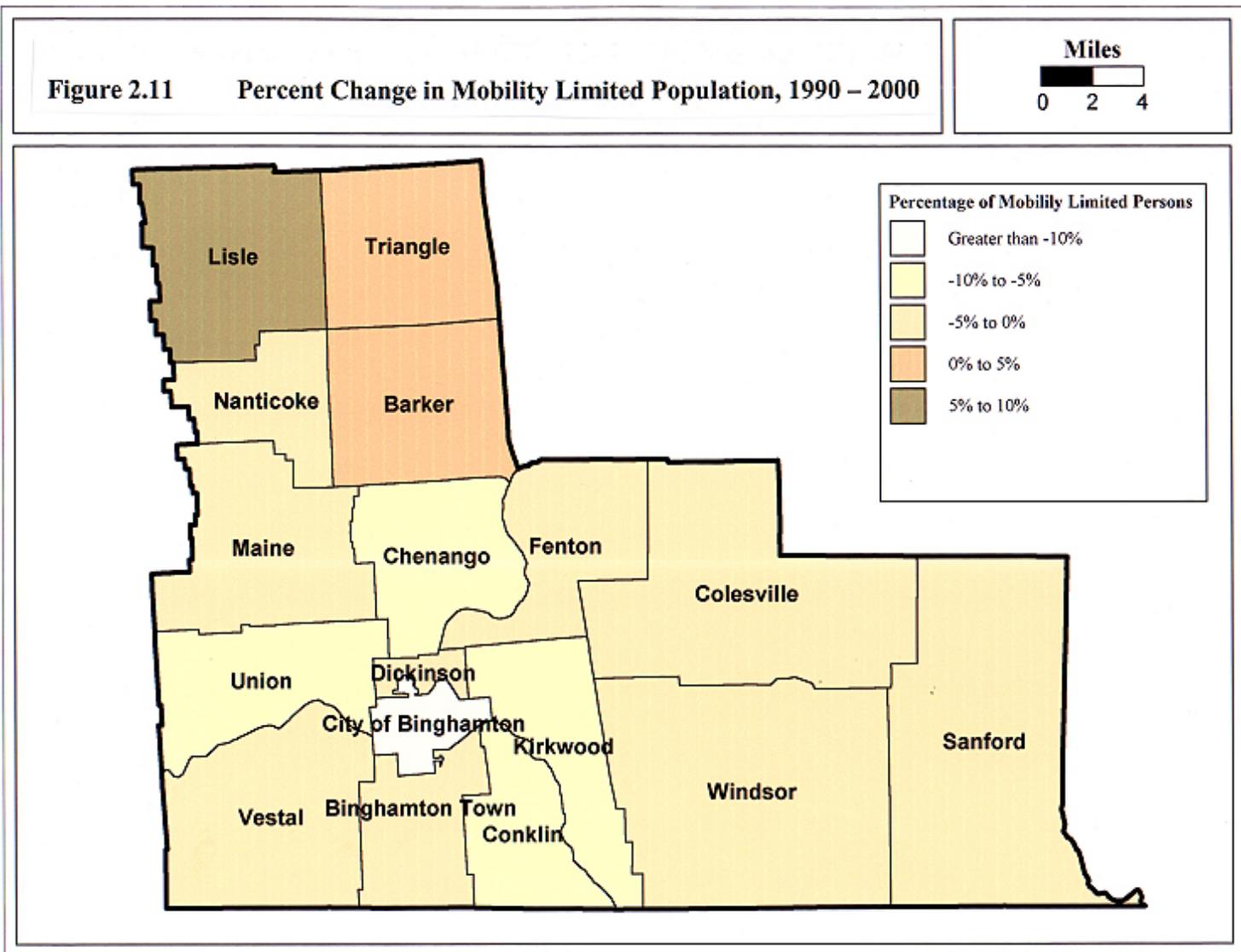
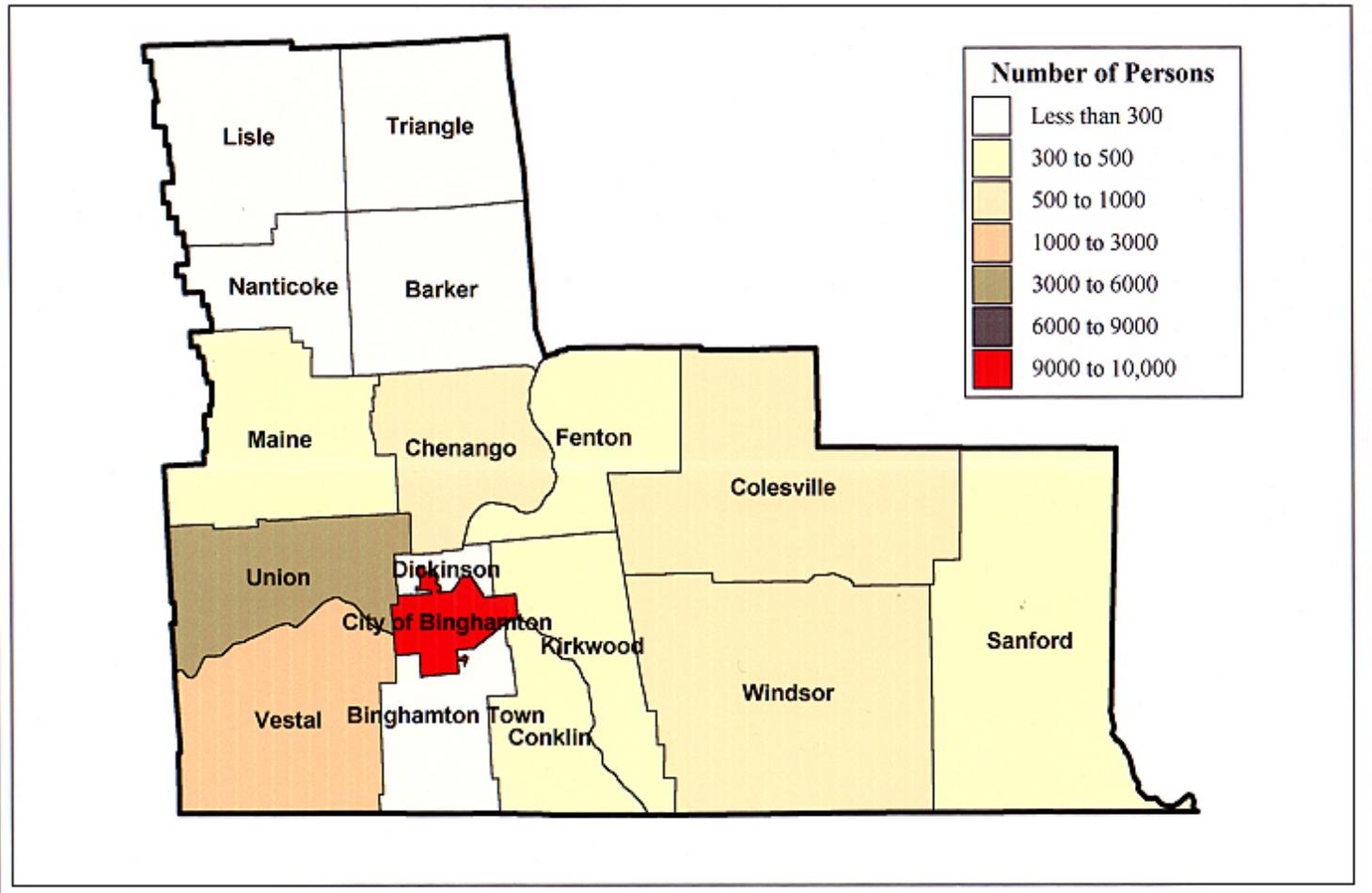
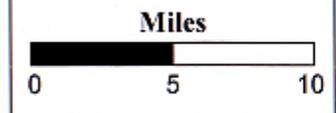


Figure 2.12 1990 Population Living in Poverty



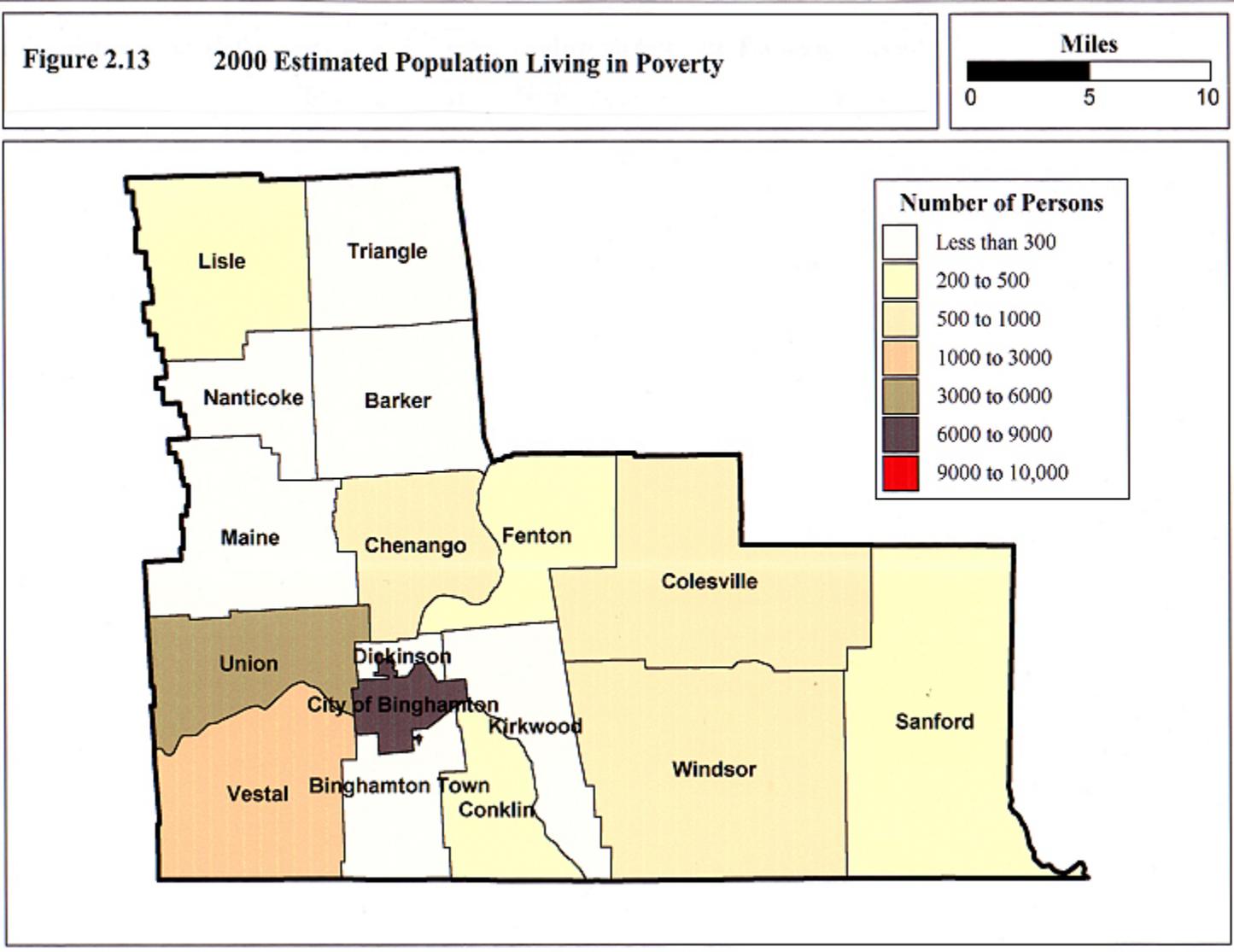
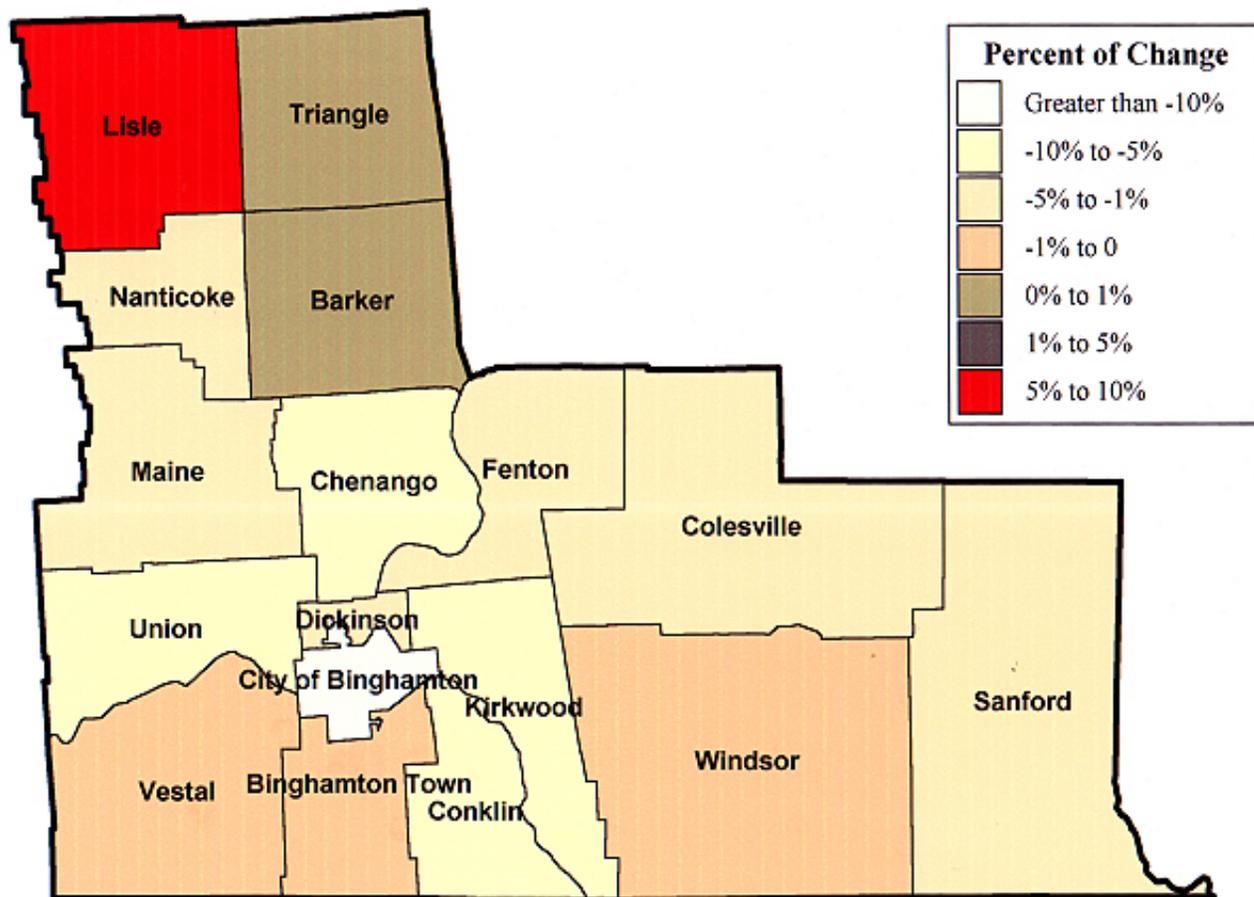
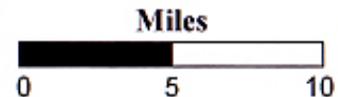


Figure 2.14 Percent Change in Population Living in Poverty, 1990 – 2000



- The southwestern areas of the County are more urban; they will, therefore, have more population to serve

Rural areas are, by nature, more difficult to serve than more urbanized areas. Passengers are farther apart, roads are more difficult to navigate in larger vehicles and people are farther from their destinations. An increase in the transit-dependent population and therefore of transit need in such areas places a much greater demand on the system, and stretches its resources.

The investment in infrastructure (roads, improvements, pedestrian access, traffic control devices, etc.) in less urbanized areas is lower than in more urbanized areas because of lower population levels. Lack of infrastructure investment also burdens the transit system in two significant ways: paratransit is often difficult to provide safely without sidewalks, platforms and pick-up and drop-off access off a main roadway; and lack of improvements may contribute to higher maintenance and acquisition costs for vehicles.

In addition, less urbanized areas receive less Federal formula funding due directly to the areas' having fewer persons to serve. A shift in population such as the one Broome County has experienced, with significant population shifts from urbanized to less urbanized areas with a concurrent drop in total overall population places an even greater burden on transit.

It is likely that due to these changes in the population there is more unmet need in the rural part of the County now than there was at the time of the previous census. In addition, that unmet need will be significantly more difficult to meet with the resources the County is presently using to serve its transit needs.

2.2 Travel Patterns

The 1990 Census provides journey-to-work data describing the patterns and characteristics of commuters (a category of data not available for the 2000 Census at the time of this writing). It is important to note that this data does not deal with non-work trips, nor should any assumptions about non-work trips be made from this data.

Table 2.1 provides the most common commute destinations. The data indicate that over 90% of Broome County residents travel to work within the County. After this, the most common commute destination is Tioga County, with just under 3% of the total. Other areas where Broome County residents commute include Chenango, Delaware, Cortland, Susquehanna (PA), and Onondaga County.

Most residents in Broome County arrived at work by driving alone, with a significant number of carpoolers as well. 77% reported that they drove alone, while 12% reported carpooling. Transit use was 2.6%.

One other relevant category from the 1990 census was travel time to work. The median time spent in commute by Broome County residents was 16.5 minutes. This compares with a statewide average of 29 minutes.

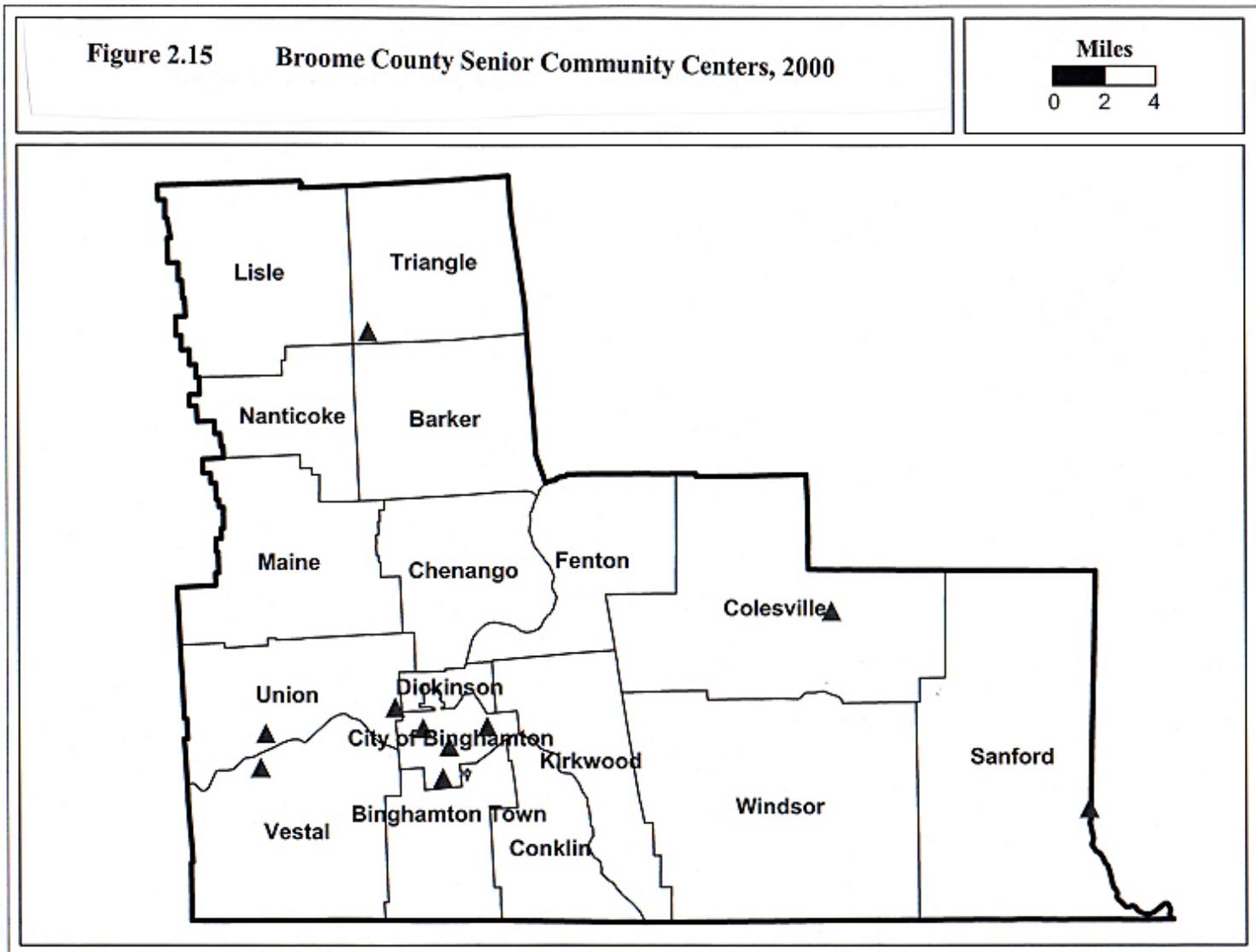
**Table 2.1
Commute Destinations of Broome County Residents**

Place of Work	Number of Commuters	Percentage
Broome County	87,638	92.6%
Tioga County	2,741	2.9%
Chenango County	778	0.8%
Delaware County	464	0.5%
Cortland County	318	0.3%
Susquehanna County, PA	314	0.3%
Onondaga County	279	0.3%

Source: U.S. Bureau of the Census, 1990

2.3 Key Destinations

In order to determine if the current and future transit service will meet the needs of the residents in Broome County and the surrounding area, senior community centers and major employers were selected, geocoded by address, and mapped. Table 2.2 and Figure 2.15 display the list of senior community centers provided by the Broome County Office for the Aging. The ten senior centers tend to be concentrated in the City of Binghamton and the surrounding towns with one in the northern part of the County and two in the eastern part of the County.



**Table 2.2
Senior Community Centers**

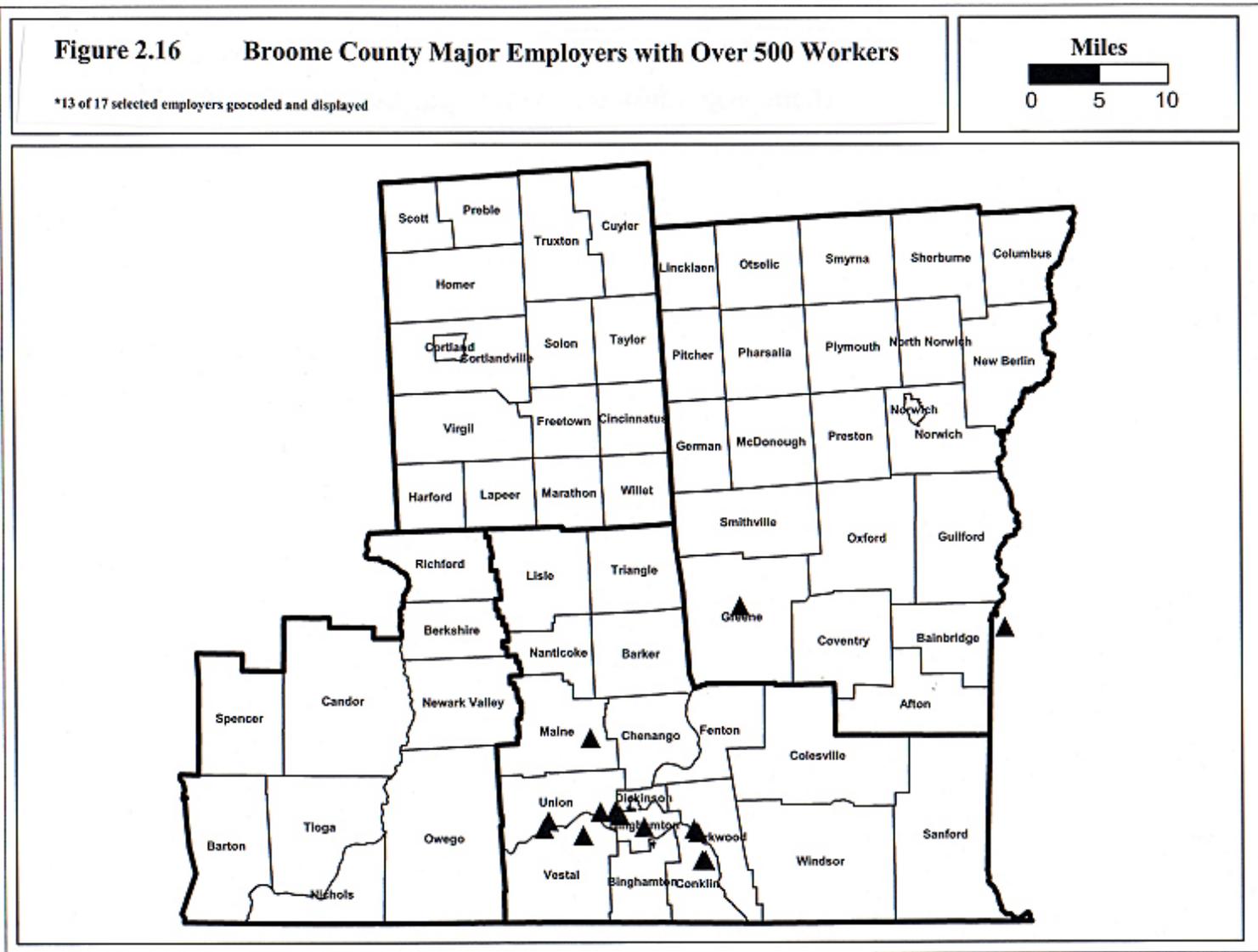
Name	Address	City
Deposit Senior Community Center	130 Second Street	Deposit
East Side Senior Community Center	254 Robinson Street	Binghamton
Eastern Broome Senior Community Center	3469 State Route 79	Harpursville
Endicott Senior Community Center	19 Madison Avenue	Endicott
First Ward Senior Center	226 Clinton Street	Binghamton
Johnson City Senior Citizens Center	30 Brocton Avenue	Johnson City
North Shore Towers Senior Center	24 Isbell Street	Binghamton
Northern Broome Senior Community Center	2652 Main Street	Whitney Point
South Side Senior Community Center	136 Park Avenue	Binghamton
Vestal Senior Community Center	201 Main Street	Vestal

Obviously, the population aged 60 and over will be the primary consumers of trips to and from these trip generators. Although it is not uncommon for persons working in health care and services for the aging to use transit to commute to work, it is much more likely that senior citizens using the services of these centers will have too few resources to own and maintain an automobile, or will be unable to operate an automobile due to physical constraints.

Figure 2.16 displays major employers in Broome County and the surrounding area. Employers with over 500 employees were selected from the Broome County Economic Development Alliance’s Industrial Directory 2000. A list of the selected employers is found below in Table 2.3. All of these employers were geocoded by address and mapped except the ones with an asterisk. The GIS mapping program was unable to geocode these sites due to an address error or a new street not found in the currently available road database. The major employers tend to be concentrated in the City of Binghamton and the surrounding towns with two out of the County (one in Greene and one in Sidney).

Major employers tend to be likely destinations on paratransit services for the mobility-impaired, including those with developmental disabilities. They are also destinations for persons of working age without automobiles, a population that often coincides with persons living in poverty under 60.

Other categories of major destinations not mapped in this chapter appear in Table 2.4.



**Table 2.3
Broome County Area Major Employers**

Name	Address	City	Number of Employees	Product
Amphenol Corporation, Aerospace Operations	40 Delaware Avenue	Sidney	Over 1,000	Electrical connectors
Country Valley Industries, Inc.	60 Lester Avenue	Johnson City	300-499	Blister/shrink packaging & other
Crowley Foods, Inc.	13901 Court Street	Binghamton	Over 1,000	Processed foods
E.J. Footwear	1100 East Main Street	Endicott	Over 1,000	Footwear
Felchar Manufacturing Corporation*	196 Corporate Drive	Binghamton	500-1,000	Electric motors & other
Flight Options, Inc.	2514 Airport Road	Johnson City	500-1,000	Aircraft charter & management
Frito-Lay, Inc.	10 Spud Lane	Binghamton	500-1,000	Snack foods
IBM Corporation	1701 North Street	Endicott	Over 1,000	Data processing equipment
Lockheed Martin Control Systems	600 Main Street	Johnson City	Over 1,000	Aerospace development and production
Maines Paper and Food Service, Inc.	101 Broome Corporate Parkway	Conklin	Over 1,000	Food, paper products
Maple-Vail Book Manufacturing Group	47 Pine Camp Drive	Kirkwood	Over 1,000	Book composition, printing, and binding
The Matco Group, Inc.	320 Jensen Road	Vestal	Over 1,000	Manufacturing, construction & other
NYS Electric and Gas Corp*	4425 Old Vestal Road	Binghamton	500-1000	Electric power & natural gas
The Raymond Corporation	8-20 South Canal Street	Greene	500-1,000	Forklift trucks, material handling systems
Universal Instruments Corporation	33 Broome Corporate Parkway	Conklin	Over 1,000	Production equipment
Waste Management	19 Emma Street	Binghamton	Over 1,000	Solid waste management, trash removal & other

*indicates locations not geocoded on the map

Table 2.4
Other Major Trip Generators for Paratransit Services

Trip Generator	Transit-Likely Populations Primarily Served
Social Services	Seniors, Persons with Disabilities, Persons Living in Poverty
Federal, State and County Offices	Seniors, Persons with Disabilities, Persons Living in Poverty
Shopping Centers, Recreational Facilities, Malls	Seniors, Persons with Disabilities
Health Care (Subsidized)	Seniors, Persons with Disabilities, Persons Living in Poverty
Health Care (Other)	Seniors, Persons with Disabilities
Day-Care Centers	Persons Living in Poverty
Schools, Colleges	Persons Living in Poverty
Correctional Services	Persons Living in Poverty

Chapter 3 Transportation Inventory

This chapter describes the transportation services provided by BCDOPT, and various social service agencies in Broome County. The information presented here will provide a foundation upon which transportation needs and alternatives for improvement can be addressed.

