ULSTER COUNTY TRANSIT DEVELOPMENT PLAN

Final Report

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NELSON
NYGAARD

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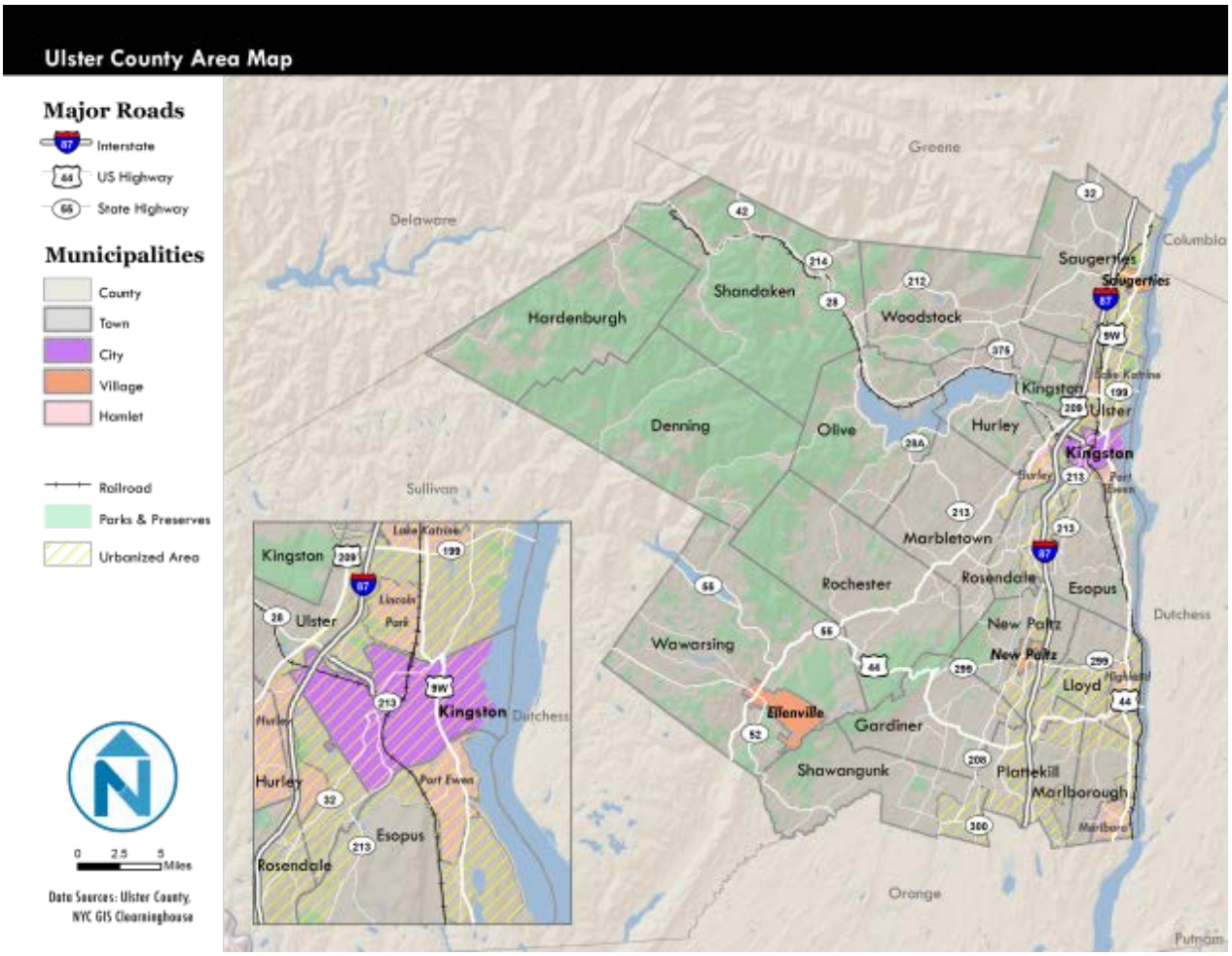
Chapter 1. Introduction

Ulster County, halfway between New York City and Albany, contains a mix of landscapes and populations. Most of the County's population centers are concentrated between the Catskill Mountains to the west and the Hudson River to the east, and like many other upstate counties, Ulster County is home to numerous rural communities. The County's roadway network connects villages and hamlets to the main population centers including Saugerties, Kingston, and New Paltz (Figure 1-1). As the county's biggest city, Kingston is home to a density of jobs and services, but development patterns in recent years have resulted in significant retail activity beyond the city's boundaries, in the Town of Ulster.