3.1 Overview and Organization of Transportation Providers

There are multiple paratransit systems in Broome County, each directed toward a particular subpopulation or geographical area. For example, BCDOPT operates two separate paratransit systems: BC Lift/Office for the Aging (OFA) and BC Country. These services are intended for use by the urban disabled/elderly and the general rural population, respectively. Both are available on a first-come, first-served basis through a telephone reservation system. BC Lift/OFA offers only urban-to-urban service, while BC Country provides primarily rural-to-urban trips. Rural-to-rural trips are offered by BC Country as well, mainly to rural senior center and medical sites. However, BCDOPT does not actively promote these kinds of trips due to scheduling limitations. Overall, BC Country represents the sole public transportation option for rural Broome County residents.

A handful of local human service agencies present other paratransit options for the transportation disadvantaged in rural Broome County. Taken together, these agencies provide a very small portion of the total trips in the County. Therefore, the bulk of this chapter will focus on BC Country, and other providers will be profiled briefly in Section 3.9.

3.2 Operating Characteristics

BCDOPT offers a variety of transit services throughout Broome County. Among these services is BC Transit, comprised of seventeen fixed routes in the Triple Cities area, encompassing Binghamton, Endicott and Johnson City, as well as portions of surrounding towns. These routes are served by wheelchair-accessible, forty-foot buses, Monday through Saturday. This service utilizes a pulse system, in which all buses meet at BC Junction in Downtown Binghamton every half-hour, thereby enabling convenient transfers between the routes. The base fare for this service is \$1.00

In compliance with the Americans with Disabilities Act (ADA), BCDOPT operates BC Lift, a complementary paratransit service in the urban area for persons with mobility impairments and disabilities. BC Lift serves this population with a demand responsive fleet of wheelchair-accessible minibuses, seating 12 to 14 passengers each. This service is available Mondays thru Fridays from 5:30 am until 11:30 pm and Saturdays from 5:30 am until 7:15 pm. Riders must apply to receive an identification card verifying their eligibility to use BC Lift.

BCDOPT also manages the contract for Broome County Office for the Aging (OFA) transportation, geared towards elderly County residents, and combines its service with that of BC Lift. The OFA service utilizes the same vans as BC Lift, and is available from 9:00 am until 4:30 pm Monday through Friday. The OFA paratransit service area varies slightly from the fixed route and BC Lift service area, but focuses mainly on the Triple Cities area. OFA passengers present their OFA identification cards when boarding, which entitles them to pay their fare with a contribution envelope.

All of the above systems only serve locations in or near the Triple Cities area. However, BCDOPT started serving the rural areas of the County in 1982 with the inception of BC Country. BC Country is a demand responsive system open to Broome County residents in need of rural-to-urban trips. The 12- to 14-passenger BC Country vehicles travel to rural areas of the County on scheduled days of the week, serving some areas every day and some areas only on certain days. In general, BC Country vehicles operate from as early as 6 am to as late as 6 pm Monday through Friday. All BC Country trip requests are met with one of five runs, each of which regularly covers different portions of the County. The only service limitations are that riders must live in the rural areas of Broome County and need to travel to a location within the Triple Cities or to one of several rural senior center or medical sites. A map of the BC Country service area is shown in Figure 3.1. The fare is \$2 each way for the general population or \$1 for disabled and elderly passengers. Seniors who have Office for Aging cards are not required to pay the standard fares but rather provide the driver with an anonymous donation. Donation envelopes are transferred from BC Country to OFA, which keeps those funds and reimburses BCDOPT \$1.35 for every ride that is provided for OFA users. These revenues will be considered as farebox revenue for the purposes of this study.

With ten part-time drivers, paid driver hours for BC Country vary between six and twelve hours per day and 40-55 hours per week. Drivers are paid for any breaks in their schedule under one hour in length. For breaks over one hour in length, drivers typically return to BC Transit headquarters and are not paid. Drivers receive no scheduled lunch break, but they are rarely required to work a full day without a break.

3.3 Staff and Organizational Structure

The Broome County Department of Public Transportation is overseen by a Commissioner who reports directly to the Deputy County Executive. A Director of Operations manages the day-to-day workings of the fixed-route service, answering to the Commissioner. Also reporting to the Commissioner, a full-time Public Transportation Analyst conducts planning and service analysis for BC Transit, while also supervising a Senior Dispatcher. At the time when this study was begun, the Senior Dispatcher coordinates the duties of two full-time dispatchers, one driver/dispatcher, and one part-time reservationist for BC Country. During the course of this study, an additional dispatcher was hired, bringing the total of full time dispatchers to three. The dispatchers are in charge of scheduling and booking for ten part-time Passenger Van Operators, who operate no more than five vans at a given time. The part-time reservationist assists with booking duties.

Figure 3.1 BC Country Service Area



3.4 Vehicle Maintenance and Fleet Conditions

BC Country utilizes four 1998 model-year and four 2000 model-year Ford, diesel, ADA-Compliant vans, each with a capacity of 12 passengers plus two wheelchairs. One BC Transit mechanic is assigned almost exclusively to the maintenance of BC Country vehicles. The 1998 model-year vans had odometer readings of approximately 115,000 miles, while the 2000 model-year vans had approximately 42,000 miles, as of October 2001.

The vans receive full inspections every 6,000 miles and oil changes every 7,000 miles. Drivers complete a daily worksheet on which they can list maintenance problems with vehicles, but there have generally been no major recurring concerns that affect operations. Minor maintenance issues include the following:

- Fluid leaking from parking brakes
- 1998 vehicles have had some minor cracking in the body
- Some buses leak rain on the driver

With eight vehicles for five daily runs, the vans are typically rotated in and out of service as others are decommissioned for repairs. However, drivers are not assigned to specific buses in any formal manner.

BC Transit has scheduled the next vehicle replacement for 2003. Replacements occur on a 4- or 5-year schedule. Since current drivers are only licensed to drive vehicles of up to 14 passengers, introducing larger vehicles to BC Country would potentially present a problem. Additionally, larger vehicles could face difficulties maneuvering in some of the more remote areas BC Country serves.

3.5 Scheduling

BC Country trips are available by reservation only. Reservations must be made no less than 24 hours and no more than two weeks in advance. It is important to note, however, that BC Country serves a large program-related ridership base. As a result, clients of organizations such as the Broome/Tioga Association for Retarded Citizens (ARC) and Office for the Aging senior centers receive *de facto* subscription service, generally on a daily basis.

BC Country dispatchers are charged with booking trips as well as making schedules. When this study began, dispatchers were confirming reservations usually no more than one or two days in advance of the trip, due to the time necessary to coordinate schedules for each van. Since a third full time dispatcher was hired, the response time in confirming reservations has improved significantly. Dispatchers suggest that some of the runs should start earlier in the morning because of the number of pickups the vehicles often make before reaching the urban area.

Dispatchers do not report having to deny very many trips, but they do keep a record of all trip denials. A total of six trip denials were recorded for the period from August 14 to September 14, 2001. Riders are instructed to call in any cancellations at least one hour in advance. However, this policy is not strictly enforced, and riders are not penalized for flaunting it. Indeed, a driver reports that he occasionally receives word of a cancellation after he has driven to the remote area where the pickup was to take place. When cancellations occur, dispatchers are unable to schedule another pick up for the driver, as there are no same day reservations.

3.6 Data Collection

BC Country staff supplied one week of drivers' schedules and sign-in sheets. In addition, staff furnished several reports generated by the Trapeze software the agency recently adopted, including a monthly trip denials report, financial information, and monthly trip counts. The software compiles these reports from the trip request forms filled out by staff when taking reservations over the phone. Drivers also complete a daily maintenance form, which alerts maintenance staff to any problems with BC Country vehicles. BC Country staff provided examples of both of these forms to the consultant.

3.7 Training

BC Country provides both new and current drivers with a regular regimen of training. New drivers receive roughly two weeks of training, although the duration of training time varies depending on the driver. This training program is comprised of safety and sensitivity training, currently led by a BC Transit supervisor. This part of the training process will soon be assumed by the Senior Dispatcher. New drivers also ride all five runs, first as passengers for a full day, then as drivers for another day. They are accompanied by experienced BC Country drivers during these training runs.

After this initial training period, drivers participate in three-hour training sessions twice a year. These sessions serve as a refresher course on the basics of BC Country operations and any recent changes to the service, in addition to a sensitivity training component.

3.8 Surrounding Counties System Survey

Broome County is surrounded by six counties: Tioga County to the west, Cortland and Chenango Counties to the north, Delaware County to the east, and Susquehanna and Wayne Counties to the south in Pennsylvania. In order to situate BC Country service in a regional perspective, inquiries were made to the transit systems in the above counties for basic information on each County's paratransit service, if available. Three counties were identified as offering paratransit service, and a summary of all available information on each service is presented below.

- **Chenango County** offers Dial-A-Ride throughout the County Mondays through Saturdays. Reservations must be made one day in advance before noon, and are available on a first-come, first-served basis. This service, which utilizes both

passenger vans and wheelchair-accessible minibuses, is most commonly used for medical and social service agency appointments.

The service area is divided into two zones for fare purposes. Zone 1 encompasses the Town of Norwich in the central part of the County, and Zone 2 consists of anywhere beyond the Norwich town limits. Trips within Zone 1 cost \$3, while inter-zone trips cost \$6. Chenango County Transit also offers “ride-along” trips, in which passengers can accompany agency subscription riders to certain destinations, both in Chenango County and beyond. These trips are only available in coordination with scheduled agency trips, and carry a \$7.50 fare. For example, a demand-response passenger can “ride along” with dialysis patients on their regularly scheduled trips to Binghamton General Hospital in Broome County. In general, out-of-County trips, many of which are Broome County-bound, are only available as part of such an agency subscription arrangement or a “ride-along”. The fares of agency subscription riders are paid through arrangements between social service agencies and Chenango County Transit.

- Demand responsive paratransit service is also available to **Tioga County** residents Mondays through Fridays. Reservations are required at least three days in advance, and passengers must call again to confirm before 3:00 pm on the day before their reservation. Passengers utilize this service for a wide variety of purposes, including medical appointments and shopping.

Tioga County’s dial-a-ride system serves all of the County, in addition to selected sites in other counties, Broome County in particular. Indeed, the Triple Cities area hospitals are a major destination for Medicaid patients. In order to accommodate these patients and other disabled riders, the minibuses utilized by this service are wheelchair accessible. The service operates with a multi-zone fare structure, resulting in fares between \$3 and \$6, depending on a rider’s origin and destination.

- **Cortland County** residents can make reservations for dial-a-ride service to locations throughout the County up until 3:00 pm on the day prior to the trip. Same-day requests are honored if available with a 50% surcharge. Fares vary according to location, with a minimum fare of \$3 and a maximum fare of \$6 (not including same day surcharge).

3.9 Other Transportation Resources

This section summarizes the system characteristics of the other rural transportation providers in Broome County.

The Deposit Foundation

The Deposit Foundation operates a demand responsive service as part of its outreach services for elderly and/or poor residents of southeast Broome County. The service is funded by the United Way, in addition to rider donations and other miscellaneous revenue. The Foundation is managed by a voluntary Board of Directors, led by one voluntary Executive Director. The Foundation utilizes volunteers to take care of dispatching as well as driving duties.

The Deposit Foundation rural transportation service is available five to six days per week, as needed, for residents of the Towns of Deposit and Sanford and the Village of Deposit. The majority of trips this service provides are to medical centers in Binghamton and Deposit, although the Foundation also accommodates some shorter trips within the service area. This service is operated by volunteer drivers from the surrounding area. There is no formal fare policy, but the Foundation does accept rider donations.

The Deposit Foundation also utilizes a demand-responsive reservation system, requiring that all reservations be made at least one week in advance. The Foundation is unable to fulfill every trip request, but not many requests are denied. Since the Foundation's service relies solely on volunteer drivers, attracting and retaining drivers has proven problematic. The Foundation does not track trip denials or require its volunteer drivers to fill out detailed trip data forms.

The Deposit Foundation provided the consultant with basic ridership and financial data. The service had an unduplicated ridership of 64 in 2000, providing a total of 483 trips. 55% of these trips were for medical purposes, 40% for shopping and 5% for social services. Elderly riders comprised 86% of this ridership, and poor riders the remaining 14%. Funding for the service was provided by a United Way grant totaling \$12,474 in 2000, as well as \$9,201 in rider donations and other miscellaneous revenue.

The Deposit Foundation owns one seven-passenger Plymouth minivan, which is utilized approximately 1,000 hours per year. The minivan is non-wheelchair accessible. Maintenance is typically performed at local service stations. Volunteers also occasionally use their own private automobiles to transport passengers.

Rural Health Network

The Rural Health Network of Broome County managed the Northern Broome Transportation Project, a small, dial-a-ride, rural transportation project serving the northern portion of the County until its discontinuation at the end of 2001. This pilot project was established as part of a two-year United Way grant. The rural elderly were the primary focus of this service, which was most often used for medical and shopping trips.

The Rural Health Network's Northern Broome Transportation Program operated only on Fridays from 9:30 am until 2:30 pm. The program served the northern areas of Broome County, typically for trips to medical sites in Binghamton. As the program was fully subsidized by a grant, no fare was charged.

The Rural Health Network had one staff member dedicated to scheduling duties for the Northern Broome Transportation Program every Thursday morning. Two drivers and two escorts were employed by the Rural Health Network. Drivers hired for this service already drive for Broome County Headstart; they were paid for additional hours driving for the Northern Broome Transportation Program by Rural Health Network. To support the program, a small percentage of staff time was dedicated to fiscal, reception and outreach duties.

The Northern Broome Transportation Program accepted reservations for its Northern Broome service no later than the previous Wednesday afternoon. This allowed the driver's schedule to be prepared each Thursday. Due to the very small ridership of this service, trip denials occurred infrequently. Paid driver hours were typically five hours per week, since the service operated every Friday for five hours.

The Rural Health Network made available basic ridership and financial data. The service provided 169 trips to a total ridership of 188 in 2000. The service was funded by a United Way grant of \$7,000, of which \$6,371.49 was spent, with the remainder being dedicated to providing service in 2001.

Trip data sheets were completed by drivers for dispatch and mileage reimbursement purposes.

The service utilized several different 16-passenger vans owned by and driven by Broome County Headstart for its Northern Broome Transportation Program. These vans were driven approximately 260 hours per year, based on the five weekly hours of operation. Vehicle mileage, model and model year varied depending on what was available through Broome County Headstart. All vans used in the program were wheelchair accessible.

Drivers for the Rural Health Network's transportation service were trained by their primary employer, Broome County Headstart.

Interfaith Volunteer Caregivers

Interfaith Volunteer Caregivers, a subsidiary of the Broome County Council of Churches, serves a market similar to that of the Northern Broome Transportation Project. The Interfaith Volunteer Caregivers program coordinates volunteer transportation services for a predominantly elderly ridership in northern Broome County and parts of Chenango County. This program is funded through area businesses, congregations, various foundation grants and fund-raising activities.

The Interfaith Volunteer Caregivers program schedules rides on a by-appointment basis. The service area includes much of the northern portion of Broome County, as well as parts of Chenango County. The volunteer drivers do not charge a fare. Drivers utilize their own vehicles to offer rides as part of the Interfaith Volunteer Caregivers program. The program recorded 182 transportation hours in the period between April 1998 and August 2001.

Taxis

Private taxi companies often serve a portion of program and non-program needs for the transportation disadvantaged in areas where transit is limited. This is the case in Broome County. A number of agencies interviewed acknowledged that taxi trips were used for program transportation, although it was generally seen as the least attractive option due to the high cost. The Department of Social Services, which administers the Medicaid transportation, reimburses participants for taxi services when no other option is available.

There are a number of taxi companies in Broome County that serve the urban and rural areas. They include Yellow Taxi, City Taxi, Checker Cab, and Courtesy Cab. Table 3.1 shows 1999 prices of taxi trips between Binghamton and other Broome County locations and emphasizes how cost prohibitive this transportation option is.

**Table 3.1
Broome County Taxi Trip Prices To/From Binghamton**

Origin/Destination	Cost
Deposit	\$60
Harpursville	\$45
Lisle	\$55
Maine	\$35
Port Crane	\$50
Whitney Point	\$55
Windsor	\$45

Source: Broome County DSS - Medical Transportation

Medivans

Specialized transportation services available in Broome County include ambulatory services, which utilize ambulances or medical equipped vans called “medivans” to provide transportation between hospitals, nursing homes, and senior centers. These services typically charge fixed fees with additional charges based on mileage rates. Broome County Department of Social Services (DSS) reported the following typical rates charged by medivan providers:

- One way trip within urban area - \$23.30 (\$23.10 per passengers if ride is shared)

- Round trip within urban area - \$50.60 (\$46.20 per passengers if ride is shared)
- Per mile additional charge outside urban area - \$1.15/mile

3.10 Existing Coordination Efforts

The agency most significantly affecting ridership on BC Country is Broome/Tioga ARC. Although these two agencies have not established a formal contract for service, ARC riders constitute a large component of BC Country's ridership. Most ARC riders make daily trips to one of two locations: the Broome/Tioga ARC facility on Front Street in Binghamton or Country Valley Industries, an ARC-affiliated sheltered worksite on Lester Avenue in Johnson City. Since no financial relationship exists between Broome/Tioga ARC and BC Country, ARC passengers are responsible for paying their own fare. According to BCDOPT, this has generally not been a problem, although the informal practice of ARC passengers paying their full fare for the week on Monday may complicate the fare collection process.

This relationship with BC Country complements the transportation service provided by Broome/Tioga ARC for clients in the urban areas of Broome County. Broome/Tioga ARC utilizes vehicles purchased under the Federal Transit Administration's 5310 program for this service.

Since 1996, the Broome County Office for the Aging (OFA) has contracted with BC Transit to provide paratransit service for elderly residents within the urban area of the County. (Before the creation of BC Country in 1982, OFA operated the only rural paratransit service in Broome County.) This service operates in conjunction with BC Lift. An OFA identification card is required for elderly to use this service. Similarly, elderly residents in the rural areas of the County can take advantage of BC Country service by showing their OFA card.

Other agencies have encountered difficulties attempting to accommodate their clients on BC Country. Factors often cited include scheduling constraints, the length of BC Country trips into the urban area, and the lack of weekend service.

Chapter 4 Transportation Analysis

This chapter evaluates BC Country based on operating and financial data provided by the BCDOPT staff. It is comprised of a presentation of the statistics, an analysis based on those statistics, a section that presents and discusses vehicle utilization, a passenger survey and a route evaluation.

4.1 Operating and Financial Statistics

This section contains annual totals and unit indicators for BC Country. The other transportation providers profiled in Section 3.9 are not included in this section, since combined they represent a small fraction of the service BC Country provides. The best available data was utilized here; in some cases, approximations were made for the sake of completeness. All of the data presented in this section pertains to fiscal year 2000.

An itemization of administrative and operating expenses is shown in Table 4.1. Administrative Personnel Salary, which totaled \$15,765 in 2000, is a 20% allocation — the estimated percentage of time the Senior Transportation Analyst and the Senior Dispatcher devote to BC Country. Fringe benefits for administrative personnel, which totaled \$7,528 is also an allocation of time spent on BC Country. In all, administrative expenses totaled \$23,293 for 2000, or 6% of total expenses.

Dispatchers' Salary is also an allocation, because dispatchers handle dispatching duties for the BC Lift/OFA service as well as BC Country. The allocated salary for two full-time dispatchers and one part-time dispatcher amounted to \$49,884. The allocated fringe benefits for these dispatchers totaled \$23,818. Drivers' salaries and fringe benefits totaled \$142,488 and \$8,006, respectively, comprising the expenses for eight part-time drivers. The salary of the one full-time BC Country mechanic came to \$30,172. The mechanic's fringe benefits amounted to \$14,406. The remaining expenses shown in Table 4.1 are allocated to represent only the operation of BC Country service, separate from the other transit services BCDOPT provides. Altogether, 2000 operating expenses for BC Country equaled \$374,788, or 94% of total expenses.

Table 4.1
BC Country Administrative and Operating Expenses for FY 2000

Type of Expense	BC Country
Administrative Expenses	
Administrative Personnel Salary	\$15,765
Administrative Personnel Fringe Benefits	\$7,528
Subtotal	\$23,293
Operating Expenses	
Dispatchers' Salary	\$49,884
Dispatchers' Fringe Benefits	\$23,818
Drivers' Salary	\$142,488
Drivers' Fringe Benefits	\$8,006
Mechanic's Salary	\$30,172
Mechanic's Fringe Benefits	\$14,406
Vehicle Insurance	\$17,013
Fuel/Oil	\$35,144
Tires, Parts, Materials & Supplies	\$24,982
Services (Contractual)	\$14,996
Other Expenses	\$13,879
Subtotal	\$374,788
Total Expenses	\$398,081

BCDOPT staff also supplied fiscal year 2000 revenue data for BC Country. Table 4.2 itemizes BC Country’s revenue sources, and compares this with expenditures reported. Federal and New York State contributions to the operation of BC Country totaled \$52,200 and \$151,766, respectively. BC Country received most of its funding from local sources. Only \$27,039 of BC Country’s revenue was derived from passenger fares, about 6.8% of total revenues. This includes OFA reimbursements. The bulk of BC Country’s revenues was derived from the Broome County General Fund, totaling \$167,076 in 2000. Broome County allocates funds for BC Country to match the difference between other revenues and total expenses. Altogether, BC Country’s revenues for the year 2000 totaled \$398,081, matching outgoing expenditures.

**Table 4.2
BC Country Operating Revenues for FY 2000**

Federal	\$52,200
State	\$151,766
Local-Fares	\$27,039
Local-Other	\$167,076
Grants	N/A
Other	N/A
Total Revenues	\$398,081
Expenditures	\$398,081
Net	\$0

Table 4.3 displays the annual operating statistics and unit performance measures for BC Country. BC Country provided 23,956 unduplicated passenger trips in 2000. Vehicle Revenue Miles traveled in 2000 by BC Country totaled 220,000 and Vehicle Revenue Hours amounted to approximately 12,000. Both of these were estimates provided by BCDOPT staff. The performance measures displayed in Table 4.3 are evaluated against national statistics in Section 4.2.

**Table 4.3
BC Country Operating Statistics and Performance Measures**

Operating and Financial Statistics	
Passenger Trips	23,956
Vehicle Revenue Miles	220,000
Vehicle Revenue Hours	12,000
Operating & Administrative Costs	\$398,081
Performance Measures	
Cost per Passenger Trip	\$16.62
Cost per Mile	\$1.81
Cost per Hour	\$33.17
Passenger Trips per Mile	0.11
Passenger Trips per Hour	2.00
Miles per Hour	22.3
Miles per Passenger Trip	11.15

4.2 Performance and Financial Indicator Analysis

The section endeavors to evaluate the performance of BC Country relative to national averages for rural systems of similar types. The national averages for rural demand response/subscriber services utilized in this section are drawn from two sources: Report #6 of the Transit Cooperative Research Program (TCRP), entitled “User’s Manual for Assessing Service-Delivery Systems for Rural Passenger Transportation”, Transportation Research Board, January 1995 and the National Transit Database (NTD) “National Transit Profile” for 1999. BC Country is compared against low, high and mean figures from TCRP #6, as well as averages from the NTD in Table 4.4.

TCRP #6 is the most current source for performance measures pertaining specifically to rural paratransit. To reflect changes in costs since the report’s publication date, the figures from this report have been indexed to account for inflation between 1995 and 2000, the year from which the BC Country data was obtained. The inflation rate during this period was calculated to be 14.93%.

The figures culled from the 1999 NTD do not distinguish between urban and rural systems, and thus represent averages of demand response services nationwide. However, many small, stand-alone rural systems do not report to the NTD. Although the NTD averages encompass a broader range of systems than would be ideal for a rural paratransit analysis, they make for an instructive comparison measure due to the fact that they are more recent than TCRP #6.

Table 4.4
Comparison of BC Country Performance Measures against National Statistics

Performance Measure	BC Country	TCRP Low	TCRP High	TCRP Mean	NTD (1999)
Cost per passenger trip	\$16.62	\$1.87	\$11.13	\$6.49	\$16.08
Cost per mile	\$1.81	\$0.33	\$4.30	\$2.32	\$1.97
Cost per hour	\$33.17	\$6.08	\$35.79	\$29.94	\$38.86
Passenger Trips per Mile	0.11	0.05	1.05	0.47	0.16
Passenger Trips per Hour	2.00	0.60	13.59	6.29	2.42
Miles per Hour	22.3	10	20	12.33	14.73
Miles per Passenger Trip	11.15	0.73	4.19	3.8	6.10

Cost per Passenger Trip – BC Country’s cost per passenger trip is \$16.62, which is somewhat high for a rural system but about average when both rural and urban systems are considered. The TCRP sample included systems that typically range from \$1.87 to \$11.13 in cost per passenger trip, with a mean of \$6.49, while the NTD average is \$16.08. The BC Country measure is very close to the NTD average.

Cost per Mile – BC Country performed well in this category, which is partially attributable to the high number of miles of service that it provides. With a cost per mile of \$1.81, BC Country falls within the TCRP typical low of \$0.33 and the typical high of \$4.30, and below the mean of \$2.32. BC Country’s cost per mile total was lower than the NTD average of \$1.97.

Cost per Hour – The cost per hour for BC Country amounted to \$33.17. This places BC Country on the upper end of the TCRP national scale, which ranges from \$6.08 to \$35.79. BC Country ranks above the rural mean of \$29.94, but well below \$38.86, the average for rural and urban systems.

Passenger Trips per Mile – This productivity measure is closely related to a variety of local factors, including population density and trip length. The TCRP sample of rural demand response/subscription systems extends from a low of 0.05 to a high of 1.05 passenger trips per mile, with a mean of 0.47. BC Country, with a passenger trips per mile measure of 0.11, falls within this sample group, although near the bottom. It also ranks below the NTD average of 0.16. Clearly, this is an area where BC Country has considerable room for improvement.

Passenger Trips per Hour – The typical range for passenger trips per hour among demand response/subscription services is 0.60 and 13.59, with a mean of 6.29 passenger trips per hour. With a measure of 2.00 passenger trips per hour, BC Country is situated at the lower end of the TCRP range. It also falls below the NTD mean of 2.42. Low passenger tips per mile and hour indicate poor productivity.

Miles per Hour – This performance measure is a rough estimate of the average vehicle speed. BC Country averages 22.3 miles per hour, which is just above the TCRP range of 10 to 20 miles per hour, and well above the NTD figure of 14.73 miles per hour.

Miles per Passenger Trip – BC Country averages 11.15 miles per passenger trip, considerably higher than both the TCRP mean of 3.8 miles per trip and the NTD average of 6.10 miles per trip.

Summary – This analysis indicates that BC Country does a reasonable job of containing costs, with an hourly cost of just above \$30, but has low productivity, which also contributes to a less than ideal cost effectiveness, expressed in cost per passenger trip. In the case of cost per passenger trip, it ranks above the upper end of the rural national sample and more in line with urban systems, which tend to be less cost effective. Productivity measures show that BC Country falls near the bottom of the national range. This suggests that changes to the service might improve productivity. Areas to be concerned about are the length of trips and the passenger load on these trips. Even if vehicles are in service throughout the day, carrying very few passengers on long trips from rural to urban areas translates into low productivity.

4.3 Vehicle Utilization

Figure 4.1 is comprised of vehicle utilization charts showing the hours BC Country vehicles were in service from Monday, September 10, 2001 to Friday, September 14, 2001. These charts were compiled using one week of driver timesheet logs and schedules supplied by BC Country. Drivers marked pickup and drop-off times on these manifests, allowing for a relatively complete illustration of the hours each bus was in service. All gaps in service over one half-hour in length were not included as part of the hours depicted in Figure 4.1. Saturday and Sunday are not shown, since BC Country only operates Mondays through Fridays.

The other rural transportation providers in Broome County do not have a ridership base on the scale of BC Country's. Thus, their vehicles are driven on a much more variable basis, and are not a part of Figure 4.1.

Figure 4.1 is most instructive in its visual depiction of one week of vehicle use and pointing to times of the day or days of that week when vehicles are not in use. It is important to view this chart as a snapshot of vehicle use rather than a standard weekly arrangement. The fact that vehicles are not in use during a particular time of day does not necessarily mean that there is demand for their use at that time. Likewise, vehicles may be unable to meet unmet demand in some areas due to the fact that they are assigned to specific portions of the County.

Some of the trends observable from Figure 4.1 are:

- The 401 run, serving Whitney Point, Lisle, Triangle, Maine and Castle Creek, consistently operates for longer hours than any other run. On average, the vehicle serving the 401 run is in use 9.05 hours per day, often the first van to depart the depot in the morning and among the last to return in the evening. The length of this service day can be attributed in part to the long distance vehicles must travel from the depot in Vestal to reach the northern portion of the County that this run serves.
- Although runs begin at different times throughout the morning, they are most often in service until at least 5:00 pm. Often this pattern is determined by the needs of program related riders, especially ARC clients.
- Most of the long breaks occur in the middle of the day, in between the rush of ARC subscription trips in the morning and afternoon. This suggests that extra capacity may be available in the middle of the day, should the demand exist.
- Each run starts and finishes its service at relatively uniform times all five days of the week. This suggests the presence of a larger base of regular subscription riders than infrequent demand responsive riders.
- Vehicle utilization is high, yet productivity is low, which suggests BC Country operates long runs with few passengers. This is not uncommon for rural demand-response service, but could be ameliorated by seeking additional passengers along the existing long routes.

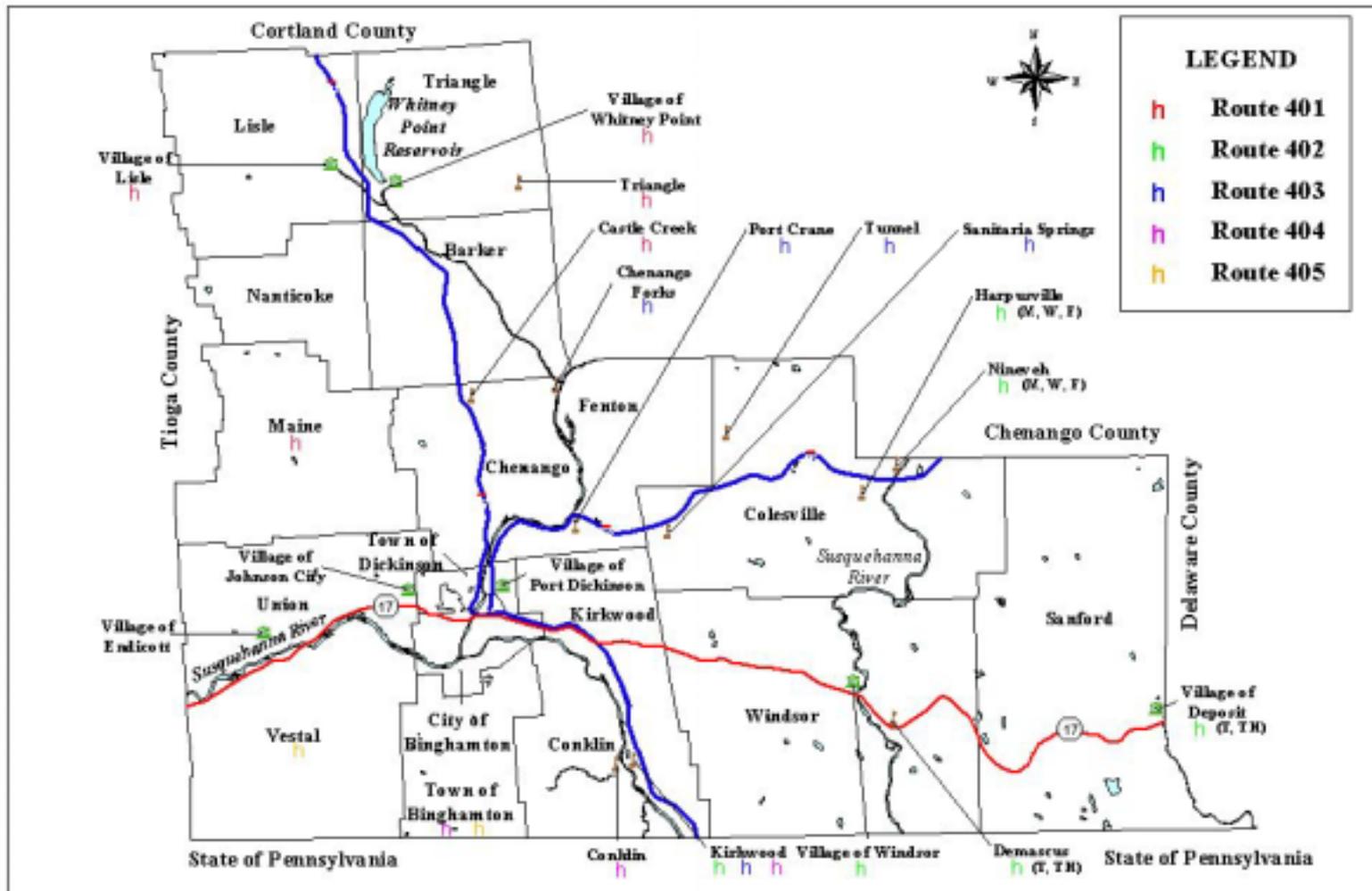
4.4 Route Evaluation

All trip requests are met with one of five runs, each of which regularly covers different portions of the County. These runs have developed mainly in response to consistent subscription ridership patterns. Since these runs serve certain areas on a regular basis and often rely on the same major thoroughfares to bring riders to the Triple Cities area each day, they tend to resemble a deviated fixed-route system. Table 4.4 provides a list of the areas each run serves. Figure 4.2 illustrates the service coverage offered by these runs.

**Table 4.5
Broome County Towns Served By BC Country**

Van Number	Destinations Served
401	Whitney Point, Lisle, Triangle, Maine, Castle Creek
402	MWF only: Windsor, Harpursville, Nineveh, Kirkwood TuTh only: Windsor, Deposit, Kirkwood, Damascus
403	Port Crane, Chenango Forks, Kirkwood, Tunnel, Sanitaria Springs
404	Town of Binghamton, Conklin, Kirkwood
405	Vestal, Town of Binghamton

Figure 4.2 BC Country Routes with Communities Served



As Figure 4.2 illustrates, BC Country offers service throughout the rural portion of the County, even some of the smallest rural hamlets. BC Country acknowledges that demand exists for service in parts of the County that cannot be met due to limited resources, e.g., parts of the Towns of Kirkwood and Conklin and the parts of Chenango Bridge.

4.5 Passenger Survey

Two sets of surveys were administered to passengers in order to record their opinions about BC Country. The first of these surveys was distributed on each BC Country bus during the pm operating hours of Wednesday, October 3, 2001 and the am operating hours of Thursday, October 4, 2001. These days were chosen to provide a representative cross-section of BC Country passengers. All riders not affiliated with ARC on the buses at these times were requested to complete the two-page “BC Country On-Board Passenger Survey” (see Appendix A). All regular ARC riders found on BC Country’s address list received the two-page “BC Country Passenger Survey” (see Appendix A) in the mail. This approach was considered to be the best means of surveying both demand response and ARC subscription riders, under the assumption that some developmentally disabled riders could have difficulty completing the survey.

The two surveys vary only in superficial ways, making their results directly comparable. The content of the questions on both surveys is identical, with the exception of Question #14 on the On-Board Survey. This question, which inquires whether the respondent has been suffering from a disability for six months or more, was not included on the ARC Survey, since all ARC clients have some form of developmental disability. Likewise, since the mailed ARC surveys were addressed to parents or guardians of the ARC riders, the questions on these surveys were phrased with the ARC rider in the third person.

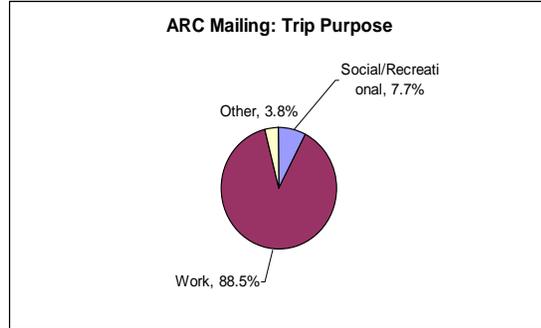
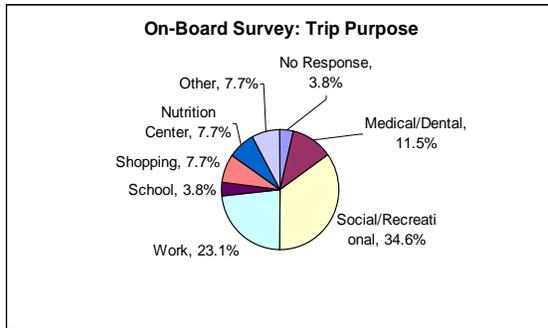
All of the twenty-six demand response passengers who were approached to complete the on-board survey agreed to do so. The ARC survey was mailed to 56 households, 26 of whom returned the survey in the accompanying stamped envelope. Thus, the ARC mailing had a response rate of 46.5%, and the response rate for the survey as a whole is 63.4%.

Survey results and observations are presented below, with the On-Board Survey question form listed first, and the ARC Mailing question form listed second:

1. What is the purpose of your BC Country trip today?
 What was the purpose of his/her most recent BC Country trip?

Table 4.6

Response	On-Board Survey	ARC Mailing	Total
No Response	3.8%	0.0%	1.9%
Medical/Dental	11.5%	0.0%	5.8%
Social/Recreational	34.6%	7.7%	21.2%
Work	23.1%	88.5%	55.8%
School	3.8%	0.0%	1.9%
Shopping	7.7%	0.0%	3.8%
Nutrition Center	7.7%	0.0%	3.8%
Other	7.7% <i>“Parole Visit”, “Everything”</i>	3.8% <i>“ARC Day Treatment”</i>	3.8%

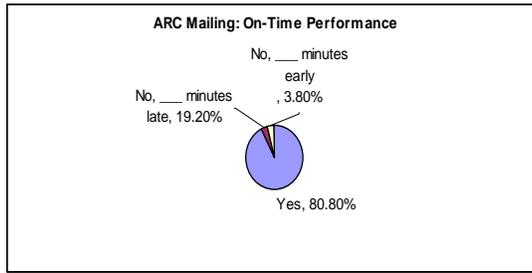
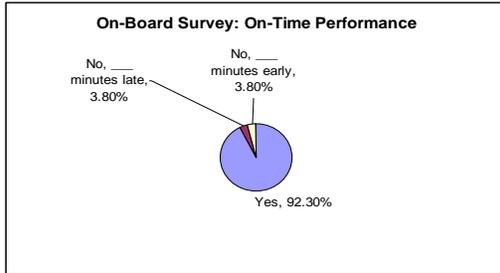


By comparing the responses to this question with Question #3 (destination), it becomes clear that most demand-responsive riders who marked “Social/Recreational” on the On-Board Survey were referring to one of the local senior centers. On this survey, the number of passengers bound for work was higher than anticipated. All of the respondents who marked that they were going to “work” on the ARC survey were bound for one of the ARC/Country Valley Industries sheltered worksites.

2. Were you picked up at your scheduled time today?
 Was he/she picked up at his/her scheduled time for his/her most recent trip?

Table 4.7

Response	On-Board Survey	ARC Mailing	Total
No Response	0.0%	0.0%	0.0%
Yes	92.3%	80.8%	86.5%
No, ___ minutes early	3.8% <i>“5 minutes early”</i>	0.0%	1.9%
No, ___ minutes late	3.8% <i>“10 minutes late”</i>	19.2% <i>“15 minutes late”</i> “Varies” <i>“Shows up between 8:40 and 9:30”</i>	11.5%



It is interesting to note that, the reported on-time performance for ARC users was 80.8%, far below industry recommendations. No rides were reported to have arrived early for pick-ups. The non-program users reported a 92.3% on-time rate, much closer to industry recommendations of around 95%. It must be kept in mind, however, that this survey represents only a subjective evaluation, rather than an exact measurement, of BC Country’s on-time performance.

3. Where are you going with BC Country today? [fill in the blank]
 What was the destination of his/her most recent trip with BC Country? [fill in the blank]

Table 4.8

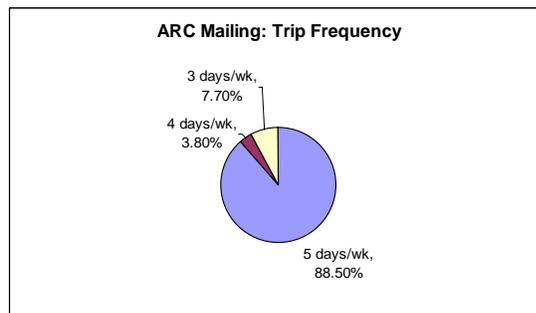
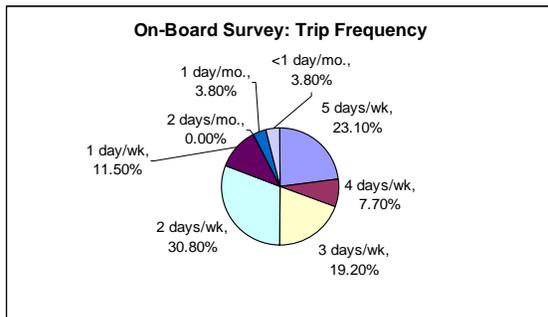
Location	Town	On-Board Survey	ARC Mailing
115 Henry St Post Office	Binghamton	1	0
134 Riverside Dr	Binghamton	1	0
24 Isbell St	Binghamton	1	0
61 Susquehanna YMCA	Binghamton	1	0
72 Main St BOCES	Binghamton	1	0
93 Oak St	Binghamton	1	0
ARC Front St	Binghamton	0	8
Boscov's	Binghamton	1	0
Broome Developmental Center	Binghamton	1	0
Community Options	Binghamton	1	0
Oakdale Mall	Binghamton	1	0
Robinson St Giant	Binghamton	3	0
Robinson St Senior Center	Binghamton	1	0
Nationwide Credit	Endicott	1	0
Nutrition Center	Harpursville	1	0
Senior Center	Harpursville	1	0
305 Clinton St	Johnson City	0	1
Arch St	Johnson City	0	1
ARC Lester Ave	Johnson City	0	5
Country-Valley Industries	Johnson City	0	8
CVS Pharmacy	Johnson City	0	1
Wilson Hospital	Johnson City	1	0
439 Upper Stella Ireland Rd	Maine	1	0
Home	Port Crane	0	1
Susquehanna	Port Crane	1	0
Senior Center	Vestal	1	0
Home	Whitney Point	1	1
Senior Center	Whitney Point	3	0
No response	Windsor	1	0

Unsurprisingly, the ARC and Country-Valley Industries locations in Binghamton and Johnson City ranked as the most popular destination among survey respondents. A handful of respondents misunderstood this question by confusing the origin of their trip with the destination. This is evidenced by the handful of “Home” responses.

4. How often do you typically use BC Country service?
 How often does he/she typically use BC Country service?

Table 4.9

Response	On-Board Survey	ARC Mailing	Total
No Response	0.0%	0.0%	0.0%
Five days per week	23.1% Social/Recreational 40% Work 40% School 20%	88.5%	55.8%
Four days per week	7.7% Work 100%	3.8%	5.8%
Three days per week	19.2% Nutrition Center 20% Social/Recreational 70% Shopping 10%	7.7%	13.5%
Two days per week	30.8% Nutrition Center 14.3% Social/Recreational 21.4% Work 14.3% Shopping 21.4% Medical/Dental 14.3% Parole Visit (Other) 14.3%	0.0%	15.4%
One day per week	11.5% No response 33.3% Social/Recreational 33.3% Shopping 33.3%	0.0%	5.8%
Twice per month	0.0%	0.0%	0.0%
Once per month	3.8% Medical/Dental 100%	0.0%	1.9%
Less than once per month	3.8% Medical/Dental 100%	0.0%	1.9%



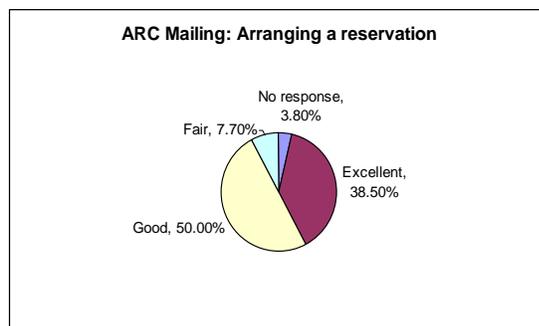
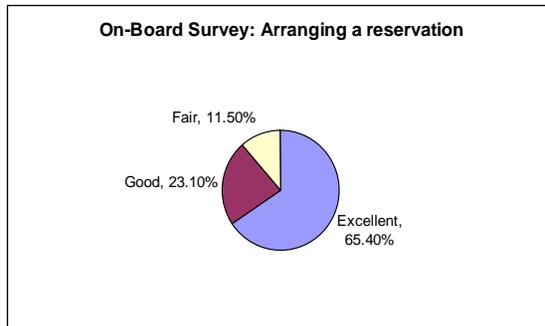
The responses suggest that BC Country does not have a very large daily demand responsive ridership. Rather, demand response riders are more likely to use the service once every few days, mainly for social or shopping activities which can be vital to maintaining an independent lifestyle. By contrast, ARC riders for the most part utilize the service five days per week.

5. Please provide us with your opinion on the following aspects of BC Country service.

- Arranging to reserve a ride

Table 4.10

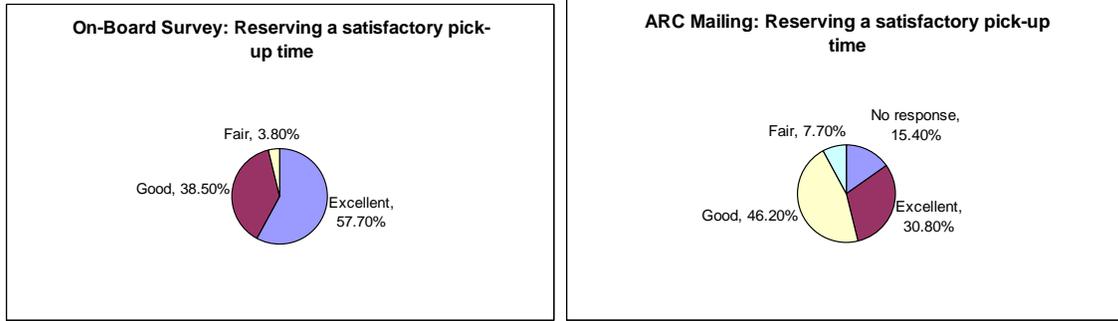
Response	On-Board Survey	ARC Mailing	Total
No response	0.0%	3.8%	1.9%
Excellent	65.4%	38.5%	51.9%
Good	23.1%	50.0%	36.5%
Fair	11.5	7.7%	9.6%
Poor	0.0%	0.0%	0.0%
Very Poor	0.0%	0.0%	0.0%



- Reserving a pick-up time that is convenient for me

Table 4.11

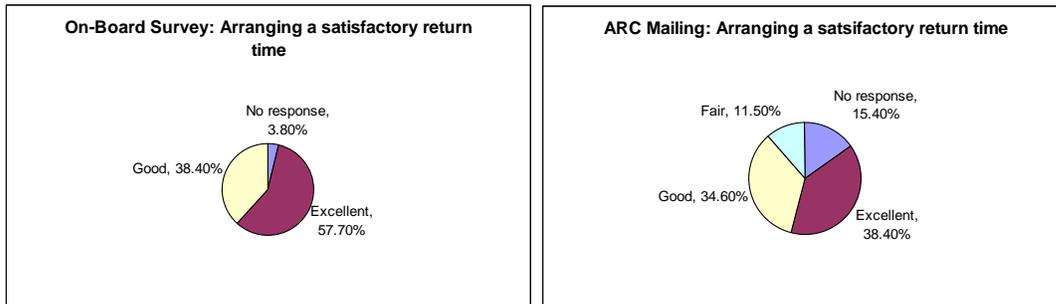
Response	On-Board Survey	ARC Mailing	Total
No response	0.0%	15.4%	7.7%
Excellent	57.7%	30.8%	44.2%
Good	38.5%	46.2%	42.3%
Fair	3.8%	7.7%	5.8%
Poor	0.0%	0.0%	0.0%
Very Poor	0.0%	0.0%	0.0%



- Reserving a return time that is convenient for me

Table 4.12

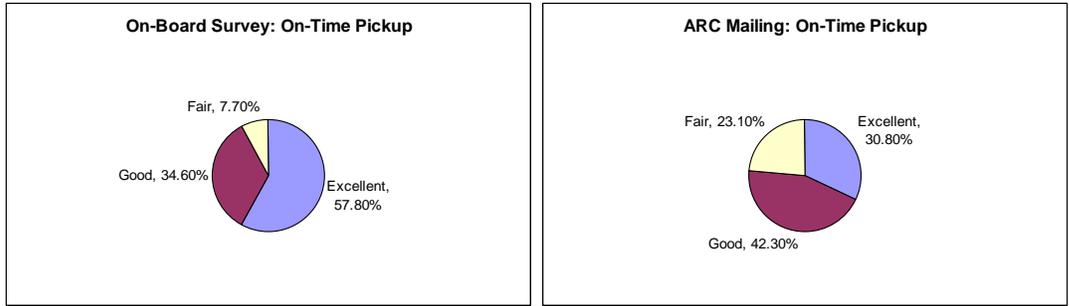
Response	On-Board Survey	ARC Mailing	Total
No response	3.8%	15.4%	9.6%
Excellent	57.7%	38.4%	48.1%
Good	38.4%	34.6%	36.5%
Fair	0.0%	11.5%	5.8%
Poor	0.0%	0.0%	0.0%
Very Poor	0.0%	0.0%	0.0%



- Getting picked up on time

Table 4.13

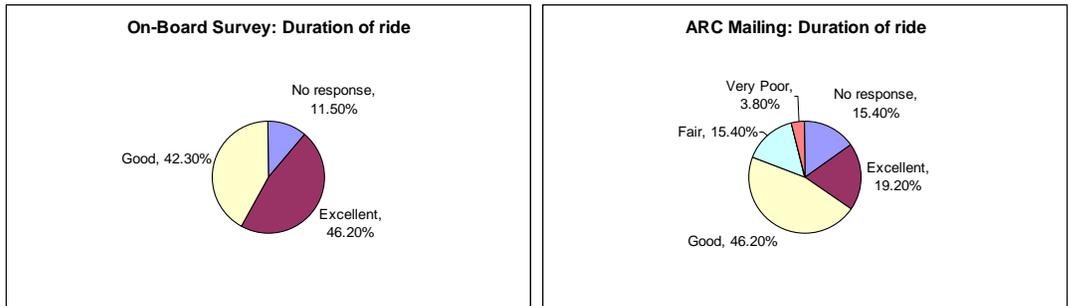
Response	On-Board Survey	ARC Mailing	Total
No response	0.0%	0.0%	0.0%
Excellent	57.8%	30.8%	44.2%
Good	34.6%	42.3%	38.5%
Fair	7.7%	23.1%	15.4%
Poor	0.0%	3.8%	1.9%
Very Poor	0.0%	0.0%	0.0%



- Duration of ride

Table 4.14

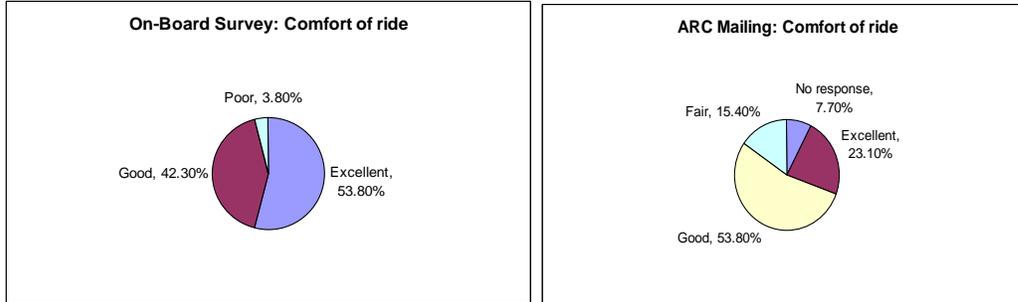
Response	On-Board Survey	ARC Mailing	Total
No response	11.5%	15.4%	13.5%
Excellent	46.2%	19.2%	32.7%
Good	42.3%	46.2%	44.2%
Fair	0.0%	15.4%	7.7%
Poor	0.0%	0.0%	0.0%
Very Poor	0.0%	3.8%	1.9%



- Comfort of ride

Table 4.15

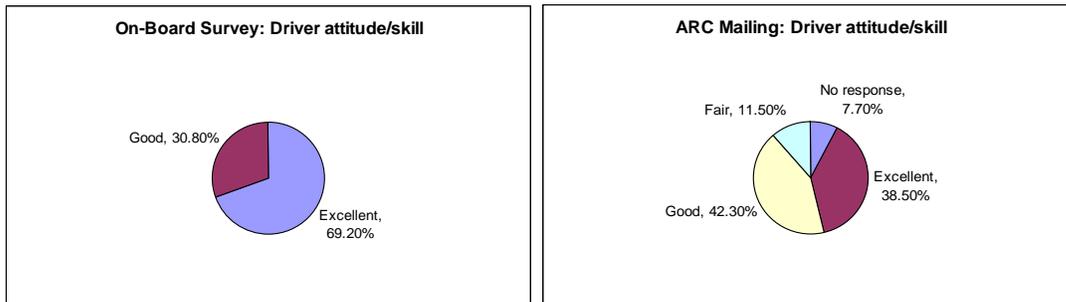
Response	On-Board Survey	ARC Mailing	Total
No response	0.0%	7.7%	3.8%
Excellent	53.8%	23.1%	38.5%
Good	42.3%	53.8%	48.1%
Fair	0.0%	15.4%	7.7%
Poor	3.8%	0.0%	1.9%
Very Poor	0.0%	0.0%	0.0%



- Driver attitude/skill

Table 4.16

Response	On-Board Survey	ARC Mailing	Total
No response	0.0%	7.7%	3.8%
Excellent	69.2%	38.5%	53.8%
Good	30.8%	42.3%	36.5%
Fair	0.0%	11.5%	5.8%
Poor	0.0%	0.0%	0.0%
Very Poor	0.0%	0.0%	0.0%



Overall, the respondents in both surveys expressed satisfaction with the aspects of BC Country service highlighted in Question 5. BC Country received “excellent” or “good” ratings from almost all survey participants. The service was given only one “poor” and one “very poor” rating, on the On-Board Survey “comfort of ride” and “duration of ride” inquiries, respectively.

It is somewhat surprising that ARC riders expressed less satisfaction with the reservation system than demand response riders, given the fact that regular ARC riders do not need to reserve each trip as demand response riders do. Thus, it would be expected for demand response riders to report more irregularities in the reservation system than the ARC population.

ARC passengers are typically picked up and taken to ARC/Country Valley Industries facilities in a cluster each morning. Likewise, they are returned home in a similar manner every afternoon. With several ARC client trips chained together, it is inevitable for some

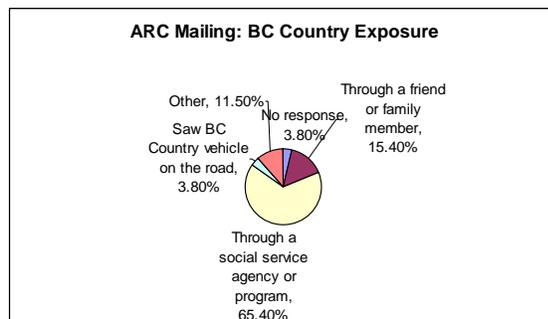
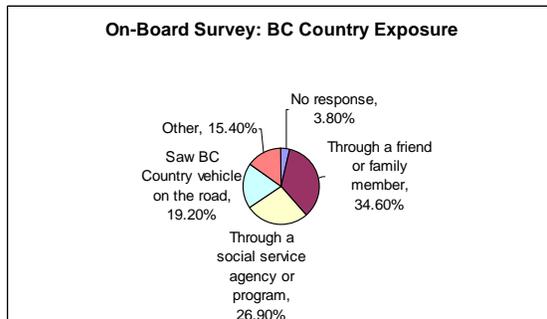
riders to have significantly longer trips than others. This is reflected in the middling responses with regard to pick-up and return times from the ARC mailing.

Overall, since most ARC clients are daily passengers, they are more likely than the demand response group to be subject to variations in service quality. As a result, they conveyed more mixed opinions on the issues raised in Question #5 than those who participated in the On-Board Survey.

6. How did you first hear about BC Country?

Table 4.17

Response	On-Board Survey	ARC Mailing	Total
No response	3.8%	3.8%	3.8%
Through a friend or family member	34.6%	15.4%	25.0%
Through a social service agency or program	26.9%	65.4%	46.2%
Saw BC Country vehicle on the road	19.2%	3.8%	11.5%
Read about service in newspaper, newsletter, etc.	0.0%	0.0%	0.0%
Other	15.4% <i>“Doctor”, “Rider”, “Called BC Transit; medical reasons”, “TV”</i>	11.5% <i>“BOCES”, “CVI”, “ARC”</i>	13.5%



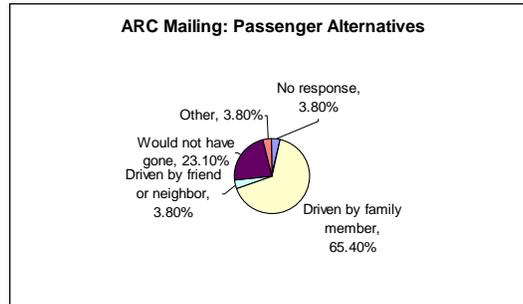
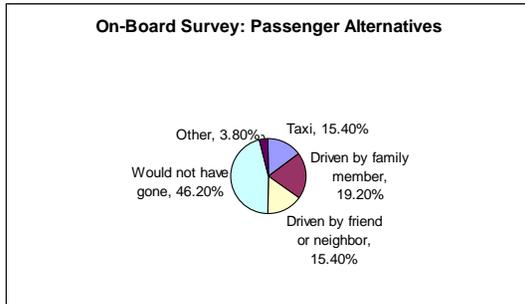
A plurality of riders surveyed on-board were first informed about BC Country by friends or family members. In the ARC mailing, on the other hand, most riders first heard of BC Country from a social service agency, presumably ARC/Country Valley Industries.

It is interesting to note that media outlets played such a minimal role in informing respondents about BC Country. This suggests a lack of aggressive efforts on the part of BCDOPT to promote BC Country service to the general rural public.

7. How would you have made this trip if BC Country were not available?
 How would he/she have made his/her most recent trip if BC Country were not available?

Table 4.18

Response	On-Board Survey	ARC Mailing	Total
No response	0.0%	3.8%	1.9%
Taxi	15.4%	0.0%	7.7%
Driven by family member	19.2%	65.4%	42.3%
Driven by friend or neighbor	15.4%	3.8%	9.6%
Would not have gone	46.2%	23.1%	34.6%
Other	3.8%	3.8%	3.8%
	“Don’t know”	“Don’t know”	



ARC riders invariably live with some kind of guardian, typically in a family setting, which often affords them the option of rides from family members, as their survey responses suggest. By contrast, many demand-responsive riders either do not have access to or are unable to operate an automobile, and consequently have fewer transportation options for many trips. This is borne out by the large number of respondents in the On-Board Survey who reported no access to transportation for the trip in question other than BC Country.

8. Please provide us with any suggestions you might have about how your service could be improved.
 Please provide us with any suggestions you might have about how his/her service could be improved.

On-Board Survey

- “All are pleasant and helpful, some more than others.”
- “No opinion at this time; very satisfied with service.”
- “Bus could be more comfortable.”
- “Can't think of any. They are dang good.”
- “Put in extra phone line for taking reservations.”
- “Get rid of answering machine to make reservations.”

ARC Mailing

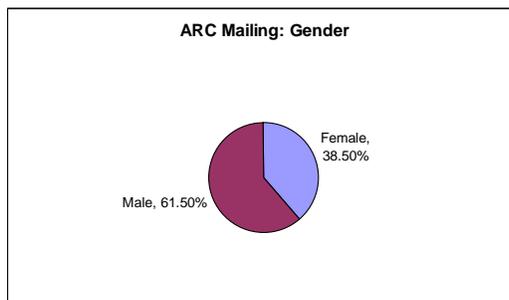
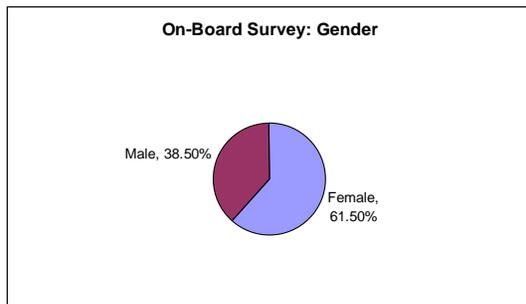
- “Getting picked up on time”*
- “More consistent return time in the afternoon - some days its 4pm, some days 5:45pm.”*
- “This is hard to do because there are sometimes more individuals on the bus.”*
- “He could get picked up earlier. He doesn't like being late.”*
- “Should have more buses so travel time isn't so long.”*
- “Earlier service in the mornings. Bus doesn't arrive in our area until 9:30am.”*
- “Appreciates regular scheduling of rides, so she doesn't have to call in; Driver X is inconsiderate and afraid of the rural terrain.”*
- “Another bus is needed in Kirkwood/Conklin area. If name isn't added to schedule in office, drivers won't pick up, even if it's a regular rider.”*
- “More buses in Kirkwood/Conklin area.”*
- “Quicker drop off time - two hours is ridiculous!”*
- “Earlier hours for disabled; like 8-8:30am.”*

Respondents to the On-Board Survey express mostly praise for BC Country, perhaps out of concern that any criticism might lead to changes to a service they consider to be a lifeline. ARC respondents, on the other hand, register several complaints with regard to travel and pickup times. Most of these complaints pertain to the length of trips for subscription riders.

- 9. Your Gender:
His/her Gender:

Table 4.19

Response	On-Board Survey	ARC Mailing	Total
Female	61.5%	38.5%	50.0%
Male	38.5%	61.5%	50.0%

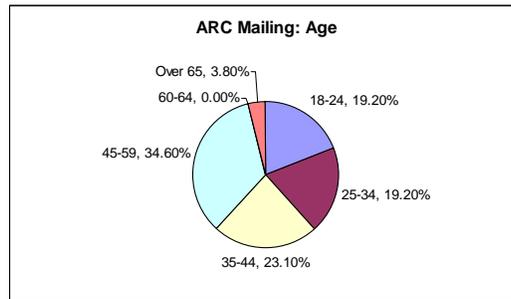
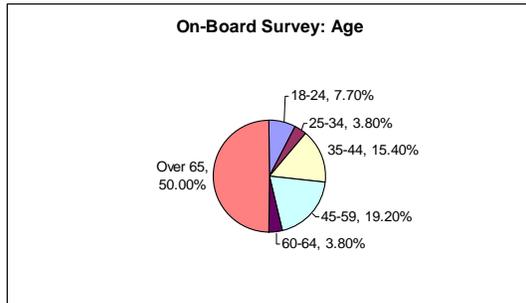


The gender distribution among On-Board Survey and ARC Mailing respondents conforms to informal observations of the BC Country ridership during the administration of the On-Board Survey. While administering this survey, more females were observed among the demand response population, and more males were observed as part of the ARC population.

10. Your Age:
His/her Age:

Table 4.20

Response	On-Board Survey	ARC Mailing	Total
No response	0.0%	0.0%	0.0%
Under 18	0.0%	0.0%	0.0%
18-24	7.7%	19.2%	13.5%
25-34	3.8%	19.2%	11.5%
35-44	15.4%	23.1%	19.2%
45-59	19.2%	34.6%	26.9%
60-64	3.8%	0.0%	1.9%
Over 65	50.0%	3.8%	26.9%



Question ten reveals that BC Country passengers tend to be older, especially On-Board Survey respondents. A majority of On-Board Survey respondents were over 65 years of age, while most ARC respondents were 35 years of age or older.

11. Town of residence and zip code (if known):

Table 4.21

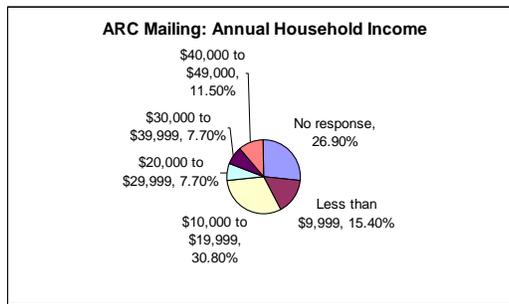
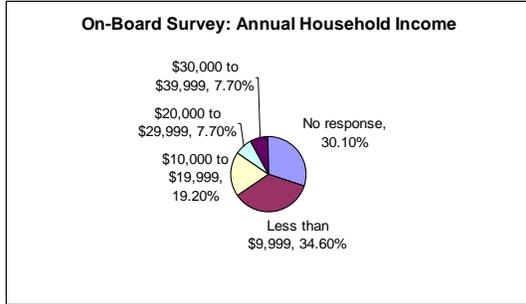
Town	Zip Code	On-Board Survey	ARC Mailing	Total
No response	No response	1	1	2
Baker	13744	0	1	1
Binghamton Town	13903	4	5	9
Conklin	13748	2	1	3
Deposit	13754	2	0	2
Fenton	13833	1	0	1
Greene	13778	1	0	1
Harpursville	13787	1	1	2
Johnson City	13790	0	1	1
Kirkwood	13795	2	4	6
Kirkwood	13904	1	0	1
Lisle	13797	0	1	1
Nineveh	13813	0	1	1
Port Crane	13833	1	2	3
Triangle	13862	0	2	2
Tunnel	13848	1	0	1
Vestal	13850	2	2	4
Whitney Point	13862	4	2	6
Windsor	13865	3	2	5

The Town of Binghamton was the most common town of residence among the demand response and subscription riders surveyed. The presence of both the Town of Binghamton and Kirkwood as common locations of residence suggests that a significant portion of BC Country’s service is dedicated to areas not very far outside the Triple Cities area.

12. What is your annual household income?

Table 4.22

Response	On-Board Survey	ARC Mailing	Total
No response	30.1%	26.9%	28.8%
Less than \$9,999	34.6%	15.4%	25.0%
\$10,000 to \$19,999	19.2%	30.8%	25.0%
\$20,000 to \$29,999	7.7%	7.7%	7.7%
\$30,000 to \$39,999	7.7%	7.7%	7.7%
\$40,000 to \$49,000	0.0%	11.5%	5.7%
\$50,000 or more	0.0%	0.0%	0.0%

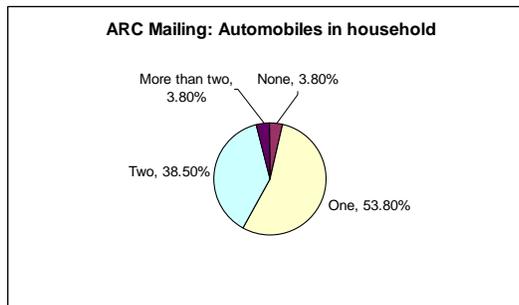
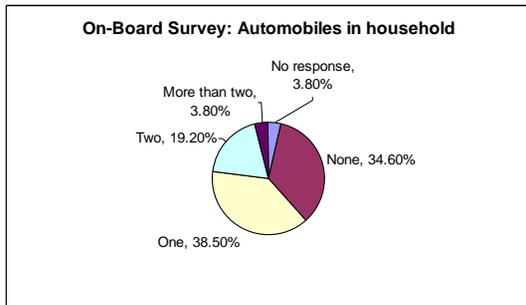


The number of individuals who provided no response to Question Twelve was relatively high, likely due to respondents’ reluctance to give out personal information such as household income. Aside from this gap in the data, demand response passengers report generally lower household incomes than ARC passengers.

13. How many automobiles are available for use in your household?

Table 4.23

Response	On-Board Survey	ARC Mailing	Total
No response	3.8%	0.0%	1.9%
None	34.6%	3.8%	19.2%
One	38.5%	53.8%	46.2%
Two	19.2%	38.5%	28.8%
More than two	3.8%	3.8%	3.8%

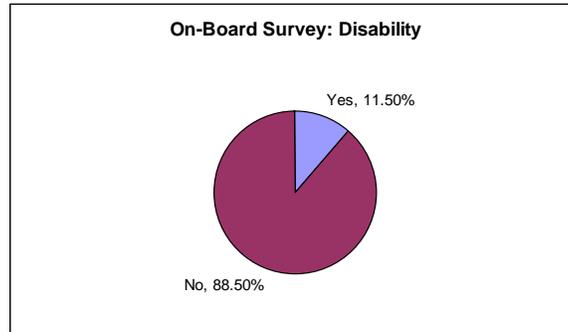


A substantial number of On-Board Survey respondents reported not owning an automobile, which suggests that BC Country is often the only transportation option for these riders. By contrast, the overwhelming majority of ARC survey respondents have one or more automobiles in their household. It can be inferred, then, that many ARC clients are unable to drive and their parents or guardians often use their cars for commuting purposes.

14. Because of a physical, mental or emotional condition lasting 6 months or more, do you have any difficulty in going outside your home alone to shop or visit a doctor’s office?

Table 4.24

Response	On-Board Survey
Yes	11.5%
No	88.5%



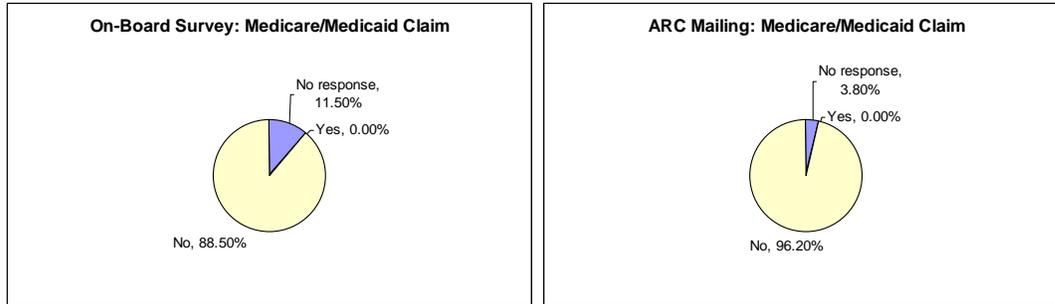
Most of the On-Board Survey respondents surveyed reported having no disability. This suggests that the need for demand responsive paratransit arises more from a lack of other options than from limited passenger mobility, or that there is demand for disabled transportation but BC Country is for some reason not meeting it.

This question was omitted from the ARC Mailing, since all ARC clients have some form of developmental disability.

15. Have you, in the past year, filed a Medicare or Medicaid claim for transportation?
Have you, in the past year, filed a Medicare or Medicaid claim for transportation for the ARC rider under your supervision?

Table 4.25

Response	On-Board Survey	ARC Mailing	Total
No response	11.5%	3.8%	7.7%
Yes	0.0%	0.0%	0.0%
No	88.5%	96.2%	92.3%



No respondents on either survey had filed a Medicare or Medicaid claim for transportation. This is consistent with information obtained from DSS Medical Services, which administers the claims for the County. They report being unable to use BC Country to a significant extent due to the lack of flexibility of the system. The lack of general public knowledge of this option suggests that it could be pursued more aggressively in the future.

4.6 Summary of Passenger Survey Results

BC Country’s premise is that it provides rural-to-urban trips for anyone who lives in the designated service area who needs transportation. However, since most of its ridership base is program-related (ARC), and the work programs have regular hours, the five vehicles provide a service determined more by that program than by true need. In fact, it can be extrapolated from the rider survey that ARC riders tend to have *more* travel flexibility than any other users of the system. 65.4% of the ARC responses indicated that family members are available to provide transportation should service not be available, while 46.2% of non-ARC riders indicated they would not have been able to travel at all without BC Country service.

The survey also indicates that the majority of non-ARC riders are elderly (over 65 years old). Half of the respondents were over 65 in the on-board survey. Also, consistent with national demographic data, most of the ridership for non-ARC trips was female. ARC trips, which are provided primarily to males under 60 years of age (61.5% male, 96.2% under 60), are mostly work trips. Only 23.1% of non-ARC riders used the service for transportation to work.

These data indicate that there are two very distinct populations using the service, and that because the users in each group are so disparate, needs probably remain unmet in both groups.

From the On-Board Survey and ARC mailing, we can also extrapolate user characteristics for the two populations. It is instructive to cross-reference the On-Board Survey responses to Question #1 (Trip Purpose) with Question #4 (Trip Frequency), as is done in Table 4.25. “Social/Recreational” ranks as the predominant trip purpose among daily as well as less frequent travelers. Passengers traveling to work rank highly among the most frequent demand response riders, those riding BC Country four (100% of total) or five days (40% of total) per week.

Most program-based users ride the system five days a week. Non-program riders used the system primarily two days a week (30.8%) or five days a week (23.2%). These numbers indicate that the non-program ridership either uses the service for work (23.1% of non-program riders indicated work was the purpose of their trip) or for community or health services (total of 46.1%). Most likely, the population served for work purposes is that living in poverty, and the population served for community or health services is elderly or disabled. Again, we see a disparity in populations served by the same service, and can conclude that some needs remain unmet in both of the populations. This degree to which this unmet need exists is explored further in Chapter 5.

**Table 4.26
On-Board Survey Trip Purpose Grouped By Trip Frequency**

Response	Trip Purpose
Five days per week 23.1% of total	Social/Recreational - 40% Work - 40% School - 20%
Four days per week 7.7% of total	Work - 100%
Three days per week 19.2% of total	Social/Recreational - 70% Nutrition Center - 20% Shopping - 10%
Two days per week 30.8% of total	Social/Recreational - 21.4% Shopping - 21.4% Nutrition Center - 14.3% Work - 14.3% Medical/Dental - 14.3% Other (Parole Visit) - 14.3%
One day per week 11.5% of total	Social/Recreational - 33.3% Shopping - 33.3% No response - 33.3%
Twice per month 0.0% of total	N/A
Once per month 3.8% of total	Medical/Dental - 100%
Less than once per month 3.8% of total	Medical/Dental - 100%

Chapter 5 Needs Analysis

This section addresses the probable extent of unmet transit need in BC Country’s service area. The findings are based on analysis of the demographic data presented in Chapter 2 and the analysis of existing services documented in Chapter 4.

5.1 Demand for Transit Service

Ridership expected for a rural transit system such as BC Country is a function of the number of individuals in the primary transit dependent markets – the elderly, persons with a mobility limitation and persons residing in households with incomes below the poverty level. There is some duplication in these definitions. Some elderly persons live in households with incomes below the poverty level; some persons in poverty also have a disability that limits their mobility. Data from available sources, primarily the US Census, do not permit detailed identification of the characteristics of individuals. To reduce the degree of duplication, the measure of persons with disabilities is limited to those ages 16 to 64 and the measure of persons living in households with incomes below the poverty level is limited to those ages 18 to 64. These are categories for which there is published Census data. Some overlap remains but the numbers are small. Reducing the overlap would require estimates and would have little effect on resulting projections of transit need.

The number of elderly persons within the BC Country service area has been derived directly from 2000 U.S. Census tabulations. The number of persons below the poverty level, and mobility limited persons in BC Country’s service areas are not yet available from the Year 2000 Census. The number of persons in each of these groups was estimated by applying the proportions of poor (age 18-64) and mobility limited (age 16-64) reported in 1990 to the year 2000 tabulated population.

Table 5.1 displays the estimate of 2000 population by group for the rural area served by BC Country. Because that rural area does not include the Triple Cities, the City of Binghamton, the Town of Union (which includes Johnson City and Endicott) and all other areas outside the BC Country service area were not included. Thus, the totals for some towns in this table are comprised of only the areas outside of the BC Country service area.

Table 5.1
BC Country Service Area 2000 Estimated Transit-Dependent Population

Town of Residence	Population within BC Country Service Area	Persons with Mobility Limitations* (Age 16 –64)	Persons Over 60 Years of Age	Persons Living in Poverty* (Age 18 –64)
Barker	2,738	13	404	136
Town of Binghamton	4,969	34	896	147
Colesville	5,441	33	828	731
Conklin	1,471	8	249	82
Fenton	6,909	57	1,471	392
Kirkwood	1,866	9	305	95
Lisle	2,707	26	391	301
Maine	5,459	45	987	295
Nanticoke	1,790	12	215	198
Sanford	2,477	30	545	305
Triangle	3,032	8	465	227
Vestal	2,689	7	347	125
Windsor	6,421	73	1003	590
TOTALS	=SUM(ABOVE)	=SUM(ABOVE)	=SUM(ABOVE)	=SUM(ABOVE)

* estimated based on 1990 proportions

The number of transit trips made is often limited by the amount of service provided. In order to develop estimates of the trip generation rates that would be found if there were few constraints, an analysis was conducted of the transit trips rates observed in locations known to offer high quality service.¹ Transit need trip rates for use by the elderly were derived from experience in Pennsylvania where transit fares for the elderly are free during off-peak hours. Transit need trip rates for persons with disabilities were derived from the experience in Wisconsin which has had for many years an extensive and well funded program for serving its mobility limited citizens. Transit need trip rates for low income households were derived from a statewide study of rural transit use in all counties in Arkansas and national information developed from the National Personal Transportation Survey. These rates have been applied in studies of the demand for rural transit service in many locations. Applying these rates yields the transit need estimates for each group shown in Table 5.2.

1 SG Associates, Inc., *Public Transportation Needs Assessment and Action Plan*, Governor’s Task Force on Public Transportation Issues, Little Rock, 1992

**Table 5.2
Transit Need by Population Group**

Group	Total Population	Annual One-Way Trip Rate	Transit Need (Expressed as Annual Trips)
Mobility-Limited	355	30	10,650
Elderly	8,166	8.4	68,594
Poverty	3,624	14.5	52,548
TOTAL	{ =SUM(ABOVE) }		131,792

As of 2000, BC Country provided 23,956 trips annually for a total transit-dependent population of 12,145.

The rate-based model estimates total annual transit need as 131,792 trips, for a total unmet need of 107,836 trips.

An alternate method for estimating the demand for rural transit service is presented in a report prepared for the Transit Cooperative Research Program (TCRP)². The method presented in that report addresses two types of trips:

Program Trips refers to transit trips that would not be made but for the operation of a specific social service program (e.g. a congregate meals program for the elderly). The time of travel and the trip destination are determined by the agency operating the program. The ARC trips served by BC Country are, for the most part, Program Trips as are trips for other programmatic activities such as Senior Nutrition programs or Job Training programs. In many cases Program Trips are carried not by the same transportation services available to the general public but by dedicated program related transportation funded and operated by the agency responsible for the specific program using program vehicles and staff.

Non-Program Trips are akin to general public trips. For non-program trips there is no mandated time or destination. The trip purpose, time and destination are chosen by the riders. Use of the service may, however, be limited to those meeting a specific criterion e.g., age 60 or over.

BC Country serves about 24,000 annual trips – program and non-program. It can be estimated that the about 12,000 trips are program-based (ARC and senior nutrition) and 12,000 are non-program.

The TCRP method estimates Program Trip demand based on program enrollment. Non-Program Trip demand is estimated based on the population in each of the key transit

²TCRP Report 3, *Workbook for Estimating Demand for Rural Passenger Transportation*, National Academy Press, 1995.

dependent groups – elderly, mobility limited and persons in poverty – and the quantity of service offered measured in annual vehicle-miles per square mile of service area.

Using the TCRP method to determine unmet need, program demand would be about 128,000 trips, and non-program demand would be about 25,000, for a total annual demand of about 153,000. Program trip estimates include specific estimates of demand related to residents of rural areas who participate in all of ARC’s sheltered workshops, those who are eligible for senior nutrition programs and those who participate in Department of Social Services Job Training Programs. In addition, there are likely other Program Trip types for which there would be demand if the program were in operation and transportation service were available. Programs of this type found in other communities include Headstart, transportation of the homeless, nursing homes, mental health services and a variety of other social service functions. This might constitute an additional demand of 10,000 or more trips per year depending on which programs are in operation targeted to residents of the rural portions of Broome County.

Calculations are provided in Tables 5.3 and 5.4 below. Currently, BC Country is serving about 24,000 annual trips, including both program and non-program travel. Total unmet need using the TCRP method is about 129,000 annual trips.

The estimates of unmet demand using the two methods are summarized in Table 5.5.

**Table 5.3
TCRP Method Non-Program Trip Demand
(BC Country service area of approximately 630 square miles)**

Group	Population	Annual Trips at Present Service Levels	Total Annual Trips
Elderly	8,166	2.2	17,965
Mobility-Limited	355	2.1	746
Poverty	3,624	1.7	6,161
		TOTAL	24,872

**Table 5.4
TCRP Method Program Trip Demand**

Program	Registered Participants	Trip Rate	Days	Total Annual Trips
ARC	90	1.58 (daily)	264	37,541
OFA Senior Nutrition	246 (estimate based on senior citizen population)	248 (annual)	N/A	61,008
DSS Job Training	140	137 (annual)	N/A	19,180
Other Programs	10,000 estimated	N/A	N/A	10,000
Total				127,729

**Table 5.5
Estimated Unmet Demand**

	Estimated Demand	Currently Served	Unmet Demand
Trip Rate Method	132,000	24,000	108,000
TCRP Method			
Non-Program Trips	25,000	12,000	13,000
Program Trips			
ARC	37,500	11,200	26,300
Senior Nutrition	61,000	800	60,200
Job Training	19,200	0	19,200
Other Programs	10,000	0	10,000
Subtotal Program Trips	128,000	12,000	116,000
Total TCRP Method	153,000	24,000	129,000

The unmet demand for rural transit service is in the range of 108,000 to 129,000 trips per year. For planning purposes, an estimate of unmet demand of 120,000 trips per year – about 475 trips per day is reasonable. About 10% of the unmet demand (13,000 trips) is for non-program related travel. The remaining 90% of the unmet demand arises from travel related to programmatic activities.

5.2 Transit Service Usage Patterns

There are two distinct groups of users of the BC Country service. The ARC, a non-profit serving persons with developmental disabilities, relies on BC Country to provide transportation for a large number of its program participants to sheltered workshops.

These users are also counted in the census as persons with mobility limitations, since they have a confirmed disability affecting their ability to provide transportation for themselves.

The other group is composed of a cross-section of other transit-dependent populations, including seniors, those with disabilities not in an ARC program, and persons living in poverty.

Program-Related Users

Based on the data collected in the on-board survey and presented in Chapter 4, ARC program participants overwhelmingly use the BC Country system to go to sheltered workshops. The comments from program participants also reveal the problems of providing transit for a specialized population using a transit system for its specialized purposes.

Senior citizens traveling to rural senior centers to participate in nutrition programs do not use BC Country in very significant numbers. The low number of individuals using BC Country may be attributed to the limitations imposed on BC Country by its existing program-related ridership base, and would likely increase if BC Country offered enhanced service.

DSS Job Training program participants are also unable to utilize BC Country in substantial numbers for work transportation. This is largely due to scheduling constraints, and the lack of BC Country service on nights and weekends.

In a rural area, a specialized population's needs can easily overwhelm a system that is not prepared or funded to provide this specialized transportation. In addition, because BC Country is a public agency, and receives formula funding to serve the total population's needs, funding that could be available for a provider of transportation solely to the ARC is not available to Broome County. This includes funding from United Way, from the DDA (Developmental Disabilities Administration) and some private sources.

Evidence that the program-related users strain the system beyond its limits includes the nature of the complaints from those users. The ratings on satisfaction with the service are consistently lower for program-related riders on all the questions regarding service quality.

Non-Program-Related Users

In contrast to the ARC users, non-program-related users have a much higher satisfaction rate with the system overall. Part of the reason for this can be identified in the responses to survey question 7 regarding alternative means of transportation. Far fewer of the general population users of the system have an alternative to using transit. As can be expected for such transit-dependent users, their perception of the service is colored by their need. Their responses to the survey may also be somewhat influenced by the fear of

losing that service, as rumors of BC Country’s being eliminated have surfaced from time to time. Transit users who have no other recourse overwhelmingly report more satisfaction with their service, regardless of its actual quality.

5.3 Other Transit Systems in the Service Area

The three other service providers in the region, Rural Health Network, Deposit Foundation, and Interfaith Volunteers, provide fewer than 1000 trips annually; from the data provided the total combined number of trips provided is about 675. These persons comprise a portion of the total need calculated, but that portion is less than 1% of the total unmet need; therefore, for the purposes of this study, the effect in terms of reducing need is negligible.

5.4 Trip Purpose

The trip purpose for Program Trips is always determined by the type of program. The trips may be for work (e.g. the ARC trips), medical or social depending on the program.

This section discusses only Non-Program travel.

Work Trips

Much of the trip demand by the mobility limited and those in poverty – about 25% of the non-program demand – will likely be work related. Surveys of employment and social service, of current system users and of employers can provide more data and insight into how to better meet these needs.

Health-Related Trips

No ARC users of BC Country indicated that they used the system for medical trips. The percentage of trips for health purposes (medical/dental and nutrition) was reported as 19.2%. We can assume that 20% of the total unmet non-program related need is for these health-related trips.

One of the difficulties with finding specifics on unmet needs in this area is that the County must be able to determine how many transit-dependent persons are not receiving adequate health, dental and nutritional care solely because they cannot get to adequate care. It is not easy to separate persons who are too poor to afford adequate health care and have no transportation from those who can afford care, but have no way of getting to it; or those who are unaware of their health care needs because they lack transportation from those who do not seek health care regardless of transportation need.

A large proportion of the trip demand by elderly persons is directly or indirectly related to medical needs.

BC Country would be advised to plan for the recommended expansion of its service, and to improve its marketing for this segment of the transit-needy population. This would include providing information on the service to emergency and walk-in clinics, hospitals, social services, pharmacies, dental clinics and employment centers. In addition, mailings to every household in the service area will help alert people to the availability of transportation. Only by providing this information to those who may need transit without their asking for it can need in this area begin to be addressed.

Shopping/Services Trips

Again, no program-related trips were for the purposes of shopping. 7.7% of other respondents were using the system for shopping. This is probably a very small portion of non-program need. It is often easier for transit-dependent persons to combine trips, for example, to see the doctor and pick up a prescription (health-related trip) with shopping for other items while at the pharmacy. In reporting the trip, it is likely that its primary purpose will be reported, especially when no option for multiple purposes is provided in the survey. This area should also include trips made for services, including hair services, visits to court or other government services, and employment interviews.

As mentioned above, improved information services in addition to provision of additional transit service will help meet the approximately 10% of unmet need in this area.

School Trips

It is nearly impossible to know how many after-school activity trips are currently unmet; even if school districts and populations aged 15 – 19 were mapped. Many rural school districts offer bus service for primary and secondary school students who stay for extracurricular activities other than athletics, thereby obviating the need for BC Country to provide much service to this population. Based on similar reporting at other transit systems, it is likely that less than 20% of students expressing interest in such a service would actually use BC Country to participate in such activities, since other options are readily available. It should be noted, however, that any such need is not likely to be concentrated at one school. Primary and secondary school students in need of transportation may be at several different schools, increasing the burden of providing service for these trips.

Broome Community College may represent another source of unmet transportation need in the County, although it is likely that most students chose to enroll based in part on having access to an automobile. A total of 4,046 students attending degree programs at BCC in 2001 are Broome County residents. Based on the fact that, according to the 2000 Census, roughly 130,000 of the 200,536 people in the County are located in the city of Binghamton, the villages of Endicott and Johnson City and the town of Union, it can be estimated that 35% of the County population lives outside the urban area. If we assume that 35% of the 4,046 BCC students from Broome County live in outside the urban area, then 1416 students would be eligible for BC Country service. If 1% of this population expressed a need for BC Country service, the total unmet need would be 14 individuals.

An expansion of BC Country service targeted at this population might yield an increase to as much as 10% of this population, or 141 individuals.

Trips to Other Counties

This is another area where unmet need would be difficult to measure precisely. Conversations with Broome County agency stakeholders did not indicate significant demand for trips by Broome County residents to locations out-of-County. Given the nature of development in the area, it is likely that there is much more demand for trips into Broome County from surrounding counties than vice-versa. The surrounding counties systems survey that was conducted also indicated this, with services that currently access the Triple Cities from several of those counties.

Even if there were a clear demand for it, it is unlikely that BC Country would itself be able to handle any out-of-County trips until it has provided for the unmet need for trips within its present service area. It will take the system a number of years to achieve that level of service.

5.5 Agency Comments

The consultant team interviewed BC Country staff and several social service agencies that serve Broome County residents. In addition to the quantitative analysis above, their comments regarding unmet needs of their rural clients represents valuable qualitative data on this the characteristics and severity of unmet demand.

BC Country Dispatchers

- There is demand for service earlier in the morning among existing users. People need to get to the urban areas sooner than they now do.

Broome County DSS Medical Services

- It is difficult for rural Medicaid recipients to use BC Country because BC Country can usually not commit to a specific time and often cannot pick up people immediately after their medical appointments.
- There are not too many out-of-County trip needs. People can access medical specialists within the County. However, for a dental program they have needed to bring people to dentists out-of-County because there are not enough in-County dentists that will take them. This has been challenging.

Broome County DSS Employment Services

- Clients in rural areas tend to have a car, but the problem is still having everyday, reliable transportation.

- Working clients do a lot of multiple trips (trip chaining); i.e. they need to go to day care on their way to work – this makes using public transportation difficult.
- A lot of clients cannot accept jobs with shifts outside the times served by transit – this limits what they can accept.

Catholic Charities

- They have referred less than 5 people to BC Country – one problem is that clients need to be at their programs by 8 am, which BC Country often cannot accommodate.
- One way or another, Catholic Charities accommodates the transportation needs for its program participants.

Broome Tioga ARC

- In terms of unmet transportation needs, lack of service on weekends and evenings is a big issue for everyone. They get some complaints from employers about the limitations placed on working people’s availability.
- No early hours on BC Country. This means that some people have to turn down job offers for transportation reasons.
- ARC does not provide transportation to people after they have found jobs and have gone to work.
- There are some workshop people who live in places that BC Country says they cannot serve.
- A big need is getting people to work. Some people consider moving in order to better access a job.

Broome County Office for Aging

- Needs include transportation to senior centers, medical appointments, and grocery shopping.
- Service to senior centers is very important. Transportation to these centers is not every day but a few times per week. This is less than ideal for those centers that are open Monday through Friday.
- The number of elderly people living alone in rural areas seems to be growing
- BC Country cannot provide elderly transportation on Tuesdays and Thursdays.

The Deposit Foundation

- For residents in the village of Deposit itself, needs are being met quite well. However, they are not meeting the needs of the rural population.

Chapter 6 Key Issues

The analysis presented in the preceding chapters brought to light several issues that the consultant observed during the preparation of that document, as well as during or after a February 22, 2001 meeting with study participants. Although BC Country does meet the needs of a substantial subscription and demand response population, the foregoing needs analysis showed that substantial unmet needs among these populations exist. The issues presented below highlight potential areas of improvement, both in operations and organizational/management.

6.1 BC Country Service Issues

Operations Issues

There is a great deal of unmet program and non-program trip need in rural Broome County - According to the previous chapter, the unmet demand for rural transit in Broome County totals roughly 120,000 trips per year, or approximately 475 trips per day. This estimate represents nearly a 500% increase from the number of trips currently provided by BC Country. It is estimated that much of the unmet need is found within the elderly population, both for program and non-program related transportation. Study participants recognize that a substantial portion of this unmet need may be allayed by some elderly individuals having access to private automobiles. Nonetheless, a large remaining underserved population exists in the County.

Transportation to Senior Nutrition Sites is a particularly large unmet need that is not fully being met – The largest component of total unmet demand was estimated to be trips to senior nutrition programs, at about 60,000 trips per year. Office for Aging agrees that transportation needs to senior centers are not being fully met. BC Country does serve senior centers in Harpursville and Whitney Point a few days per week, and brings rural seniors into Binghamton and Vestal centers on a less regular basis. However, much more transportation could be provided. It is likely that many of the seniors participating in these programs now drive or are driven by family members (42% of Broome County seniors recently surveyed fell into this category). For those that do not drive or would prefer not to, improved transportation to senior centers would be beneficial.

BC Country has low productivity, in part due to long trips - With a passenger trips per hour figure of 2.0, BC Country ranked poorly in an evaluation of system performance measures against national averages. This low productivity figure may be attributed to the long distances that must be traversed to reach the most remote portions of the County, especially when carrying small numbers of passengers. Broome County Department of Transportation (BCDOPT) staff noted that improving productivity performance would be crucial to secure continued funding of BC Country from the County legislature.

General public demand response riders compete with Association for Retarded Citizens (ARC) subscription-type services for trips - The vehicle utilization chart in Chapter 4 showed the predominance of trips during the morning and afternoon hours,

during which ARC riders receive subscription service. This pattern limits the availability of BC Country to general public demand response riders at these times of day. In order to provide equal access to BC Country service for both groups, it will be necessary to consider new, more efficient ways of accommodating ARC ridership on BC Country.

Five BC Country vehicles operating Monday through Friday are unable to accommodate all types of trip requests - The operational characteristics of BC Country service place constraints on program and non-program riders who need access to transportation at specific times, particularly early mornings. This is due to the large number of ARC client pickups, as well as the long travel times between outlying towns and the Triple Cities area. Increasing the size of the vehicle fleet may enable BC Country to provide more flexible transit options for rural residents, by allowing trip types to be grouped by vehicle in a more efficient manner.

Some of the runs appear to be underutilized in the middle portion of the day - BC Country's runs are invariably busy during morning and afternoon peak periods, but some runs experience gaps in ridership at midday. Potential demand response passengers unable to schedule trips during peak periods may become discouraged and may not be aware that capacity may exist during other times of the day. Utilizing the extra capacity at midday may be the simplest method of accommodating more program and non-program related trips. Although not all unmet demand response trips could be met during the midday, BC Country could make a greater effort to inform potential demand response riders aware that trips during certain midday hours are more readily available.

There is very little program-based transportation in rural Broome, and BC Country does not satisfy all human service agency needs - Although ARC clients represent the bulk of BC Country ridership, other human service agency programs do not receive BC Country service on a similar level. Since much of the calculated unmet need originates within underserved program constituencies, improving service to these groups will be a crucial part of addressing unmet need.

BC Country service hours limit the number of general demand response and subscription trips that can be provided - Social service agency representatives noted that its limited service hours make it difficult to meet many of their clients' transportation needs with BC Country. Even ARC staff, who accommodate a large client population on BC Country, noted the limitations of BC Country service hours. The extension of service hours earlier and/or later in the day may help to make more demand response and subscription trips available.

BC Country service hours restrict the provision of employment-based transportation - Representatives of the employment division of DSS remarked on the difficulty of accommodating new clients on BC Country, since work shifts for entry-level employees often begin or end outside the service span of BC Country. This not only reduces the number of work trips BC Country can provide, but also greatly restricts the employment options for rural residents without access to an automobile. Longer service hours would be a positive step towards addressing this problem.

BC Country does not currently provide transportation for individuals covered by Medicaid - Broome County DSS, which currently administers Medicaid claims and reimburses for transportation, rarely uses BC Country for this purpose, and often uses expensive taxis or medivans. Although doubts have been expressed about the ability of BC Country to effectively meet the needs of all Medicaid transportation trips, general public transit agencies in other counties in New York State have demonstrated the ability to do so. BC Country participation in Medicaid has the potential to lower the costs of Medicaid non-emergency transportation claims, since BC Country fares are considerably less expensive than the medivans and taxis on which patients often rely.

Organizational and Management Issues

Dispatchers are often unable to answer and return phone calls for reservation requests promptly - The first step in establishing reliable demand response service comes in the processing of trip requests and confirming reservations. Dispatchers have remarked that they are often unable to handle all phone calls as promptly as they would like, mainly due to staff constraints. These difficulties can be attributed to the lack of a real-time reservation system, which would allow reservationists to book passengers with a single call. The complicated nature of making BC Country reservations undermines public faith in the service, and discourages demand response riders from utilizing BC Country on a routine basis. Additionally, the fact that passengers must wait until only a day or two before their trip to receive confirmation contributes to their lack of faith in the service. Timely and dependable processing of trip requests present an even greater challenge if service is expanded to address unmet need. It should be noted that this issue has been at least partially addressed by the recent hiring of an additional dispatcher by BCDOPT.

The management of paratransit operations is not effectively consolidated under a single individual - Currently, the Public Transportation Analyst and Senior Dispatcher share the duties of coordinating BCDOPT's three paratransit services. Under this arrangement, neither position is held fully accountable for interaction with human service agencies and the general public.

6.2 Summary

BC Country serves its current ridership base in a generally satisfactory manner, but as the Needs Analysis in Chapter 5 illustrated, a great deal of unmet demand for transportation exists in rural Broome County. Thus, the primary objective of any modifications made to BC Country should be geared toward addressing this unmet demand. Additionally, the current low productivity indicators for BC Country suggest that improvements could be made in this area. Many of the issues highlighted above act as limitations on the provision of more productive service to a wider population. A range of specific measures for resolving the above issues, and thereby enhancing BC Country service, is presented in Chapter 7.

Chapter 7 Potential Improvement Options

This chapter presents a list of options that may be able to improve existing transit service as well as accommodate unmet transportation need in rural Broome County. These options serve as building blocks for the formation of packages of alternatives presented in the following chapter.

7.1 Improvement Options

Operations

Increase the number of peak demand response vehicles operating in BC Country service - This option is a primary element of any effort to significantly increase the number of trips BC Country provides. It would add two peak vehicles to the five that currently exist in order to meet currently unmet demand. Additional vehicles would allow BC Country to pursue either an expansion of the number of demand response “routes” beyond the current five or a feeder/fixed route service for the outlying areas of the County. New vehicle purchases could consist of 14-passenger vans, like those operated currently by BC Country, or other vehicles better suited to a revised operations scheme. Additional driver hours would be created, and could be filled by hiring new operators.

However, if vehicles larger than 14-passenger vans were to be added to the BC Country fleet, drivers would need proper licensing to operate larger vehicles. The job titles and salaries of current drivers would also have to be reconsidered in conjunction with operating larger vehicles. The title of “Van Operator”, which BC Country drivers currently hold, allows them to operate vehicles carrying no more than 15 passengers. In order to operate larger vehicles, they would have to be upgraded to “Coach Operators”, with the attendant increases in salary.

Establish demand response zones throughout the County - BC Country may have difficulty attracting and retaining demand response riders because of the difficulty of securing reservations at the times they need. BC Country could better serve these riders by establishing specific zones that are the appropriate size to be served by a single vehicle. In practice, BC Country has already created informal zones, with “routes” established that cover certain areas of the County. If a trip request is not within the areas served by these routes, it cannot be met. By formally designating specific zones that extend throughout the County, BC Country would provide 100% coverage.

Since it does not currently have sufficient resources to cover trip needs throughout the County, BC Country would need to pair this option with the addition of two vehicles to increase the number of “routes” from five to seven, with each vehicle serving one of seven zones. The addition of vehicles should allow BC Country to serve all areas of the County five days per week. Flexibility should be maintained to allow vehicles with no requests in a given zone to support the vehicle in another zone if that zone is overwhelmed by requests on a particular day.

A suggested zone system with two additional vehicles is described in Table 7.1 and illustrated in Figure 7.1. Zones were selected based on three considerations:

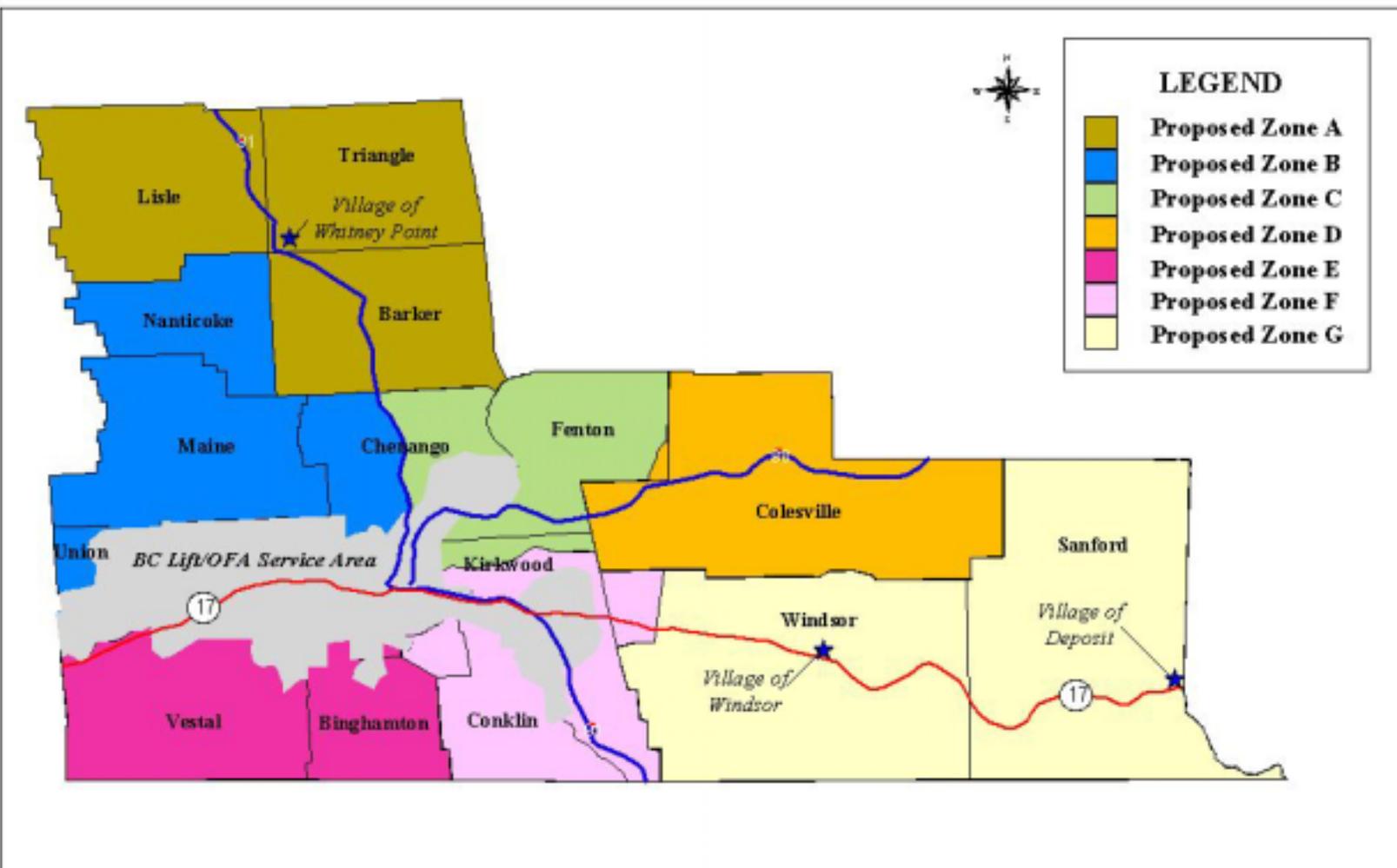
- Service coverage of existing BC Country “routes”
- Location of existing regular BC Country riders provided by BCDOPT
- Broome County roadway network

**Table 7.1
Service Option #1 - Proposed Zones**

Zone	Communities Served	Major Corridors Served	# of Current Regular Riders*
A	Lisle, Whitney Point, Triangle, Barker	I-81	15
B	Nanticoke, Glen Aubrey, Maine, Union (area not served by BC Lift), Castle Creek, Chenango west of I-81	NY-11, NY-26, CR-21, CR-45, CR-69	16
C	Chenango East of I-81, Chenango Bridge, Chenango Forks, Fenton, Port Crane, Kirkwood south to Route 68 corridor	NY-12, NY-369, CR-68	14
D	Colesville, Harpursville, Sanitaria Springs. Tunnel	I-88, NY-79, CR-52	21
E	Vestal, Binghamton (except northeast corner)	NY-26, CR-57, CR-117	17
F	Binghamton (northeast corner only), Conklin, Kirkwood south of Route 68, West Windsor (west of 217,north of 32)	NY-7, NY-11, CR-121, CR-141	17
G	Windsor, Sanford, Deposit, Kirkwood between 68 and 17	NY-17	18

*Source = BCDOPT

Figure 7-1 BC Country Expanded Demand Response Zone Option



Based on these considerations, seven zones are suggested. The addition of two additional vehicles would allow for existing areas served by a single vehicle to be subdivided in order to better meet demand. An example of this is creating two zones serving Northern Broome County where there is presently one. Another advantage of this scheme would be that areas that BC Country is presently unable to fully serve, such as parts of Chenango and Union, would be specifically included in a service zone.

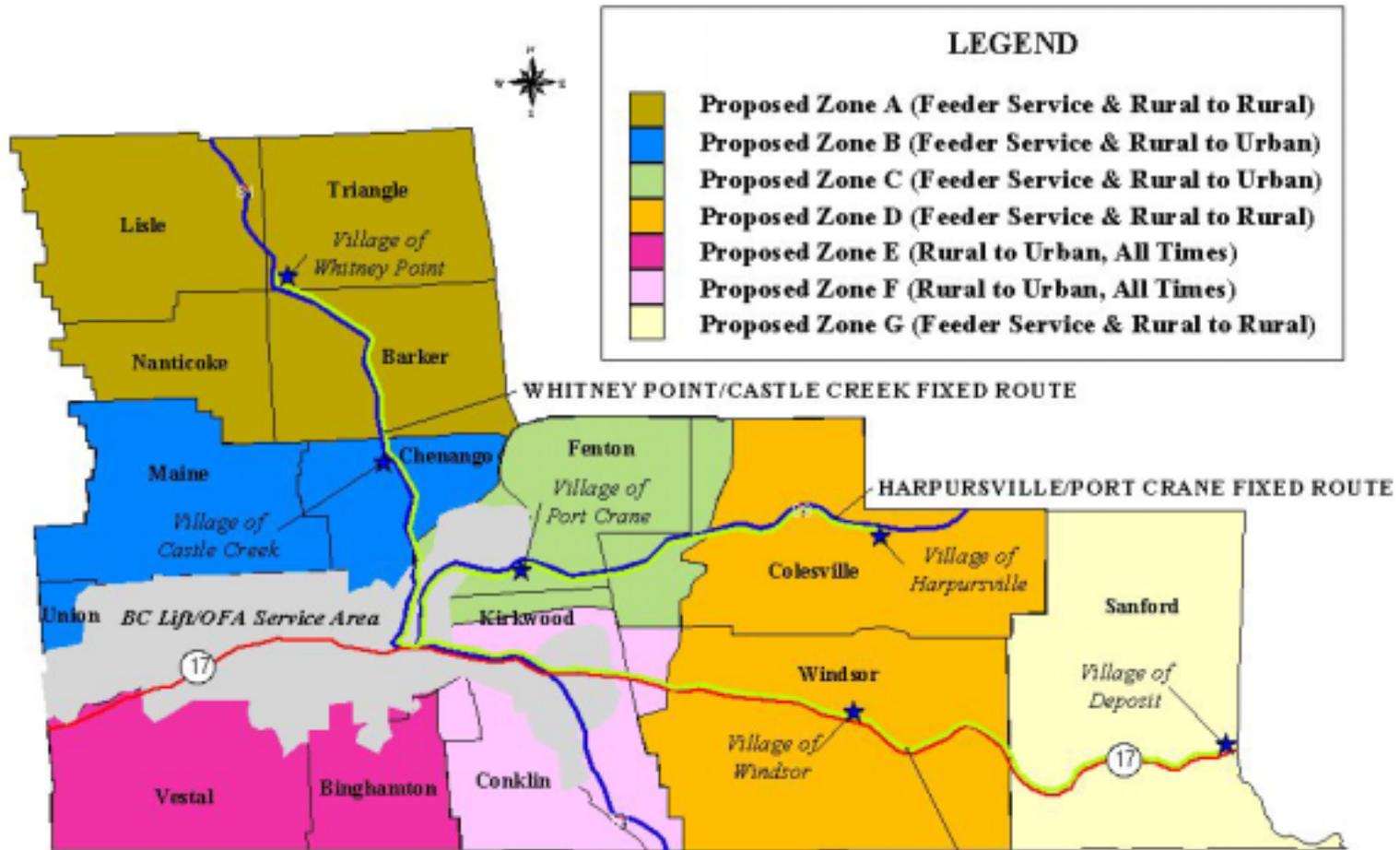
Create rural fixed routes during times of peak demand, with feeder service to those routes provided by demand response zones - Long trips bringing individuals between remote rural areas and the Triple Cities contribute to BC Country's below-average productivity. One potential option for increasing productivity is replacing the existing service model in the northern and eastern communities in the County with express fixed routes and feeder services. The fixed routes would run between rural centers and the Triple Cities at designated times. Demand response feeder service in these communities would meet up with the fixed routes at designated locations in rural centers such as Whitney Point and Windsor. Since the fixed routes would be on a schedule and open to the public, passengers living in rural centers may be able to access the fixed route departure point by their own means. The fixed routes would transport passengers from rural centers to ARC and CVI facilities in the Triple Cities area and to BC Junction in Downtown Binghamton, where they could transfer to BC Transit fixed-route buses. Transfers from feeder services to fixed routes should be free, while a fare must be determined for passengers boarding the fixed route bus directly.

Figure 7.2 shows potential fixed routes and demand response zones under this scenario. BC Country would need to assign three vehicles to the I-81, I-88, and Route 17 corridors during peak times, with these routes serving the rural centers of Whitney Point/Castle Creek, Harpursville/Port Crane, and Deposit/Windsor. Table 2.2 presents a sample schedule that shows each fixed route making multiple trips concentrated in morning and afternoon periods. It was developed to ensure that ARC clients, the largest group of subscription riders, would reach their workplace on time, and should also be able to accommodate other kinds of trips, including work trips. The vehicles providing the fixed routes should have sufficient capacity and may be drawn from the existing BC Transit urban fleet.

Seven demand response zones would be necessary to cover the County and provide feeder service to the rural centers, requiring the option of additional demand response vehicles. The zones under this option would be slightly different than those described under the expanded demand response zone service option above, because of the need to bring passengers to the rural centers. There are also three different types of zones, as follows:

- Zones which make connections to rural fixed routes during peak times and provide rural to rural demand response trips only at other times.
- Zones which make connections to rural fixed routes during peak times and provide rural to urban demand response trips at other times.

Figure 7-2 BC Country Fixed Route & Feeder Zone Option



**Table 7.2
Sample Rural Fixed-Route Schedules**

Whitney Point/Castle Creek Fixed Route – Inbound					
BCDOPT Garage	Whitney Point	Castle Creek	ARC Binghamton	BC Junction	CVI Johnson City
6:45	7:20	7:35	7:50	8:00	8:10
	8:45	9:00	9:15	9:25	9:35
	10:10	10:25	10:40	10:50	11:00
Whitney Point/Castle Creek Fixed Route – Outbound					
BCDOPT Garage	CVI Johnson City	BC Junction	ARC Binghamton	Castle Creek	Whitney Point
2:50	3:00	3:10	3:20	3:35	3:50
	4:25	4:35	4:45	5:00	5:15
5:50					
Harpursville/Port Crane Fixed Route – Inbound					
BCDOPT Garage	Harpursville	Port Crane	ARC Binghamton	BC Junction	CVI Johnson City
6:30	7:10	7:35	7:50	8:00	8:10
	8:45	9:10	9:25	9:35	9:45
9:55					
Harpursville/Port Crane Fixed Route – Outbound					
BCDOPT Garage	CVI Johnson City	BC Junction	ARC Binghamton	Port Crane	Harpursville
2:50	3:00	3:10	3:20	3:35	4:00
	4:35	4:45	4:55	5:10	5:35
6:10					

PM in BOLD

Table 7.2
Sample Rural Fixed-Route Schedules (continued)

Deposit/Windsor Fixed Route – Inbound					
BCDOPT Garage	Deposit	Windsor	ARC Binghamton	BC Junction	CVI Johnson City
6:15	7:15	7:40	8:10	8:20	8:30
	9:25	9:50	10:20	10:30	10:40
10:50					
Deposit/Windsor Fixed Route – Outbound					
BCDOPT Garage	CVI Johnson City	BC Junction	ARC Binghamton	Windsor	Deposit
2:50	3:00	3:10	3:20	3:50	4:15
		5:00		5:30	5:55
6:55					

PM in BOLD

- Zones which make no connections to fixed routes and provide rural to urban demand response trips at all times.

Table 7.3 characterizes each of seven zones. They were developed based on similar considerations to the zones suggested under the pure demand response service alternative option above, with the additional concern of serving the rural centers and fixed route stops. It is suggested that some of the zones change their borders during times of the day when making connections to fixed routes is not an issue. For instance, in order to make connections to fixed routes Zone G covers Deposit and Sanford only, while Zone D would cover communities in Colesville and Windsor. As Table 7.2 indicated, fixed route buses would leave Deposit and Harpursville at roughly the same time, and reach Windsor about 25 minutes later. This allows the demand response vehicle in Zone D to serve connections at both Harpursville and Windsor. However, during the rest of the day, demand is relatively high in both Windsor and Harpursville/Colesville. It therefore makes sense to serve Windsor with the Zone G vehicle during those times.

Begin all BC Country service at 6 am – Public outreach for this study revealed a concern about long trips leading to late arrivals at many passengers’ destinations. The late arrival times of many trips can be addressed by extending the hours of BC Country service to begin earlier in the morning. Service could be adjusted to insure that all subscription passengers wishing to do so arrive in the Triple Cities area by 9:45 am at the latest. In order to meet demand, most buses do not currently pull in to the garage before 6:00 pm. However, only two of the five routes start before 8:00 am in the morning. This option would have all five routes pull out of the garage at 6:00 am. Under both proposed service scenarios, such operational guidelines could be implemented without adding an unreasonable number of service hours. Longer BC Country hours would allow existing subscription passengers to arrive at their destinations earlier, as well as allowing for a greater number of demand response trips, particularly in the periods before and after the current subscription trip cluster in the morning. Increased service hours also offer the promise of greater provision of work trips, since work schedules typically depend upon employees arriving at a regular time each day.

Schedule trips and utilize vehicles during the midday to a greater extent - To address the issue of the underutilization of vehicles during the midday, while they are at full capacity during other times of day, BC Country could make a concerted effort to schedule trips during the midday. Currently, vehicles are out of revenue service from anywhere from one to three hours during the midday. There are, however, obstacles to full utilization during this time. First, most BC Country drivers work a full day and must rely on this midday time period to have lunch, rest, etc. Second, a round trip between the Triple Cities and an outlying rural area can take up to two hours itself, and would therefore not be easy to schedule into all but the longest midday periods of non-utilization.

To address these issues, BC Country would need to be willing to change their method of driver assignment and also focus on shorter rural to rural trips during those time periods. Instead of pulling the vehicle in and out of the BC Transit garage, drivers could be relieved on the road, with a BCDOPT employee shuttling drivers to and from locations in

**Table 7.3
Service Option #2 - Proposed Zones**

Zone	Communities Served	# of Current Regular Riders*	Feeder Service?	Feeder Location(s)	Off-peak Service Characteristics	Other Comments
A	Lisle, Whitney Point, Triangle, Nanticoke, Glen Aubrey	20	Yes	Whitney Point	Rural to Rural only	Would serve Barker during off-peak
B	Barker, Maine, Union (area not served by BC Lift), Castle Creek, Chenango west of I-81, Chenango Forks	13	Yes	Castle Creek	Rural to Urban	Would not serve Barker during off-peak
C	Chenango Bridge, Fenton, Port Crane, Kirkwood south to Route 68 corridor, Sanitaria Springs, Tunnel	21	Yes	Port Crane	Rural to Urban	Would not serve Sanitaria Springs and Tunnel during off-peak
D	Colesville, Harpursville, Windsor	23	Yes	Harpursville, Windsor	Rural to Rural only	Would not serve Windsor during off-peak. Would serve Sanitaria Springs and Tunnel
E	Vestal, Binghamton (except northeast corner)	17	No	NA	Rural to Urban all times	
F	Binghamton (northeast corner only), Conklin, Kirkwood south of Route 68, West Windsor (west of 217, north of 32)	17	No	NA	Rural to Urban all times	
G	Deposit, Sanford	8	Yes	Deposit	Rural to Rural only	Would serve Windsor during off-peak times

*Source = BCDOPT

and around the Triple Cities. Included in one of those shifts could be a two or three-hour period when only local rural to rural trips are provided.

As an example, the current Route 401 on some days delivers passengers to the Whitney Point Senior Center at around 10:00 am and then returns to the garage, sometimes bringing in a passenger to the Triple Cities at the same time. The driver will typically resume service at 12:30 pm or 1:00 pm. An alternative approach would be for the 401 driver, whose shift starts at 6:00 am, to provide local trips in and around Whitney Point from about 10:00 am to noon and then head back to the Triple Cities (with passengers), ending his shift via a driver relief at approximately 12:30 pm. The second shift driver on each route would provide service between the Triple Cities and a specific rural part of the County for the rest of the day. This concept is applicable to other routes as well. In coordination with this, dispatchers should encourage those with rural to rural trip requests to make them at those times.

The type of passengers that this extra utilization will benefit should for the most part be non-program users, making local shopping or social/recreational trips within their communities. Trips to senior centers for programs, nutritional or otherwise, should also be accommodated to the extent that there is demand during that time of day. Chapter 8 quantifies the potential demand that may be met with this option.

Create two driver shifts per day for each vehicle – This step will make it possible for BC Country to increase the length of its service day as well as eliminate periods of inactivity during the midday. Instead of having drivers work all day with a lengthy break around midday, drivers could work one continuous shift in the morning or the afternoon, with provisions for a short break at some point during which a meal could be eaten. This will result in drivers averaging less work hours (about 30 hours a week) but because they are part-time, it should be possible to accomplish if additional drivers are hired.

Increase the number of rural to rural trips provided to Senior Community Centers – In order to address the demand that was measured for senior nutrition trips, this option would use increased resources to provide additional subscription trips to rural Senior Community Centers to allow more seniors to access nutrition and other programs. The three rural senior centers in Harpursville, Whitney Point, and Deposit should receive service every day during which they are open. BC Country would also work with the Office for Aging to increase the number of individuals on each subscription trip, some of whom may currently be reluctant to use the service because it is not available every day. Specifically, this option would:

- Add subscription service to Harpursville Center on Thursday
- Add subscription service to Whitney Point Center on Tuesdays and Thursdays
- Add subscription service to Deposit Center on Tuesdays and Thursdays
- Substantially increase average number of riders on subscription trips to Harpursville and Whitney Point, which is now about 4 passengers each per vehicle trip.

This option would require additional resources than currently available to BC Country and would therefore need to be implemented in conjunction with one of the major service-related options that increases the amount of BC Country transportation resources, either by expanding the number of zones that would be served by a vehicle, or by transforming the service into a fixed route and feeder system.

Establish a discounted taxi program to serve trip requests that cannot be accommodated by BC Country vehicles - Those who are denied transportation on BC Country or told that they are unable to be accommodated often have no other affordable options. For these cases, BC Country could offer a subsidized option in the form of a discounted fare for taxi trips to destinations within the County. If we assume an average full fare to be about \$50³, then a subsidized trip would cost an average of \$25. This option would require the establishment of a formal arrangement with a cooperative and reliable local taxi company or companies. The taxi company would agree to transport individuals referred by BC Country at a reduced fare, and then bill BC Country for the difference between the full and reduced fare. When a BC Country dispatcher is unable to accommodate a passenger in a reasonable fashion with BC Country vehicles, he or she would call the taxi company directly and arrange for the pickup. This, of course, would require BC Country to obtain additional financial resources to pay for the subsidy, but would also provide an incentive for it to find ways of meeting trip requests with its own vehicles.

This option is not intended to by itself be a significant contribution to meeting currently unmet demand in Broome County. Rather, it represents one option for those individuals who cannot be accommodated on Broome County due to its limited resources. This is an option which is not ideal but which may be preferable to other choices, such as paying full price for a taxi ride or foregoing the trip altogether. Needless to say, the high cost would mean that the service is used only in emergencies and that BC Country is not inundated with requests. Estimates of the ridership and cost implications of this option are provided in Chapter 8.

Raise base fare to \$4.00 and elderly/disabled fare to \$2.00 – County and BCDOPT officials have considered raising BC Country fares to a base fare of \$4.00 and an elderly/disabled fare of \$2.00.

Institute discounted pricing for rural-to-rural trips - If a service pattern of feeder and fixed-routes is implemented, feeder buses are likely to be available for a greater number of demand response trips, since they would not need to travel into the urban area. This would allow these feeder vehicles to accommodate an increased number of rural-to-rural trips. Regardless of whether that option is chosen for implementation, discounting the

³ \$50 is the median cost of one-way fares between Binghamton and 7 common rural origins/destinations

cost of rural to rural trips by maintaining present fare levels will create a more equitable fare system, and soften the impact of a potential fare hike.

Coordinate with Deposit Foundation in service provision between the Triple Cities and the far eastern part of the County - As discussed in Chapter 3, the Deposit Foundation's small demand response service provides transportation from the eastern portion of the County to the Triple Cities area and other locations. Although the Foundation is not interested in expanding its services at the present time, BC Country should seek coordination opportunities with this organization. For instance, Deposit Foundation can refer its customers to BC Country for trips that it cannot accommodate itself and the Foundation could handle some rural-to-rural trips that BC Country cannot provide.

Establish an institutional fare arrangement between BC Country and ARC, as well as any other providers that utilize BC Country for regularly scheduled subscription trips - Currently, ARC clients pay their fares on BC Country vehicles. Some riders pay their full weekly fare at the beginning of each week, so it can be difficult to accurately track fare payment from these riders. Since ARC clients make up a substantial portion of total BC Country ridership, it would be advantageous for BC Country to develop an institutional fare arrangement with ARC, in which a transportation fee could be included as a part of total ARC fees. Such an arrangement would greatly simplify fare collection from BC Country's largest subscription clientele. Similar arrangements could be established with other employers or agencies in the future, insofar as they constitute a large number of BC Country's subscription trips. This option would eliminate the issue of fare collection among subscription passengers, and provide a more convenient fare payment system for regular riders.

Coordinate with DSS to provide more efficient Medicaid Non-emergency medical transportation (NEMT) - Making BC Country a more active participant in the County's non-emergency Medicaid transportation program could offer a "win-win" result. Transportation costs may be reduced as some of the trips now served by taxis or other expensive modes could be met with public transit, and BC Country could expand its ridership base and possibly benefit from a new revenue source.

Other counties in New York State have benefited from playing a more active role in Medicaid transportation. In both Chemung and Dutchess County, the transit agencies, which are operated by a private firm, act as brokers for all Medicaid transportation.

In Dutchess County, DSS contracts with LOOP, the County transit agency, which is operated by Progressive Transportation. LOOP dispatchers take requests for Medicaid trips and after determining eligibility, assign the most cost effective mode of transportation. If individuals can be accommodated on LOOP fixed routes, then that is the chosen mode. In instances where this is not possible because of trip destinations or the physical condition of the Medicaid recipient, they turn to medivan and taxi companies

with which they have contracts. For some trip origin/destination pairs, the County has established rates according to which the private providers are reimbursed. In cases where no rate is established, LOOP asks the taxi or medivan companies to submit a bid, and then the lowest bid is accepted. By shifting roughly 50% of trips to lower cost transit service, and competitively bidding other services, LOOP is able to achieve cost savings and offer to operate the Medicaid transportation at an overall cost \$2.25 million per year.

LOOP employs a full-time Medicaid billing clerk who takes care of the paperwork associated with Medicaid transportation. The clerk ensures that taxi and medivan companies are paid each week and bills DSS for revenue on a monthly basis. LOOP is very happy with its NEMT program, which indicates that it is able to operate it without losing money on the proposition.

In Chemung County, Progressive Transportation also operates the Medicaid transportation program as well as providing general public transit. As in Dutchess County, they have contracts established with other providers, including other providers of paratransit services, but attempt to accommodate as many individuals as possible on either their fixed route system or ADA paratransit service. This offers some cost savings.

Chemung County pays Progressive Transportation a lump sum to provide all transportation, which includes Medicaid transportation. The County was encouraged to bid the service out to Progressive because they are able to provide all of these services and also take on a lot of paperwork from the County related to Medicaid Transportation.

In both Dutchess and Chemung counties, cost savings have been achieved by using the brokerage model, with the operator of the public transit system also assuming control of Medicaid. They are able to achieve these savings because they can fulfill a portion of the trip requests “in-house” on fixed route or demand response transit, and because they competitively bid the remaining taxi and Medivan service to local companies.

If Broome County is willing to contract out Medicaid transportation, BCDOPT could play the role of a broker for both urban and rural areas and would likely be able to achieve cost savings in this same way. It would accommodate as many trips as possible on BC Transit and BC Lift in the urban areas, and on BC Country in the rural areas.

Organizational and Management Improvements

Establish clear guidelines and assumptions for calculating BC Country expenses - Expense figures weigh heavily in the calculation of the system performance measures. Thus, accurate future analyses of BC Country’s performance will depend in part upon straightforward calculations of expenses. BCDOPT staff could formulate a standard procedure for these calculations, in order to minimize approximations or inaccuracies.

Create a Paratransit Service Manager position to manage all BCDOPT paratransit services - The Paratransit Service Manager would be responsible for all paratransit operations, including BC Lift/OFA and BC Country. He or she would also have increased responsibility to enhance coordination efforts with human service agencies whose clients could utilize BC Country. Additionally, this individual would lead efforts to streamline the reservation process and make it simpler for demand response riders to use. This need not necessarily result in the hiring of a new individual, as existing staff members may be utilized for this purpose. An organization chart showing this potential new arrangement is included as Appendix B.

Institute a real-time scheduling system - Two full-time reservationists should be given the responsibility of answering all demand response calls (BC Lift and BC Country) and scheduling trips in real time using Trapeze scheduling software. Calls would be answered directly, instead of the current method, in which customers leave a message, staff listen to the message and return the call to the customer. This system would provide more efficient use of time for staff as well as more convenient service to customers by reducing the number of phone calls required to secure a reservation from two or more to only one.

Install a telephone registering system to determine telecommunications infrastructure needs - Implementing a telephone registering system would allow staff to monitor the number and length of reservation calls, and the length of time customers are placed on hold. Such a system could help identify the appropriate number of phone lines for the reservation system, as well as the effectiveness of the call intake process.

Create a policies and procedures manual for intake, scheduling and dispatching - Staff (in particular the Paratransit Service Manager) should prepare a policies and procedures manual in order to codify the reservation process. This manual should be forward-thinking, by suggesting how the process should work at its most efficient, incorporating some of the improvements suggested here.

Hire additional dispatching/reservation staff and add a pre-recorded BC Country Information Line in order to decrease response time for all reservations - BCDOPT staff expressed concern that calls for reservations were not being handled promptly enough, due to a shorthanded staff. One additional part-time or full-time dispatcher would assist in speeding up this process. In fact, BCDOPT did hire an additional dispatcher during the course of the study, and this has proven to address the issue of responsiveness to requests. Additionally, a BC Country Information Line could explain all the necessary service information to new callers to spare reservation staff from having to do so. This Information Line could have a touch-tone connection to the main BC Transit number. Dispatching staff should continue to jointly serve the needs of both BC Country and BC Lift/OFA.

Designate one full-time position for the task of dispatching drivers and call intake assistance, as needed - With two reservationists booking callers, a third position could

be dedicated to handling communications with drivers and the preparation of driver manifests.

Charge Public Transportation Analyst with providing planning assistance to Paratransit Service Manager and managing computer and information systems -

The Public Transportation Analyst should be the key figure in implementing the locally preferred improvement options presented here. This individual should work to best utilize the software and telecommunications available to BC Country, by standardizing data input routines and coordinating training sessions for staff to learn how to operate various technologies, especially the Trapeze scheduling software.

Increase marketing and outreach to selected human service agencies and major employers -

Much of the unmet need identified in Chapter 5 is made up of human service agency trips. While ARC already makes extensive use of BC Country, other Broome County agencies such as the Department of Social Services (DSS) could accommodate more of their rural clients on the service. Likewise, major employers could coordinate transportation through DSS for new hires on BC Country. Outreach to the Office for Aging would be particularly important if BCDOPT desires to increase mid-day trips to rural senior centers. The Paratransit Service Manager or a new Social Service Transportation Coordinator could coordinate outreach. The addition of capacity to accommodate increased ridership would be necessary to implement this improvement (see Operations Improvements above).

Chapter 8 Alternative Packages

This chapter incorporates the previously identified improvement opportunities in the areas of operations and organization/management into three alternatives that enhance service while streamlining organizational operations. It should be noted that the options in these three alternatives might ultimately be combined in a fashion different from what is presented here.

8.1 Alternative A

Alternative A focuses on options that provide improved efficiency and effectiveness without dramatically changing the way that BC Country operates or requiring a great deal of additional resources.

Operations

- Begin all BC Country service at 6 AM
- Schedule trips and utilize vehicles during the midday to a greater extent
- Create two driver shifts per day for each vehicle
- Establish a discounted taxi program to serve trip requests that cannot be accommodated by BC Country vehicles
- Coordinate with Deposit Foundation in service provision between the Triple Cities and the far eastern part of the County
- Raise base fare to \$4.00 and elderly/disabled fare to \$2.00
- Institute discounted pricing for rural-to-rural trips
- Establish an institutional fare arrangement between BC Country and ARC, as well as any other program providers that utilize BC Country for regularly scheduled subscription trips

Organization/Management

- Establish clear guidelines and assumptions for calculating BC Country expenses
- Institute a real-time scheduling system

- Install a telephone registering system to determine telecommunications infrastructure needs
- Create a policies and procedures manual for intake, scheduling and dispatching
- Designate one full-time position for the task of dispatching drivers and call intake assistance, as needed

8.2 Alternative B

Alternative B goes beyond Alternative A by providing significantly more service utilizing additional vehicles in order to address some of the unmet transit need in rural Broome County. This alternative would bring in extra resources to ensure that more program participants and general public users could be provided with trips under an expanded paratransit zone system. Alternative B also maintains many of the smaller scale options from Alternative A.

Operations

- Add two demand response vehicles to peak BC Country service
- Establish demand response zones throughout the County
- Begin all BC Country service at 6 AM
- Schedule trips and utilize vehicles during the midday to a greater extent
- Create two driver shifts per day for each vehicle
- Increase the number of rural to rural trips provided to Senior Community Centers
- Coordinate with Deposit Foundation in service provision between the Triple Cities and the far eastern part of the County
- Raise base fare to \$4.00 and elderly/disabled fare to \$2.00
- Institute discounted pricing for rural-to-rural trips
- Establish an institutional fare arrangement between BC Country and ARC, as well as any other program providers that utilize BC Country for regularly scheduled subscription trips
- Coordinate with DSS to provide more efficient Medicaid transportation

Organization/Management

- Establish clear guidelines and assumptions for calculating BC Country expenses
- Create a Paratransit Service Manager position to manage all BCDOPT paratransit services
- Institute a real-time scheduling system
- Install a telephone registering system to determine telecommunications infrastructure needs
- Create a policies and procedures manual for intake, scheduling and dispatching
- Hire additional dispatching/reservation staff and add a pre-recorded BC Country Information Line in order to decrease response time for all reservations
- Designate one full-time position for the task of dispatching drivers and call intake assistance, as needed
- Increase marketing and outreach to selected human service agencies and major employers
- Charge Public Transportation Analyst with providing planning assistance to Paratransit Service Manager and managing computer and information systems

8.3 Alternative C

Alternative C charts a somewhat different course for BC Country than Alternative B in the area of operations. It approaches the inability of BC Country to currently meet demand throughout the County by providing fixed route service in the more remote areas of the County and relying on demand response feeder service to provide connections. In other respects it is similar to Alternative B, proposing an increased number of service zones, a range of smaller scale improvements and a similar management structure.

Operations

- Add two demand response vehicles to peak BC Country service
- Create rural fixed routes during times of peak demand, with feeder service to those routes provided by demand response zones
- Begin all BC Country service at 6 AM

- Schedule trips and utilize vehicles during the midday to a greater extent
- Create two driver shifts per day for each vehicle
- Increase the number of rural to rural trips provided to Senior Community Centers
- Coordinate with Deposit Foundation in service provision between the Triple Cities and the far eastern part of the County
- Raise base fare to \$4.00 and elderly/disabled fare to \$2.00
- Institute discounted pricing for rural-to-rural trips
- Establish an institutional fare arrangement between BC Country and ARC, as well as any other program providers that utilize BC Country for regularly scheduled subscription trips
- Coordinate with DSS to provide more efficient Medicaid transportation

Organization/Management

- Establish clear guidelines and assumptions for calculating BC Country expenses
- Create a Paratransit Service Manager position to manage all BCDOPT paratransit services
- Institute a real-time scheduling system
- Install a telephone registering system to determine telecommunications infrastructure needs
- Create a policies and procedures manual for intake, scheduling and dispatching
- Hire additional dispatching/reservation staff and add a pre-recorded BC Country Information Line in order to decrease response time for all reservations
- Designate one full-time position for the task of dispatching drivers and call intake assistance, as needed
- Increase marketing and outreach to selected human service agencies and major employers

- Charge Public Transportation Analyst with providing planning assistance to Paratransit Service Manager and managing computer and information systems

Chapter 9 Evaluation of Alternative Packages

This chapter examines the projected impacts of all three alternative packages on BC Country's operating and capital costs and its ability to address unmet demand, along with the institutional and political issues that may present obstacles to implementation. These provide a basis for determining the feasibility and desirability of the packages and their various components outlined in Chapter 8. The advantages and disadvantages associated with each alternative are then evaluated to form the basis for the consultant recommendation. It is important to note that this recommendation provides guidance to the study advisory committee, which may choose to pursue an alternative strategy or even combine individual options in a different way.

9.1 Operating Hours

A projection of the change in operating hours as a result of each alternative package is important insofar as it provides a basis for estimating additional operating costs and also helps to determine probable ridership levels. For this analysis, change in operating hours of demand response services was estimated for those service options that would involve increasing operating hours of existing vehicles or the introduction of new vehicles. Alternative C, which includes a new fixed route service, also includes the operating hours associated with it, which is based upon the sample schedule presented in Table 2.2.

The alternatives differ significantly in terms of the number of annual service hours they would require. Estimates are provided in Table 9.1. Alternative A includes additional service for existing vehicles only, which would result in approximately 4,302 hours of new service. Alternative B, which brings into service two additional demand response vehicles, would result in approximately 10,332 hours of new service. Finally, Alternative C adds both demand response and fixed route service and requires the most new service hours of all the alternatives -- 16,085 hours.

9.2 Operating/Administrative Costs

This section provides an overview that considers the potential costs that would be incurred as a result of the implementation of each of the proposed service alternatives. Table 9.1 shows the costs, which assume full implementation of each option (Chapter 10 considers the cost impacts of a phased implementation approach). The methodology by necessity differs depending upon the individual option, but in most instances it was possible to apply an incremental cost per hour to the estimated operating hours. For increased service provided by existing BC Country resources, a unit cost of \$17.55 per hour was used, which includes drivers' salary and fringe benefits, fuel, oil and other automotive supplies. For service enhancements deriving from new vehicles and services, an hourly unit cost of \$31.23 was used, which includes all operating costs, but not administrative costs, which are likely to remain unchanged. For the fixed route service proposed in Alternative C, a unit cost was derived from the average operating costs of

three regional peer systems (Chemung and Tioga Counties in New York, and Beaver County in Pennsylvania). These systems operate fixed-route service in largely rural counties through private contractors. The average cost per hour of the fixed route services of these peer systems totaled \$38.26.

This assessment of the cost impact of the alternative packages considers each improvement option independently from the base operating costs of BC Country or the timeline for its implementation. Chapter 10 contains a financial plan, which discusses the impact of the estimated expenses in the context of the BC Country budget over a four-year time period, as well as potential funding sources.

**Table 9.1
Impacts of Alternatives**

Alternative & Options	Additional Service Hours	Projected Annual Operating Cost Change	Projected Annual Ridership Change	% of Total Unmet Demand
Alternative A				
Begin all service at 6 am	1,764	\$30,958	3,528	2.9%
Midday vehicle utilization	2,520	\$44,226	5,040	4.2%
Discounted taxi program	18	\$900	36	Less than 1%
<i>Increase fare to \$4/\$2 with discount for rural-rural trips</i>	NA	\$(20,684)*	-3,167	NA
<i>Increase in farebox revenue due to improvements</i>	NA	\$(10,017)*	NA	NA
Alternative A Total	4,302	\$45,383	5,437	4.5%
Alternative B				
Addition of two additional vehicles/zones	6,048	\$188,879	18,144	15.1%
Begin all service at 6 AM	1,764	\$30,958	3,528	2.9%
Midday vehicle utilization	2,520	\$44,226	5,040	4.2%
Medicaid transportation	TBD	TBD	TBD	TBD
Create Paratransit Manager position	NA	\$18,466	NA	NA
Hire new dispatcher	NA	\$30,500	NA	NA
<i>Increase fare to \$4/\$2 with discount for rural-rural trips</i>	NA	\$(20,684)*	-3,167	NA
<i>Increase in farebox revenue due to improvements</i>	NA	\$(43,382)*	NA	NA
Alternative B Total	10,332	\$248,964	23,545	19.6%
Alternative C				
Addition of two additional vehicles/zones	6,048	\$188,879	18,144	15.1%
Rural fixed route service	5,753	\$220,110	34,518	28.8%
Begin all service at 6 AM	1,764	\$30,958	3,528	2.9%
Midday vehicle utilization	2,520	\$44,226	5,040	4.2%
Medicaid transportation	TBD	TBD	TBD	TBD
Create Paratransit Manager position	NA	\$18,466	NA	NA
Hire new dispatcher	NA	\$30,500	NA	NA
<i>Increase fare to \$4/\$2 with discount for rural-rural trips</i>	NA	\$(20,684)*	-3,167	NA
<i>Increase in farebox revenue due to improvements</i>	NA	\$(106,981)*	NA	NA
Alternative C Total	16,085	\$405,474	58,063	48.4%

*Increases in farebox revenue expressed as negative under expense

Alternative A

In general, the measures recommended for implementation as part of Alternative A present fewer financial constraints than those changes considered in the other alternatives that include major service modifications and enhancements. The main operations change involves additional service hours from existing vehicles. Other changes include increased coordination between BC Country and other agencies, providing opportunities for reductions in expenses, and minor changes to the way that BC Country operates that would involve little or no extra costs. Management and organization components of this alternative generally involve modifications to existing practices rather than increases in resources. Options warranting financial consideration include:

- Starting service on all existing vehicles at 6 am would also add revenue service hours. If one calculates hours per day based on existing vehicle start times, it comes to 7 hours. Applying unit costs and annualizing the result yields an estimate of \$30,958.
- Full utilization of existing BC Country vehicles during the midday could result in an average of two extra hours per vehicle, per day. Based on this estimate and BC Country's incremental cost per hour, calculating the extra cost is a straightforward exercise. It results in an estimated annual operating cost increase of \$44,226.
- Implementing a subsidized taxi program will require that BC Country sets aside funds that will be drawn upon to reimburse taxi providers. A cost estimate for this option is based on projected use, prevailing taxi fares from rural parts of the County to the Triple Cities, and a 50% subsidy by Broome Country. Because it is unlikely that this option will be affordable to most, the projected annual subsidy for this program is estimated at \$900.
- Increasing BC Country fares will have a positive impact on revenue. A preliminary fare analysis (see Appendix C) provides an estimate of a 63.5% revenue increase, which would yield approximately \$20,684. This can serve as a counterbalance to increased expenses. The discounted pricing for rural-to-rural trips was accounted for in these calculations. Using the results of the passenger survey presented in Chapter 4, rural-to-rural trips were estimated to represent 13% of total trips currently provided by BC Country. There is no reliable means of determining whether the percentage of rural-to-rural trips would increase in an environment of across-the-board service increases, so a conservative estimate based on current ridership trends is justified.
- The above improvement options lead to a projected increase in ridership of 5,437 trips annually. The addition of these trips would necessarily result in higher farebox revenue, so that revenue increase is counted against the costs in Table 9.1.

It is projected that, with the increased fare, farebox revenue would increase by \$10,017 per year. Related calculations can be found in Appendix C.

- Establishing an improved revenue collection arrangement with ARC would in theory be a revenue neutral proposition, but it is likely that there are presently instances of non-payment among ARC users. Replacing fares with a contracted system would ensure full payment and increase actual revenues to some extent. There is no accurate way of measuring the current level of non-payment; therefore it is not possible to estimate the exact amount of revenue that would be recovered if this arrangement were implemented.
- Other operations options in Alternative A should be close to cost neutral.
- Organization/Management options included in this alternative do not involve hiring additional staff. Thus, there are no additional administrative costs.

The total operations and administrations cost of this alternative, minus projected additional farebox revenue from the fare increase option and increased ridership, is presented in Table 9.1, and comes to \$45,383.

Alternative B

Alternative B entails increases in service levels which will result in cost increases greater than those that can be expected from Alternative A. Options warranting financial consideration include:

- Increasing the number of BC Country vehicles in service will obviously involve considerable extra expense. Assuming that two additional peak vehicles will operate 12 hours per weekday results in an annual estimate of \$188,879.
- Starting service on all existing vehicles at 6 am would also add revenue service hours. If one calculates hours per day based on existing vehicle start times, it comes to 7 hours. Applying unit costs and annualizing the result yields an estimate of \$30,958.
- Full utilization of existing BC Country vehicles during the midday could result in an average of two extra hours per vehicle, per day. Based on this estimate and BC Country's incremental cost per hour, calculating the extra cost is a straightforward exercise. It results in an estimated annual operating cost increase of \$44,226.
- Establishing an improved revenue collection arrangement with ARC would in theory be a revenue neutral proposition, but it is likely that there are presently instances of non-payment among ARC users. Replacing fares with a contracted

system would ensure full payment and increase actual revenues to some extent. There is no accurate way of measuring the current level of non-payment; therefore it is not possible to estimate the exact amount of revenue that would be recovered if this arrangement were implemented.

- A greater involvement of BCDOPT and BC Country in the County's Medicaid transportation would have differing financial implications, depending upon the form that the involvement takes. If BCDOPT becomes the Medicaid transportation broker, and is able to reduce costs of that transportation by shifting people from taxis and medivans to transit, the result could be additional revenues to support BC Country and its other transit programs. The consultant was unable to obtain data from DSS necessary to calculate an estimate of costs savings, despite requesting that data. At this time, no estimate is offered but it is recommended that BMTS follow up and coordinate with DSS to obtain the necessary data.
- It is possible that existing staff will fill the new paratransit manager position and obviate the need for an additional hire. Nevertheless, it will entail an elevation in position. If we assume that the current senior dispatcher moves up to this position, then the extra costs involved will consist of the difference between the two salaries plus fringe. For the purposes of this estimation, we can use the difference of the senior dispatcher's current salary plus fringe and that of the Public Transportation Analyst, who would be at the same level as a Paratransit Manager, which equals \$18,466. Other organizational/management recommended options, such as greater marketing and outreach, will be handled by existing staff and therefore not require additional expenditures.
- Unlike Alternative A, the organizational/management recommended options in this option would require that an additional scheduler/dispatcher be hired. Based on a reasonable salary for a dispatcher and an estimate of 22% for fringe, an additional annual cost of \$30,500 can be expected.
- Increasing BC Country fares will have a positive impact on revenue. A preliminary fare analysis (see Appendix C) provides an estimate of a 63.5% revenue increase, which would yield approximately \$20,684. This can serve as a counterbalance to increased expenses. The discounted pricing for rural-to-rural trips was accounted for in these calculations. Using the results of the passenger survey presented in Chapter 4, rural-to-rural trips were estimated to represent 13% of total trips currently provided by BC Country. There is no reliable means of determining whether the percentage of rural-to-rural trips would increase in an environment of across-the-board service increases, so a conservative estimate based on current ridership trends is justified.

- The above improvement options lead to a projected increase in ridership of 23,545 trips annually. The addition of these trips would necessarily result in higher farebox revenue, so that revenue increase is counted against the costs in Table 9.1. It is projected that, with the increased fare, farebox revenue would increase by \$43,382 per year. Related calculations can be found in Appendix C.
- Other options in Alternative B should be close to cost neutral.

The total operations and administrations cost of this alternative, minus projected additional farebox revenue from the fare increase option, is presented in Table 9.1, and comes to \$248,964.

Alternative C

As was discussed in Chapter 3, Alternatives B and C have many of the same improvement options but differ in their approach to service provision. Alternative C would serve the far-flung parts of the County with fixed routes as opposed to demand responsive zones. This difference, however, would have significant cost implications. Options warranting financial consideration include:

- Increasing the number of BC Country demand response vehicles in service will involve considerable extra expense. Assuming that two additional peak vehicles will operate 12 hours per weekday results in an annual estimate of \$188,879.
- Implementing fixed-route rural service will require that three vehicles be used from BCDOPT's fleet. Based on the incremental costs of BCDOPT's fixed route service and its 4 or 5 trips per day provided by each vehicle, an annual cost of \$220,110 was estimated.
- Starting service on all existing vehicles at 6 am would also add revenue service hours. If one calculates hours per day based on existing vehicle start times, it comes to 7 hours. Applying unit costs and annualizing the result yields an estimate of \$30,958.
- Full utilization of existing BC Country vehicles during the midday could result in an average of two extra hours per vehicle, per day. Based on this estimate and BC Country's incremental cost per hour, calculating the extra cost is a straightforward exercise. It results in an estimated annual operating cost increase of \$44,226.
- A greater involvement of BCDOPT and BC Country in the County's Medicaid transportation would have differing financial implications, depending upon the form that the involvement takes. If BCDOPT becomes the Medicaid transportation broker, and is able to reduce costs of that transportation by shifting

people from taxis and medivans to transit, the result could be additional revenues to support BC Country and its other transit programs. The consultant was unable to obtain data from DSS necessary to calculate an estimate of costs savings, despite requesting that data. At this time, no estimate is offered but it is recommended that BMTS follow up and coordinate with DSS to obtain the necessary data.

- It is possible that existing staff will fill the new paratransit manager position and obviating the need for an additional hire. Nevertheless, it will entail an elevation in position. If we assume that the current senior dispatcher moves up to this position, then the extra costs involved will consist of the difference between the two salaries plus fringe. For the purposes of this estimation, we can use the difference of the senior dispatcher's current salary plus fringe and that of the Public Transportation Analyst, who would be at the same level as a Paratransit Manager, which equals \$18,466. Other organizational/management recommended options, such as greater marketing and outreach, will be handled by existing staff and therefore not require additional expenditures.
- The organizational/management recommended options in this alternative would require that an additional scheduler/dispatcher be hired. Based on a reasonable salary for a dispatcher and an estimate of 22% for fringe, an additional annual cost of \$30,500 can be expected.
- Establishing an improved revenue collection arrangement with ARC would in theory be a revenue neutral proposition, but it is likely that there are presently instances of non-payment among ARC users. Replacing fares with a contracted system would ensure full payment and increase actual revenues to some extent. There is no accurate way of measuring the current level of non-payment; therefore it is not possible to estimate the exact amount of revenue that would be recovered if this arrangement were implemented.
- Increasing BC Country fares will have a positive impact on revenue. A preliminary fare analysis (see Appendix C) provides an estimate of a 63.5% revenue increase, which would yield approximately \$20,684. This can serve as a counterbalance to increased expenses. The discounted pricing for rural-to-rural trips was accounted for in these calculations. Using the results of the passenger survey presented in Chapter 4, rural-to-rural trips were estimated to represent 13% of total trips currently provided by BC Country. There is no reliable means of determining whether the percentage of rural-to-rural trips would increase in an environment of across-the-board service increases, so a conservative estimate based on current ridership trends is justified.
- The above improvement options lead to a projected increase in ridership of 58,063 trips annually. The addition of these trips would necessarily result in

higher farebox revenue, so that revenue increase is counted against the costs in Table 9.1. It is projected that, with the increased fare, farebox revenue would increase by \$103,981 per year. Related calculations can be found in Appendix C.

- Other options in Alternative C should be close to cost neutral.

The total operations and administrations cost of this alternative, minus projected additional farebox revenue from the fare increase option, is presented in Table 9.1, and comes to \$405,474.

9.3 Capital Costs

Significant capital costs are mainly relevant to Alternatives B and C, which involve the addition of demand response vehicles. BC Country will be able to access federal (FTA) and state (NYSDOT) funds for capital expenses, subject to the availability of those funds. The funding breakdown is 80% FTA, 10% NYSDOT, and 10% Broome County. All capital costs for the three alternative packages are shown in Table 4.2 and discussed below. Chapter 10 contains a capital plan, which discusses the impact of capital costs in greater depth.

**Table 9.2
Capital Costs**

Alternative & Options	Capital Cost
Alternative A	
Telephone Monitoring System	\$1,000
Total	\$1,000
Alternative B	
Telephone Monitoring System	\$1,000
2 Demand Response Vehicles	\$90,000
Total	\$91,000
Alternative C (BCDOPT operation)	
Telephone Monitoring System	\$1,000
2 Demand Response Vehicles	\$90,000
3 28-passenger transit buses (low floor)	\$750,000
Total	\$841,000
Alternative C (Contracted Operation)	
Telephone Monitoring System	\$1,000
2 Demand Response Vehicles	\$90,000
Total	\$91,000

Alternative A

The only option included in Alternative A that may have an impact on cost is the installation of a telephone monitoring system. It can be estimated to cost \$1,000.

Alternative B

In addition to the cost of a telephone monitoring system, capital costs for two demand response vehicles must be considered as well. Although BC Country has eight vehicles available, it would be advisable to obtain two additional vehicles in order to maintain a good active to spare vehicle ratio. Given an estimate of \$45,000 for a 12-passenger cutaway van, based on BC Country's most recent vehicle purchases, an overall capital investment of \$91,000 would be required for Alternative B.

Alternative C

Express fixed-route service in Alternative C could be implemented in two different ways, either by utilizing BCDOPT vehicles or by contracting the service to a private operator. In-house operation of this service would require a capital investment of approximately \$750,000 for three 28-passenger, low-floor buses, in addition to the capital costs of Alternative B, totaling \$841,000. This capital expense could be reduced by utilizing existing BC Transit buses. Since contracted operation of fixed-route service would not require BCDOPT to invest in additional vehicles, the capital costs would total \$91,000 under this scenario.

9.4 Ridership

Many of the operational alternatives discussed in this report aim to address currently unmet needs and therefore will result in increased rural transit ridership. This section attempts to quantify ridership of the relevant alternatives. Ridership is projected by applying a productivity rate of 2 passengers per hour to the additional service hours resulting from improvement options. This is roughly the productivity that was calculated for FY 2000. Although ridership levels have increased since that time, and a number of the options are intended to improve productivity, 2 passengers per hour remains a conservative estimate for utilizing existing BC Country resources. For options that require additional demand response zones, a 50% increase in productivity to 3 passengers per hour is assumed, due to greater efficiencies in service. Productivity levels for express fixed-route service are discussed below.

Table 9.1 shows projected ridership, expressed in one-way passenger trips.

Alternative A

Alternative A, which increases the revenue hours of existing BC Country vehicles in service but adds no new service vehicles, will result in the smallest amount of additional ridership. Specific options that impact ridership are shown in Table 9.1 and discussed below:

- Initiating service at 6 am on all existing vehicles can be expected to add about 3,500 trips to Broome Country.
- Greater use of vehicles during the midday is projected to result in about 5,000 annual passenger trips.
- A discounted taxi program would be too cost prohibitive to be used on a regular basis and can be expected to yield little increased ridership. Based on an assumption of a taxi providing 18 hours of service a rate of two rural-to-urban trips per hour, an estimate of 36 passenger trips per year is reasonable.
- Fare increases usually have the effect of increasing revenues but decreasing ridership. Based upon a preliminary fare analysis (see Appendix C), a ridership change of -11.4% was predicted. This translates to an annual ridership decrease of 3,167. This fare impact estimation, however, is based on a model of national trends which does not account for the local ridership patterns. The estimated decrease in ridership may well prove to be more minimal than the estimation shows, since much of BC Country's core ridership is largely comprised of individuals whose transportation alternatives are more limited than the model suggests.

Overall, Alternative A is projected to result in an increase in annual passenger trips by 5,437. This represents 4.5% of the 120,000 estimated unmet trips identified in the Needs Analysis. The estimated unmet need is based on the provision of service to a significant number of new passengers seeking a wide variety of trip types, in particular senior citizens traveling to nutrition facilities on a regular basis. As Alternative A does not propose major increases in service levels, this alternative is only able to accommodate a very small portion of this greater estimated need.

Alternative B

Alternative B, which introduces two new vehicles into service, will have a greater impact on ridership levels than Alternative B. Specific options that impact ridership are shown in Table 9.1 and discussed below:

- Adding two additional vehicles into service should have the greatest impact, yielding 18,144 new vehicle trips. This estimate was based on an assumed 50%

increase in operating productivity to 3 passengers per hour, generated by the efficiency of an expanded zone system.

- Initiating service at 6 am on all existing vehicles can be expected to add about 3,500 trips to Broome Country.
- Greater use of vehicles during the midday is projected to result in about 5,000 annual passenger trips.
- Fare increases usually have the effect of increasing revenues but decreasing ridership. Based upon a preliminary fare analysis, a ridership change of -11.4% was predicted. This translates to an annual ridership decrease of 3,167. This fare impact estimation, however, is based on a model of national trends which does not account for the local ridership patterns. The estimated decrease in ridership may well prove to be more minimal than the estimation shows, since much of BC Country's core ridership is largely comprised of individuals whose transportation alternatives are more limited than the model suggests.
- The increased service made available in this alternative will allow BC Country to accommodate additional passenger trips to rural senior centers for nutrition and other programs. Currently, BC Country provides subscription trips to the Senior Centers in Whitney Point and Harpursville, averaging 4 passengers for each, and no regular service to the Senior Center in Deposit. Serving all three centers on the days during which they are open and transporting 15% of the average number of participants in the congregate meal programs for each center is an achievable goal. That would mean bringing 6 seniors per day to Whitney Point 5 days per week, 10 seniors per day to Harpursville 3 days per week, and 7 seniors per day to Deposit 2 days per week. If this is accomplished, then it can be predicted that about 7,700 annual trips will be to these locations. Many of these trips will be attributable to the extra service offered under this alternative and are included above as part of the new ridership estimated for that service.

Overall, Alternative B is projected to result in an increase in annual passenger trips by 23,545, or 19.6% of estimated unmet need. This alternative addresses unmet need more extensively than Alternative A, which could be expected given the addition of new vehicles and the greater administrative capabilities of an increased staff. However, it is unable to meet a larger portion of demand due to the emphasis placed on senior nutrition trips as part of the unmet need calculation. It is reasonable to assume that many senior citizens counted as part of the estimated unmet demand have access to other means of transportation for senior center visits, on at least a semi-regular basis. Thus, if senior center trips are assumed to comprise a less sizable portion of unmet demand due to the other transportation options available to the senior population, other trip types are likely to be served in a greater percentage than the total suggests.

Alternative C

Alternative C, which introduces two new vehicles into service, will have a greater impact on ridership levels than Alternative B. Specific options that impact ridership are shown in Table 9.1 and discussed below:

- Adding two additional vehicles into service, which will enable the creation of feeder services, should have a significant impact, yielding 18,144 new vehicle trips. This estimate was based on an assumed 50% increase in operating productivity to 3 passengers per hour, generated by the efficiency of an expanded zone system.
- Fixed route service can be predicted to be more productive than demand response service, and therefore applying 2 passengers per hour to the hours of service provided would not be appropriate. TCRP Report #6 “Users Manual for Assessing Service-Delivery Systems for Rural Passenger Transportation” reports an average of 6 passengers per hour from a national sample of rural fixed route systems. However, it can be assumed that most if not all of the systems surveyed do not have feeder service supporting the fixed routes. Therefore, 6 passengers per hour is a useful estimate for passengers accessing the fixed routes at rural centers without using feeder buses to get there. It is not appropriate to consider passengers transferring from feeder buses in the ridership calculations for fixed routes, as they will have been accounted for in the calculations for additional demand response zones. Based on this methodology the ridership impact of rural fixed routes will be 34,518 one-way trips per year.
- Initiating service at 6 am on all existing vehicles can be expected to add about 3,500 trips to Broome Country.
- Greater use of vehicles during the midday is projected to result in about 5,000 annual passenger trips.
- Fare increases usually have the effect of increasing revenues but decreasing ridership. Based upon a preliminary fare analysis, a ridership change of -11.4% was predicted. This translates to an annual ridership decrease of 3,353. This fare impact estimation, however, is based on a model of national trends which does not account for the local ridership patterns. The estimated decrease in ridership may well prove to be more minimal than the estimation shows, since much of BC Country’s core ridership is largely comprised of individuals whose transportation alternatives are more limited than the model suggests.

- The increased service made available in this alternative will allow BC Country to accommodate additional passenger trips to rural senior centers for nutrition and other programs. Currently, BC Country provides subscription trips to the Senior Centers in Whitney Point and Harpursville, averaging 4 passengers for each, and no regular service to the Senior Center in Deposit. Serving all three centers on the days during which they are open and transporting 15% of the average number of participants in the congregate meal programs for each center is an achievable goal. That would mean bringing 6 seniors per day to Whitney Point 5 days per week, 10 seniors per day to Harpursville 3 days per week, and 7 seniors per day to Deposit 2 days per week. If this is accomplished, then it can be predicted that about 7,700 annual trips will be to these locations. Many of these trips will be attributable to the extra service offered under this alternative and are included above as part of the new ridership estimated for that service.

Overall, Alternative C is projected to result in an increase in annual passenger trips by 58,063, equal to 48.4% of the total unmet demand estimate. These additional trips are provided through several improvement options, most notably the feeder-fixed route scheme proposed in this alternative. Although it gets nearer to the unmet need threshold of 120,000 additional trips than the other alternatives, the projected additional trips are still less than half the total unmet need, due to the emphasis placed on senior nutrition trips as part of the unmet need calculation.

Table 9.3 provides a useful way of comparing the three alternatives on the basis of cost effectiveness by showing the added cost per additional trip provided under each scenario. It can be seen that while costs rise from Alternatives A to B to C, the cost per additional passenger trip for Alternative C is the lowest of the three alternatives, as ridership is projected to increase at a greater rate than expenses.

**Table 9.3
Operating Cost per Additional Passenger Trip**

Alternative	Projected Operating Cost	Projected Ridership	Added Cost per Additional Passenger Trip
A	\$45,383	5,437	\$8.35
B	\$248,964	23,545	\$10.57
C	\$405,474	58,063	\$6.98

9.5 Institutional and Political Issues

Institutional and political constraints may influence the final alternative package or packages that are selected for implementation. Significant issues exist in the case of each

of the three alternatives, although the nature of those concerns differs. These are listed and discussed in greater detail in this section.

Alternative A

Although Alternative A represents the least radical departure from BC Country's present configuration, it nonetheless goes well beyond the status quo and has a number of options that may present institutional issues.

- Service increases, even if they consist only of expanding hours of operation, cost money. This alternative entails more than \$100,000 in additional operating expenses. BC Country relies on the County general fund for a significant proportion of its operating funds and a smaller portion of its capital funding, as well as receiving federal and state monies. Obtaining these funds may present a challenge.
- Implementing a subsidized taxi program will require that BCDOPT locate a willing and capable taxi provider. There is also the issue of the longevity of that provider. The fact that any single taxi company can cease to operate at any time argues for having agreements with multiple companies.
- For obvious reasons, fare increases are not generally positively received by transit riders and agencies that serve them. A 100% fare hike is a dramatic one, and it is reasonable to expect that this will raise some concern. If the decision were made to implement it, a public hearing would be required. Opposition is likely to be voiced; the only question will be whether that opposition will be strong enough to influence any of the County government decision makers.
- ARC would be asked to enter into a new fare arrangement with Broome County. If ARC simply adds a transportation fee to the existing costs of their workshop programs, then it will still not be compelled to expend any money on transportation as an agency. There will, however, be the extra administrative task of reimbursing Broome County, which may or may not be greeted with reluctance.
- Scheduling and dispatching procedure changes, such as the implementation of real time scheduling, will require dispatching staff to modify their current practices and therefore hinges on the willing cooperation of BC Country Staff.

Alternative B

This alternative has most of the same institutional issues that apply to Alternative A, along with several additional ones. However, this alternative also includes an option that

involves considerable expense -- the addition of vehicles to allow for increased coverage of the County for five days per week. Options warranting consideration include:

- An increase in peak hour vehicles to create a seven-zone demand response system will require significant additional resources. However, gaining the necessary capital and operating funds will be a challenge. BC Country relies on the County general fund for a significant proportion of its operating funds and a smaller portion of its capital funding, as well as receiving federal and state monies. Receiving additional funding to support the new service will no doubt be a tough sell in an environment where rural transit does not receive unambiguous support. Other potential funding sources should be explored, including what BCDOPT will gain in terms of revenues by becoming the Medicaid broker for the County.
- For obvious reasons, fare increases are not generally positively received by transit riders and agencies that serve them. A 100% fare hike is a dramatic one, and it is reasonable to expect that this will raise some concern. If the decision were made to implement it, a public hearing would be required. Opposition is likely to be voiced; the only question will be whether that opposition will be strong enough to influence any of the County government decision makers.
- ARC would be asked to enter into a new fare arrangement with Broome County. If ARC simply adds a transportation fee to the existing costs of their workshop programs, then it will still not be compelled to expend any money on transportation as an agency. There will, however, be the extra administrative task of reimbursing Broome County, which may or may not be greeted with reluctance.
- Scheduling and dispatching procedure changes, such as the implementation of real time scheduling, will require dispatching staff to modify their current practices and therefore hinges on the willing cooperation of BC Country staff.
- Significantly changing how the County's Medicaid transportation is administered and operated will require that the County be convinced that it can save money by having DSS bid the service to a broker. DSS has managed non-emergency transportation for many years, and may express concern about this change. On the other hand, the agency may indeed welcome the change, as it will allow the agency to shed that administrative task. BCDOPT must also of course be interested in becoming the broker and taking on all the responsibilities that go along with that. That will only happen if it believes that it may represent a significant source of revenue.
- The creation of a new Paratransit Manager position will modify the existing organizational structure and add a manager level position. Such structural changes

always have the potential to cause friction among staff and may take some getting used to.

Alternative C

The main issue with Alternative C, as with Alternative B, is cost. It has even greater operating costs. Options warranting consideration include:

- Operating costs of over \$400,000 translate into a significant price tag for this option and mean that raising the necessary funds from County, State, and Federal sources will be even more challenging.
- For obvious reasons, fare increases are not generally positively received by transit riders and agencies that serve them. A 100% fare hike is a dramatic one, and it is reasonable to expect that this will raise some concern. If the decision were made to implement it, a public hearing would be required. Opposition is likely to be voiced; the only question will be whether that opposition will be strong enough to influence any of the County government decision makers.
- ARC would be asked to enter into a new fare arrangement with Broome County. If ARC simply adds a transportation fee to the existing costs of their workshop programs, then it will still not be compelled to expend any money on transportation as an agency. There will, however, be the extra administrative task of reimbursing Broome County, which may or may not be greeted with reluctance.
- Scheduling and dispatching procedure changes, such as the implementation of real time scheduling, will require dispatching staff to modify their current practices and therefore hinges on the cooperation of BC Country staff.
- Significantly changing how the County's Medicaid transportation is administered and operated will require that the County be convinced that it can save money by having DSS bid the service to a broker. DSS has managed non-emergency transportation for many years, and may express concern about this change. On the other hand, DSS may indeed welcome the change, as it will allow the agency to shed that administrative task. BCDOPT must also of course be interested in becoming the broker and taking on all the responsibilities that go along with that. That will only happen if it believes that it may represent a significant source of revenue.
- The creation of a new Paratransit Manager position will modify the existing organizational structure and add a management level position. Such structural

changes always have the potential to cause friction among staff and may require a period of adjustment.

- There is an issue of equity among Broome County municipalities that is relevant to this alternative. Under this option, rural residents who live closer to the Triple Cities will continue to receive demand response service, while residents living in communities further away will be compelled to transfer to a fixed route at a designated time. A system that requires transfers to a fixed route represents a less personalized service than curb-to-curb demand response service, and will be perceived as such by many current users. The fair share issue among municipalities is also likely to emerge, with those that receive fixed route service potentially bringing up equity concerns.

9.6 Comparison of Alternatives

In this section, the advantages and disadvantages of the three alternatives are discussed and the merits of each are compared, resulting in a recommendation from the consultant. It should, however, be emphasized that the ultimate decision on which alternative to pursue rests in the hands of the local stakeholders. Moreover, these alternatives should be viewed as flexible, and the individual options could be combined in ways not envisioned by the consultant, resulting in alternative packages that combine different aspects of the three presented here, or even add new recommendations.

All three alternatives have certain advantages and disadvantages. A key consideration should be the degree to which the alternatives address unmet needs. None of the alternatives completely satisfies potential demand, but it is important to realize that many of these needs are within the senior population, where many individuals remain able to drive themselves or get rides from family or friends. Alternatives B and C both increase the level of senior subscription trips and make strides in addressing the needs of other groups.

Alternative A

Alternative A has the advantage of being the least costly alternative, and thus is the one that is easiest to implement from a funding standpoint. Taken together, the measures that it includes, such as greater utilization of existing vehicles and improved dispatching practices, should help improve its productivity.

However, Alternative A also does the least to meet the needs of the various sectors of unmet demand in Broome County. In terms of cost effectiveness, Alternative A involves the investment of \$8.35 of operating funds for each additional passenger transported. This is the second highest of the three alternatives.

Alternative B

Alternative B addresses the major issues that have been identified for rural transit in Broome County. Prominent among these issues are the existence of unmet transit need, and the desire to increase the productivity of Broome County service. Introducing additional peak vehicles providing additional service will result in more need being met, more than four times as much as would be the case with Alternative A.

Dividing the County into demand response zones should allow BC Country to focus its service provision and increase productivity. Other smaller scale options common to all three alternatives should also help with productivity.

This alternative is significantly more expensive than Alternative A, and it is projected to cost \$10.57 per additional passenger trip provided, the highest of the three alternatives. The higher price tag would make this alternative more difficult to implement than Alternative A. Unless a non-traditional funding source, such as extra revenues from the DSS, can be identified, it will require a financial commitment from the County. It would take a concerted effort by BCDOPT and BMTS to advocate for this option by demonstrating the unmet need that has been identified in this study, and convincing legislators that the system will become more efficient as a result of the implementation of the chosen package of improvements.

Alternative C

Alternative C stands out as being the one goes the furthest in meeting unmet rural transportation demand and at the same time does so in the most cost effective manner. It was projected to meet almost 50% of the projected need, and since senior nutrition makes up over half of the estimated need, that percentage would be significantly higher for other trip types. The operating cost per additional passenger trip that was calculated for Alternative C is \$6.98, which is less than that of the other two alternatives. Productivity should improve as well with the use of fixed routes carrying higher loads for the longer trips.

Alternative C has the highest operating costs, and the challenges in this area that apply to Alternative B are even more significant with this alternative. There are a few additional shortcomings of Alternative C that need to be taken into consideration. First, the fixed-route/feeder model would require many BC Country riders to transfer. This is an inconvenience to some that may be outweighed by shorter overall trip times, but might be a real concern for developmentally disabled users of the system. Second, it needs to be acknowledged that this alternative uses additional vehicles to provide the same service coverage as Alternative B. In order to maintain the same level of productivity as Alternative B, it must attract significantly more riders. The assumption that was made in this for the purpose of ridership projections was that general public riders would board

the service at its stops in addition to those transferring to it from feeder services. The service needs to be well publicized for that to occur.

Consultant Recommendation

The analyses performed on all three alternatives point towards Alternative C as the one with the greatest potential to meet unmet needs of various groups in a cost effective and productive manner.

Chapter 10 Implementation Guidelines

This chapter presents conceptual guidelines for the implementation of the three alternatives evaluated above, including an operating plan, a capital program, an administrative/management plan, and a financial plan.

10.1 Introduction

The three alternatives packages were presented at a study advisory committee meeting on June 6, 2002. After these alternatives were introduced, members of the study advisory committee offered their comments and opinions. The meeting was adjourned with the intention of taking the alternatives under advisement. After a period of consideration, the client informed the consultant of its interest in conceptual plans for each of the three alternatives being included in the Final Report, in lieu of designating a single locally preferred alternative. It was felt that this would allow BMTS and BCDOPT to approach decision makers with several possible alternatives. As a result, no specific timeline for implementation of the alternatives packages is discussed in this report.

The decision to present conceptual plans for all three alternatives enables the client and other study advisory committee members to weigh the relative costs and benefits of the operations scenarios proposed in each alternative. This will also be facilitated by a public involvement process to take place after the completion of this study. Public involvement will be coordinated by the client.

This chapter also does not develop the option for BCDOPT to increase coordination with DSS on non-emergency Medicaid transportation. BMTS will be coordinating with DSS to assess the potential feasibility and character of that coordination subsequent to the completion of this study.

10.2 Operations Guidelines

This section provides a summary of the operations improvement options included in each alternative package and any issues that might arise with regard to their implementation.

Alternative A

Following a discussion of each option, a summary of the operational characteristics for components in this alternative is shown in Table 10.1.

- **Establish a discounted taxi program to serve trip requests that cannot be accommodated by BC Country vehicles** - A discounted taxi program would serve as a last-resort option to the small number of demand response riders denied transportation via BC Country. This program would provide taxi trips subsidized by 50%, only to those denied by BC Country and only during normal BC Country

operating hours. These trips would be arranged by BC Country dispatching staff, who would contact a pre-designated taxi company to schedule the trip.

In order to implement this option for the 2003 Fiscal Year, BC Country would need to secure additional funding to accommodate the projected number of recipients of discounted trips, as calculated in Chapter 9. The high per-trip cost of this option would act primarily as a motivator for BC Country to minimize the number of trip denials it issues, since this option does not address the scale of unmet need identified in Chapter 5. Additionally, one or more local taxi companies would need to be selected, in accordance with the competitive bidding regulations of the County.

- **Schedule trips and utilize vehicles during the midday to a greater extent** - The middle of the day is the one block of time in the current BC Country service pattern during which service could be more intensively provided. Thus, greater midday vehicle utilization could be implemented without radical changes to the service pattern. Due to the constraints of morning and afternoon peak period service, more intensive vehicle utilization would have to be mostly limited to rural-to-rural trips from around 10:00 am to around 1:00 pm. In conjunction with the discounted rates for rural-to-rural fares, the regular fare for these trips would be \$2 and the senior/disabled fare would be \$1.

One obstacle to the implementation of this option is the current practice of drivers taking lunch breaks during the midday lull in service. If midday vehicle utilization were to be pursued for FY 2003, accommodations would have to be made for driver breaks through other means, most likely through the creation of two shifts per day, discussed as a separate option below. Midday vehicle utilization would necessitate a marked increase in paid driver hours, leading to higher overall operating costs.

- **Begin all BC Country service at 6 am** - The most straightforward method of addressing high demand during the busy morning peak period would be to begin the peak period earlier, specifically by having vehicles depart starting at 6:00 am. This change would require three of the five current runs move their depot departure from 8:00 am to 6:00 am. By beginning BC Country service earlier in the morning, it would be possible to provide current subscription trips and new work trips into the urban area at earlier times, as well as offer more trips to demand response riders during the peak period. As there are no additional capital requirements related to this option, and the additional operating hours involved are not excessive, it could be implemented within a relatively short time frame. This option, however, would necessitate the implementation of two driver shifts per vehicle per day, as is discussed below.
- **Raise base fare to \$4.00 and elderly/disabled fare to \$2.00** - Broome County officials have discussed raising BC Country fares to \$4.00 for regular riders and \$2.00 for elderly and disabled riders. This fare increase would help to fund proposed

service improvements. It would ultimately require approval from the County legislature, which is likely to occur in the months following the completion of this report. BCDOPT may be required to hold a public hearing prior to raising fares.

- **Institute discounted pricing for rural-to-rural trips** - It is reasonable to discount fares for rural-to-rural trips to \$2.00 for the general public and \$1.00 for elderly and disabled riders, because these trips require less resources than long trips into or out of the Triple Cities area. Additionally, the lower fare for rural-to-rural trips, the majority of which would be scheduled during the midday period, would provide an incentive for demand response riders to schedule more trips for that time. Since these are the current fares (before the rate increase proposed above), no significant adverse impacts are seen in this option's implementation.
- **Create two driver shifts per day for each vehicle** - In conjunction with the effort to increase trips served during the midday, drivers would need to be available during the midday, instead of taking lunch breaks. This would be most easily achieved by establishing two driver shifts for each vehicle, so that drivers could work one continuous shift in the morning or afternoon, with provisions for a driver relief at a logical gap in service. Since current drivers typically work long shifts on a single vehicle, additional drivers would need to be hired to handle the increased number of shifts. Many current drivers like working the long hours of the present arrangement, and thus management could encounter opposition to shortening average driver hours. However, the fact that these drivers are classified as part-time employees should allow management to alter the present arrangement.
- **Establish an institutional fare arrangement between BC Country and ARC, as well as any other program providers that utilize BC Country for regularly scheduled subscription trips** - In order to insure a more stable revenue stream from its largest subscription population, BC Country should negotiate an institutional fare arrangement with ARC. This would most easily be accomplished by adding a transportation fee to the fees that ARC clients currently pay to the agency. This initiative would have the added benefit of simplifying travel for ARC passengers, as they would no longer need to think about having cash on hand for the farebox. Similar arrangements should be established with other agencies which have substantial subscription populations riding BC Country.

The role of BC Country staff in this option would be to persuade ARC management of the benefits of this arrangement. The bulk of the effort required to actually implement this option would be on the part of ARC management, since they would be charged with implementing a transportation fee within their organization. Assuming that the specifics of the fare arrangement are not considered to be unfair by ARC parents and guardians, ARC management is not likely to run into significant difficulties. That said, it is not unreasonable to suggest that this new fare arrangement could be initiated during the latter part of the 2003 fiscal year.

- **Coordinate with Deposit Foundation in service provision between the Triple Cities and the far eastern part of the County** - Any effort to increase coordination between the Deposit Foundation and BC Country rests on the Foundation's willingness and ability to receive trip referrals from BC Country. A more integrated relationship between the two services would surely increase the availability of transportation in the eastern part of the County, but the Foundation may have the impression that coordination with BC Country would lead to a flood of referrals which the small service could not accommodate. It will be incumbent upon BC Country staff to explain that current BC Country service in eastern Broome is relatively limited, and thus coordination would be unlikely to yield an unmanageable increase in Foundation trip requests.

Table 10.1
Alternative A Options Characteristics

Service Type	Proposed Implementation Year	Hours of Operation	Service Area	Fare Policy	Restrictions/ Exceptions	Scheduling/ Dispatching Policy
Discounted Taxi Program	FY 2003	Only available during times when BC Country is in service (6:00 am - 6:00 pm)	Rural Broome County	50% of market taxi rate	Only available to individuals that BC Country is unable to serve	BC Country dispatcher to call and arrange for pick-up with pre-designated taxi company
Midday Vehicle Utilization	FY 2003	Approximately 10:00 am – 1:00 pm	Rural Broome County	\$2.00/ \$1.00	Rural to rural trips only	Standard BC Country policy
Begin Service at 6:00 am	FY 2003	Approximately 6:00 am - 8:00 am	Rural Broome County	\$4.00/ \$2.00	None	Standard BC Country policy
Increase Fare to \$4/\$2	FY 2003	NA	Rural Broome County	\$4.00/ \$2.00	Rural to rural trips maintained at \$2.00/\$1.00	NA
Discounted pricing for rural-to-rural trips	FY 2003	Primarily 10:00 am - 1:00 pm	Rural Broome County	\$2.00/ \$1.00	During midday hours only	NA
Two driver shifts per vehicle	FY 2003	NA	Rural Broome County	\$4.00/ \$2.00	None	NA
Institutional Fare Arrangement b/w ARC & BC Country	FY 2003	NA	Rural Broome County	\$2.00	None	NA
Coordinate with Deposit Foundation in eastern Broome	FY 2003	NA	Eastern Broome County	\$4.00/ \$2.00	Only in Deposit Foundation service area	Trip referrals to and from Deposit Foundation

Alternative B

This alternative includes all the options presented in Alternative A, with the exception of the discounted taxi program. Only the options that have not been discussed in conjunction with Alternative A are described below. All operations options in Alternative B are summarized in Table 10.2.

- **Establish demand response zones throughout the County** - BC Country already has five demand response zones in its present service pattern. This option would expand the number of zones to seven, each with one vehicle dedicated to it. It would also eliminate all geographical gaps in service between BC Country and BC Lift/OFA service. The demand response zone scheme is described in detail in Chapter 7.

A number of factors must be in place before this option could be implemented. Most importantly, additional operating funds would be needed to support the extra service. BCDOPT would also need to hire additional drivers to serve the expanded zone system. Two additional peak vehicles would also be needed to handle service in all seven zones, which may involve additional purchases in order to maintain a reasonable active to spare vehicle ratio. One way of postponing the capital expense of additional vehicles may be to keep some vehicles in service for an extra year or two even after their replacements arrive. Due to the significant costs involved in this option, it is estimated that it would not be implemented until the 2004 fiscal year.

- **Increase number of peak demand response vehicles operating in BC Country service** - The two operations schemes proposed in Alternatives B and C both rely on the implementation of this option, since they require the operation of additional vehicles in regular BC Country service. The purchase of new vehicles would vary depending upon a number of factors, including the locally preferred operations scheme, the amount of funding allocated, and the schedule for replacement of existing BC Country vehicles. If BC Country staff choose to employ a network of demand response zones as described in the previous option, then two additional 14-passenger vans of the type currently used by BC Country would need to be acquired. Since this a capital expenditure that would represent a significant percentage of BC Country's current budget, funding for both vehicles is not likely to be available until fiscal year 2004. To minimize capital costs in any one year, acquisition of new vehicles would take into consideration the replacement schedule for existing BC Country vehicles. However, it may make sense to keep two existing 1998 vehicles in service for an extra year or two so that expanded service options can be introduced immediately, while still allocating funding for expansion vehicles in fiscal year 2004. The replacement costs for existing BC Country vehicles may also constrain efforts to purchase additional vehicles, so this factor shall be more thoroughly examined in Section 10.4.

- **Increase the number of rural-to-rural trips provided to Senior Community Centers** - This option directly addresses the unmet need for senior center trips identified in Chapter 5. BC Country would provide more regular service to the Harpursville, Whitney Point and Deposit senior centers on every day that they are open. The specifics of this option are outlined fully in Chapter 7.

Since this option would require resources greater than those currently available to BC Country, it could only be implemented once one of the expanded operations schemes is in place. These schemes, in turn, rely on the funding outlay for additional vehicles. Due to these constraints, this option would only be ready to implement in fiscal year 2004 or later.

Table 10.2
Alternative B Options Characteristics

Service Type	Proposed Implementation Year	Hours of Operation	Service Area	Fare Policy	Restrictions/ Exceptions	Scheduling/ Dispatching Policy
Midday Vehicle Utilization	FY 2003	Approximately 10:00 am – 1:00 pm	Rural Broome County	\$2.00/ \$1.00	Rural to rural trips only	Standard BC Country policy
Begin Service at 6:00 am	FY 2003	Approximately 6:00 am - 8:00 am	Rural Broome County	\$4.00/ \$2.00	None	Standard BC Country policy
Increase Fare to \$4/\$2	FY 2003	NA	Rural Broome County	\$4.00/ \$2.00	Rural to rural trips maintained at \$2.00/\$1.00	NA
Discounted pricing for rural-to-rural trips	FY 2003	Primarily 10:00 am - 1:00 pm	Rural Broome County	\$2.00/ \$1.00	During midday hours only	NA
Two driver shifts per vehicle	FY 2003	NA	Rural Broome County	\$4.00/ \$2.00	None	NA
Institutional Fare Arrangement b/w ARC & BC Country	FY 2003	NA	Rural Broome County	\$2.00	None	NA
Coordinate with Deposit Foundation in eastern Broome	FY 2003	NA	Eastern Broome County	\$4.00/ \$2.00	Only in Deposit Foundation service area	Trip referrals to and from Deposit Foundation
Increase demand response vehicles	FY 2004	NA	Rural Broome County	\$4.00/ \$2.00	None	NA
Establish demand response zones	FY 2004	NA	Rural Broome County	\$4.00/ \$2.00	None	Standard BC Country policy
Increase rural-to-rural trips to Senior Centers	FY 2004	Primarily 10:00 am - 1:00 pm	Rural Broome County	\$2.00/ \$1.00	None	Standard BC Country policy

Alternative C

The operations options for Alternative C vary from Alternative B only in that the demand response zones option is replaced by a different operations scheme, which is discussed below. A summary of the key characteristics of all the operations options in Alternative C is found in Table 10.3.

- **Create rural fixed routes during times of peak demand, with feeder service to those routes provided by demand response zones** - This option would increase the present capacity of BC Country by providing service on larger “express” vehicles into the Triple Cities area. These vehicles would meet smaller rural feeder vehicles in central rural locations (such as Senior Community Centers) to connect at scheduled times for direct service to the ARC facilities and BC Junction in Downtown Binghamton. Seven demand response zones would be implemented to provide feeder service to the rural centers, so the purchase of two 14-passenger vans would also apply in this scenario. Zones located farther from the urban area would primarily be served by the fixed route service during peak hours, while zones nearer to the Triple Cities area would be served only by rural-to-urban demand response service. The schedule presented in Chapter 7 proposes morning and afternoon trips. Although rural users should be encouraged to use fixed routes, there will be situations where individuals, particularly those with medical appointments, will need a demand response vehicle to get to or from the Triple Cities at times when fixed rural routes are not scheduled. BC Country should maintain the flexibility to serve these needs,

BC Country staff should consider the possibility of contracting out this fixed route service. There are a number of benefits to this approach. First, contracting out the service minimizes the risk that BCDOPT would take by implementing an unconventional type of rural service. Second, it eliminates the high capital cost necessary to acquire larger vehicles for the service. This operations scheme could also be ready to implement much sooner if contracted to a private operator. Should BCDOPT decide to pursue this, a formal request for proposals to operate the service would need to be issued, with the expectation that a number of local and/or national operators would bid on the service.

This option may encounter opposition from representatives of agencies for the elderly and disabled, particularly ARC, because it requires a transfer between vehicles, which some riders may have difficulty making. If this option is pursued, BCDOPT will need to work with these agencies to ensure that their clients are educated on how to use the new transportation system.

Table 10.3
Alternative C Options Characteristics

Service Type	Proposed Implementation Year	Hours of Operation	Service Area	Fare Policy	Restrictions/ Exceptions	Scheduling/ Dispatching Policy
Midday Vehicle Utilization	FY 2003	Approximately 10:00 am – 1:00 pm	Rural Broome County	\$2.00/ \$1.00	Rural to rural trips only	Standard BC Country policy
Begin Service at 6:00 am	FY 2003	Approximately 6:00 am - 8:00 am	Rural Broome County	\$4.00/ \$2.00	None	Standard BC Country policy
Increase Fare to \$4/\$2	FY 2003	NA	Rural Broome County	\$4.00/ \$2.00	Rural to rural trips maintained at \$2.00/\$1.00	NA
Discounted pricing for rural-to-rural trips	FY 2003	Primarily 10:00 am - 1:00 pm	Rural Broome County	\$2.00/ \$1.00	During midday hours only	NA
Two driver shifts per vehicle	FY 2003	NA	Rural Broome County	\$4.00/ \$2.00	None	NA
Institutional Fare Arrangement b/w ARC & BC Country	FY 2003	NA	Rural Broome County	\$2.00	None	NA
Coordinate with Deposit Foundation in eastern Broome	FY 2003	NA	Eastern Broome County	\$4.00/ \$2.00	Only in Deposit Foundation service area	Trip referrals to and from Deposit Foundation
Increase demand response vehicles	FY 2004	NA	Rural Broome County	\$4.00/ \$2.00	None	NA
Create rural feeder route and express system	FY 2004	NA	Rural Broome County	\$4.00/ \$2.00	None	Standard BC Country policy
Increase rural-to-rural trips to Senior Centers	FY 2004	Primarily 10:00 am - 1:00 pm	Rural Broome County	\$2.00/ \$1.00	None	Standard BC Country policy

10.3 Organizational/Management Guidelines

This section provides a summary of the organizational and management improvement options included in the alternative packages and any issues that might arise with regard to their implementation. The organizational and management options in Alternatives B and C are identical, so they are presented together below.

Alternative A

- **Institute a real-time scheduling system** – The Trapeze software that is used for BC Country trip scheduling provides the capability for making reservations while the customer is on the telephone. As this study has progressed, BC Country dispatching staff has made inroads towards adapting their reservation process to allow for real-time service. Proper training of scheduling and dispatching staff in the workings of the software is a primary component in implementing this option. Likewise, hiring an additional reservation staff member, which BCDOPT has already done, has helped to ease the burden that each reservationist has of entering reservations into the system. Thus, an extra staff member, by giving other reservationists time to become familiar with the software, should allow for a smoother transition into a real-time scheduling
- **Establish clear guidelines and assumptions for calculating BC Country expenses** - Calculating expenses attributable to BC Country is difficult because while some BCDOPT expenses, such as driver's salaries and vehicle related costs, are distinct for each of its services, others, such as administrative and dispatching costs, are distributed over BC Transit, BC Lift, and BC Country. In the latter case, reasonable assumptions need to be made about the percentage of each expense type can be attributed to BC Country. During the course of this study, an attempt was made to clarify and justify assumptions used by BCDOPT in determining BC Country costs through discussions with BCDOPT staff. As a result, some changes were made to how these costs are represented.

In order to confirm that the assumptions used were optimal, the BCDOPT Director of Administration should be responsible for establishing a consistent methodology. To accomplish this, he should meet with administrative and dispatching staff and together determine the actual percentage of their time that they devote to BC Country. For non-staff expenses that also need to be allocated, such as utilities and insurance, the allocation should be determined on a meaningful and consistent basis, such as the relative amount of service hours provided by each division. Once a methodology is established, it should be documented on paper and made available to anyone who may request it. The methodology should be re-examined periodically to ensure that it is remains relevant.

- **Install a telephone registering system to determine telecommunications infrastructure needs** - A telephone registering system would allow staff to monitor the number and length of reservation calls, and the length of time customers are placed on hold. This would assist management in making decisions with regard to the telecommunications system. The implementation of such a system would be easily arranged through the local telephone company, and at a minimal cost.

- **Create a policies and procedures manual for intake, scheduling and dispatching**
- The staff person hired as the Paratransit Service Manager would be in charge of preparing a policies and procedures manual for the reservation process. The Paratransit Service Manager should approach this task by meeting with reservation staff to discuss their practices, and any improvements they might have for the long term. This meeting would provide the foundation for a policies and procedures manual, which would incorporate all implemented improvement options from this study.
- **Designate one full-time position for the task of dispatching drivers and call intake assistance, as needed** - With the recent hiring of a third reservation staff member, constraints on the reservation system have been eased a great deal. As a result, the reservation staff is able to handle driver dispatching and call intake more efficiently than it did in the past.

Alternatives B and C

Alternatives B and C include all options presented as part of Alternative A, as well as the following options.

- **Hire additional dispatching/reservation staff and add a pre-recorded BC Country Information Line in order to decrease response time for all reservations**
- The reservation staff portion of this option was implemented during the course of this study. By helping to handle the workload of the two existing reservationists, a third staff member handles communications with drivers and the preparation of driver manifests. There is an overall consensus among BC Country staff that the new staff member has been very helpful in the speeding of the reservation process.

A BC Country Information Line would further expedite the reservation process, in that it would provide answers to commonly asked questions about BC Country, so reservationists would not have to repeat the same answers to numerous callers. An information line would be easily established after making the necessary arrangements with the local telephone company.

- **Increase marketing and outreach to selected human service agencies and major employers** - The proposed service increases described in the options above would make capacity available for significant subscription arrangements with agencies other than ARC. The Department of Social Services represents a promising source of new trips for BC Country, as DSS officials have expressed an interest in utilizing more cost-effective transportation methods for their clients. Work trips for new hires on BC Country could also be coordinated through DSS. Outreach to the Office for Aging would be particularly important if BCDOPT desires to increase mid-day trips to rural senior centers. After assuring that service increases ensure that BC Country has the capacity and flexibility required to take on new subscription trips, the Paratransit Service Manager would be responsible for establishing relationships with representatives of human service agencies and major employers. It would be important in this outreach effort to emphasize the cost savings of utilizing BC Country, as a counterweight to the limitations of the service.

- **Create a Paratransit Service Manager position to manage all BCDOPT paratransit services** - The Paratransit Service Manager would likely be an existing staff member with a strong familiarity with BC Country. Thus, creating this position would only cost the difference between that individual's current and post-promotion salary. He or she would work to enhance coordination efforts with local human service agencies and employers to bring the benefits of rural paratransit to a wider population. This staff member would also spearhead efforts to simplify the reservation process and make it more efficient.
- **Charge Public Transportation Analyst with providing planning assistance to Paratransit Service Manager and managing computer and information systems** - The Public Transportation Analyst would have the key role in implementing the improvement options chosen from this study. This individual would work to secure necessary upgrades to the software and telecommunications infrastructure of BC Country, as recommended in the above options. He or she would also coordinate training activities on the technologies put in place for the reservation system, and monitor their ongoing functioning.

10.4 Capital Acquisition Guidelines

Capital needs for BC Country would consist mainly of vehicle acquisitions. Two kinds of vehicle acquisitions are pertinent to the capital needs of BC Country in the near future. First, there is a need to maintain the replacement schedule of existing vehicles as those vehicles reach the end of their useful life. Second, some of the alternative packages call for the acquisition of additional vehicles, in order to implement enhanced service.

The four, standard 14-passenger vans BCDOPT purchased as part of their vehicle replacement program in 2000 cost roughly \$45,000 each. According to the *Broome County Adopted Capital Improvement Program, 2002-2007*, these same vehicles are estimated to cost \$50,000 apiece in future vehicle replacement initiatives. The capital timelines below reflect this change in costs.

The funding arrangement utilized in recent capital improvements has consisted of an 80% Federal Transit Administration contribution, a 10% New York State Department of Transportation contribution and a 10% Broome County contribution. This formula would remain unchanged for the acquisition of replacement vehicles. For the purposes of this study, the funding of expansion vehicle purchases has been assumed to follow this formula as well, but the ultimate decision rests with the County Legislature and their chosen alternative.

Alternative A

A four-year capital cost timeline for Alternative A is found in Table 10.4. The only new capital acquisition proposed as part of Alternative A is the implementation of a telephone monitoring system. In Chapter 9, such a system is estimated to cost \$1,000, a sum which could likely be allocated in fiscal year 2003. This capital expenditure is common to all three alternatives. No new vehicle acquisitions are included as part of this alternative, so the only other capital costs are the replacement of existing vehicles, as dictated by the

Capital Improvement Program. BCDOPT intends to purchase four replacement vehicles in 2003 and 2005.

Table 10.4
Four-year Capital Cost Projections and Funding Sources for Alternative A

Category	FY 2000 (Base Year)	FY 2003	FY 2004	FY 2005	FY 2006
Capital Costs					
Replacement Vehicles	4 x \$45,000	4 x \$50,000	NA	4 x \$50,000	NA
Expansion Vehicles	NA	NA	NA	NA	NA
Other	NA	\$1,000	NA	NA	NA
Total	\$180,000	\$201,000	NA	\$200,000	NA
Revenues					
Federal	\$144,000	\$160,000	NA	\$160,000	NA
State	\$18,000	\$20,000	NA	\$20,000	NA
County	\$18,000	\$20,000	NA	\$20,000	NA
Total	\$180,000	\$201,000	NA	\$200,000	NA

Alternative B

Table 10.5 shows a four-year capital cost timeline for Alternative B. Alternative B calls for a telephone monitoring system and expanded demand response service in rural Broome County, which would require the addition of two vehicles to the BC Country fleet. Like in the capital timeline for Alternative A, it is expected that the telephone monitoring system could be appended to the FY 2003 capital budget, funded by Broome County revenue sources. Since no other capital expenditures are planned for fiscal year 2004, the acquisition of these vehicles is scheduled for that year in Table 10.5. As mentioned in Section 10.2, BCDOPT officials could choose to keep two existing 1998 vehicles for an extra year to implement expanded service sooner than 2004. The vehicle replacement schedule for this alternative remains unchanged from Alternative A, with new vehicles scheduled for purchase in 2003 and 2005.

**Table 10.5
Four-year Capital Cost Projections and Funding Sources for Alternative B**

Category	FY 2000 (Base Year)	FY 2003	FY 2004	FY 2005	FY 2006
Capital Costs					
Replacement Vehicles	4 x \$45,000	4 x \$50,000	NA	4 x \$50,000	NA
Expansion Vehicles	NA	NA	2 x \$50,000	NA	NA
Other	NA	\$1,000	NA	NA	NA
Total	\$180,000	\$201,000	\$100,000	\$200,000	NA
Revenues					
Federal	\$144,000	\$160,000	\$80,000	\$160,000	NA
State	\$18,000	\$20,000	\$10,000	\$20,000	NA
County	\$18,000	\$21,000	\$10,000	\$20,000	NA
Total	\$180,000	\$201,000	\$100,000	\$200,000	NA

Alternative C

A four-year capital cost timeline is found in Table 10.6 for Alternative C. Along with the telephone monitoring system, this alternative recommends a rural fixed-route and feeder service model, which would require two additional paratransit vans and three larger transit vehicles for the fixed-route service. In Chapter 9, the cost of three 28-passenger buses is estimated to be \$750,000, which is considerably greater than the typical annual operating budget of BC Country. Since this capital expenditure would likely be beyond BC Country’s fiscal means, the capital cost timeline in Table 10.6 is predicated upon the assumption that BC Country would contract the rural fixed-route service out to a private operator, for at least an initial trial period. Thus, the only capital expenditures envisioned beyond planned vehicle replacements are the telephone monitoring system and two 14-passenger vans, slated for acquisition in the 2004 fiscal year.

If the rural fixed-route service turns out to be successful and BC Country elects to begin operating the service in-house, BC Transit fixed-route buses could be made available for temporary use until the funds are secured to invest in dedicated vehicles. Such a purchase, however, is not expected to occur within the four-year timeframe of these capital guidelines, due to its significant expense.

Table 10.6
Four-year Capital Cost Projections and Funding Sources for Alternative C*

Category	FY 2000 (Base Year)	FY 2003	FY 2004	FY 2005	FY 2006
Capital Costs					
Replacement Vehicles	4 x \$45,000	4 x \$50,000	NA	4 x \$50,000	NA
Expansion Vehicles	NA	NA	2 x \$50,000	NA	NA
Other	NA	\$1,000	NA	NA	NA
Total	\$180,000	\$201,000	\$100,000	\$200,000	NA
Revenues					
Federal	\$144,000	\$160,000	\$80,000	\$160,000	NA
State	\$18,000	\$20,000	\$10,000	\$20,000	NA
County	\$18,000	\$20,000	\$10,000	\$20,000	NA
Total	\$180,000	\$201,000	\$100,000	\$200,000	NA

*Assumes rural fixed-route service is contracted to a private operator.

10.5 Financial Plan

This section presents projected operating budgets and funding sources for BC Country, within the implementation timeframe of the three alternatives. Unlike the costs analysis in Section 9.2, this financial plan considers the costs and funding sources of the improvement options as additions to the BC Country budget in the years that they are implemented. The projections in the financial plan are based upon financial data for fiscal year 2000, provided by BCDOPT at the outset of this study. A yearly inflation rate of 3% has been applied to expenses over the time period of the projections.

Each yearly projected budget is predicated on the assumption that Federal Transit Administration (FTA) and New York State Department of Transportation (NYSDOT) funding would continue to be disbursed following those agencies' respective funding formulas, adjusted annually for inflation. Thus, it is assumed here that the remainder of expenses would have to be covered by a combination of anticipated farebox revenue and County transportation funds. As the expenses for greatly expanded services far exceed the current operating budget of BC Country, a significant increase in County contributions to operating expenses is needed, or new funding sources may need to be investigated before some options are implemented.

Alternative A

The budgetary and funding source projections for Alternative A are found in Table 10.7. No additional administrative expenses are called for in this alternative, so these costs simply increase with inflation. It is anticipated that operating costs would increase in the first year of implementation for this alternative by \$45,383, before inflation. Operating costs are projected to increase at an average rate of inflation through 2006. In total, expenses under Alternative A would increase from \$481,737 in 2003 to \$526,406 in 2006.

BCDOPT plans to receive \$55,000 in FTA funding annually for the foreseeable future. NYSDOT funding is calculated by a formula which allocates 40.5 cents per passenger trip and 69 cents per revenue mile. For the purposes of this formula, 34,901 trips and 231,496 revenue miles on BC Country were projected for 2003. Although exact federal and state funding levels cannot be precisely determined beyond 2003, these funding sources have been indexed to increase at an average rate of inflation of 3% to account for future increases.

Farebox revenues would be impacted both by the proposed fare increase and the added ridership that enhanced service is likely to attract. Thus, an increase to \$57,740 is projected for farebox revenues. As mentioned before, it is assumed for the purposes of this study that Broome County would make up the difference between the total operating budget and federal/state funding sources.

**Table 10.7
Four-year Operating Budget Projections and Funding Sources for Alternative A**

Category	Existing (2000)	2003	2004	2005	2006
Expenses					
Administrative	\$23,293	\$25,453	\$26,216	\$27,002	\$27,812
Operating	\$374,788	\$456,284	\$469,973	\$484,072	\$498,594
Total	\$398,081	\$481,737	\$496,189	\$511,074	\$526,406
Revenues					
Federal	\$52,200	\$55,000	\$56,650	\$58,350	\$60,100
State	\$151,766	\$189,989	\$195,689	\$201,560	\$207,606
Farebox	\$27,039	\$57,740	\$57,740	\$57,740	\$57,740
County	\$167,076	\$179,008	\$186,110	\$193,425	\$200,960
Total	\$398,081	\$481,737	\$496,189	\$511,074	\$526,406

Alternative B

The projections of operating budgets and funding sources for Alternative B are shown in Table 10.8. Alternative B recommends the hiring of an additional dispatcher and the creation of the Paratransit Service Manager position, which together would cost \$48,966. These improvement options would be easily implemented in the 2003 fiscal year. Although an additional dispatcher has already been hired, it is factored in here because the base year expenses do not include it. After FY 2003, administrative costs would increase with an average rate of inflation. Operating costs would increase in fiscal year 2003 by \$39,643 to \$414,431. After the full implementation of this alternative in 2004, the operating cost would be \$683,297, increasing with inflation in 2005 and 2006. Overall, expenses under this alternative would increase from \$490,319 in 2003 to \$807,835 in 2006.

As in Alternative A, BCDOPT anticipates a steady rate of annual FTA funding for the foreseeable future. 34,865 trips and a steady number of revenue miles are projected

under Alternative B for 2003, yielding \$173,853 in NYSDOT funding. With the addition of two demand response zones in 2004, passenger trips and revenue miles would increase to 53,009 and 324,094, respectively, which according to the NYSDOT funding formula would yield \$252,466 in revenue. Additional revenue miles are derived from per vehicle mileage averages of current service. Although exact federal and state funding levels cannot be precisely determined beyond 2004, these funding sources have been indexed to increase at an average rate of inflation of 3% to account for future increases.

Farebox revenues would be impacted both by the proposed fare increase and the added ridership that enhanced service is likely to attract. Thus, increases to \$57,674 in 2003 and \$91,905 in 2004 are projected. The remaining expenses would be covered by the County, with a County contribution of \$388,810 in 2006.

Table 10.8
Four-year Operating Budget Projections and Funding Sources for Alternative B

Category	Existing (2000)	2003	2004	2005	2006
Expenses					
Administrative	\$23,293	\$75,888	\$78,165	\$80,510	\$82,925
Operating	\$374,788	\$414,431	\$683,297	\$703,796	\$724,910
Total	\$398,081	\$490,319	\$761,462	\$784,306	\$807,835
Revenues					
Federal	\$52,200	\$55,000	\$56,650	\$58,350	\$60,100
State	\$151,766	\$173,853	\$252,446	\$260,020	\$267,820
Farebox	\$27,039	\$57,674	\$91,105	\$91,105	\$91,105
County	\$167,076	\$203,793	\$361,261	\$374,832	\$388,810
Total	\$398,081	\$490,319	\$761,462	\$784,306	\$807,835

Alternative C

Table 10.9 shows the four-year budgetary timeline for BC Country under Alternative C. The same administrative and management improvements included in Alternative B are found in this alternative, totaling \$48,966 in 2003. After that, administrative costs would increase with an average rate of inflation. The greatest operating expense in this alternative is the implementation of rural fixed-route service. Although it is recommended that BC Country contract this service to a private operator at the outset, it is necessary to include the cost of this option in these projections. As a result, operating costs are likely to grow from \$414,431 in fiscal year 2003 to \$827,178 in 2004, the first year of this enhanced service. Beyond 2004, operating costs are projected to increase due to inflation. The total annual operating budget under Alternative C would rise from \$490,319 in 2003 to \$960,478 in 2006.

As in the other alternatives, BCDOPT anticipates a steady rate of annual FTA funding for the foreseeable future. NYSDOT funding is projected at \$173,853 in 2003, assuming

34,865 trips and 231,496 revenue miles. With the introduction of fixed-route service in 2004, funding from this source would rise to \$334,362. This figure is derived from an expectation of 87,527 trips and 419,094 revenue miles. The revenue miles for this alternative are comprised of the base 2003 figure, three rural fixed-route vehicles, which would operate for approximately 95,000 revenue miles, and two additional demand response vehicles. Estimates for the annual mileage of the fixed-route service are derived from the sample schedules in Table 7.2. Although exact federal and state funding levels cannot be precisely determined beyond 2004, these funding sources have been indexed to increase at an average rate of inflation of 3% to account for future increases.

Farebox revenues would be impacted both by the proposed fare increase and the added ridership that enhanced service is likely to attract. These factors would lead to farebox revenues of \$57,674 in 2003 and \$154,704 in 2004. The remaining expenses would be covered by the County, reaching \$390,950 by 2006.

Table 10.9
Four-year Operating Budget Projections and Funding Sources for Alternative C*

Category	Existing (2000)	2003	2004	2005	2006
Expenses					
Administrative	\$23,293	\$75,888	\$78,165	\$80,510	\$82,925
Operating	\$374,788	\$414,431	\$827,178	\$851,994	\$877,553
Total	\$398,081	\$490,319	\$905,343	\$932,503	\$960,478
Revenues					
Federal	\$52,200	\$55,000	\$56,650	\$58,350	\$60,100
State	\$151,766	\$173,853	\$334,362	\$344,393	\$354,725
Farebox	\$27,039	\$57,674	\$154,704	\$154,704	\$154,704
County	\$167,076	\$203,793	\$359,627	\$375,057	\$390,950
Total	\$398,081	\$490,319	\$905,343	\$932,503	\$960,478

*Includes costs of operating rural fixed-route service.