Figure 1–1 Service Area



Ulster County and the City of Kingston operate two separate transit networks. The systems are complementary in their missions, but not seamlessly integrated. UCAT provides county-wide service, connecting Ulster County's towns, villages, and universities to the City of Kingston and to one another, while Citibus provides broad coverage within the City of Kingston and several areas on its borders. UCAT also links Ulster County residents to jobs and regional destinations in neighboring Dutchess and Newburgh Counties.

Ulster County residents also have the resource of Adirondack Trailways, which provides scheduled long-haul bus service within the county, and connects Ulster County to Albany, New York City and other destinations in New York State and beyond.

Ulster County and Ulster County Transportation Council (UCTC) retained Nelson\Nygaard Consultant Associates, along with Fitzgerald & Halliday, Inc. (FHI) to evaluate the County's existing transit services and determine how service can be improved over the next decade. A Technical Advisory Committee (TAC) was also established to review, comment, and provide direction on the Plan. The TAC consisted of representatives of UCAT, Citibus, Ulster County, Trailways, and the New York State Department of Transportation. A series of technical memorandums presented detailed analyses of the following topics:

- Technical Memo 1 - Community Profile and Service Overview
- Technical Memo 2 - Community Outreach (Public and Stakeholder Opinions)
- Technical Memo 3 - Peers Analysis and Route Profiles
- Technical Memo 4 - Recommended Service Improvements

Following the completion of each technical memo, comments and feedback were provided to the study team by members of the TAC. As a result of this input, the recommendations presented in this final report may differ somewhat from those presented in the previous technical memos.

The purpose of this report is to present the lessons learned over the course of the Ulster County Transit Development Plan and to offer a series of service improvement recommendations to be considered by the professional staff and elected officials of Ulster County (including its municipalities and transit agencies).

The final report is organized into four chapters immediately following this introduction:

- **Chapter 2: Overview of Existing Transit Services**
- **Chapter 3: System Performance**
- **Chapter 4: Customer Satisfaction and Public Input**
- **Chapter 5: Lessons Learned and Recommended Improvements**

Supporting materials are presented in a series of appendices at the end of the report.

Chapter 2. Overview of Existing Transit Services

The primary transit service providers in Ulster County are Kingston Citibus, which focuses on the City of Kingston and the Ulster County Area Transit (UCAT), which provides service to greater Ulster County. Both systems generally follow a "coverage model", meaning the transit services are designed to serve a large geographic area, often at the expense of service frequency.

While Ulster County Area Transit (UCAT) and Kingston Citibus are the main focus of this study, the county is also served by regional long-haul carriers Adirondack/Pine Hill Trailways and Coach USA/Shortline (very limited service). These private providers are only referenced in the context of their impact on UCAT and Citibus routes.

Kingston Citibus

Kingston Citibus is operated by the City of Kingston and is focused on providing service within the city limits. A notable exception is service to Port Ewen, south of Kingston, and site of the Ulster Board of Cooperative Educational Services (BOCES). An additional major destination outside the city limits is the county complex on Development Court off Albany Avenue, which houses the Business Resource Center, Department of Social Services, Office for the Aging, and other services.

Fixed-Route Service

Three fixed routes (Routes A, B, and C) make up the Citibus network (Figure 2–1). Service is available on weekdays from roughly 6:30 am to 7:30 pm, and Saturdays from 9:30 am to roughly 5:00 pm. All routes serve Kingston Plaza, which is the primary transfer point between Citibus routes. Kingston Plaza is also served by most UCAT routes, and thus functions as a regional transfer center as well.

Demand-Responsive Service

As mandated by Federal Law (Americans with Disabilities Act), complementary paratransit service is provided by Kingston Citibus within three quarters of a mile of fixed route service for individuals whose disability prevents them from using the fixed-route service. This service is available Monday through Friday, 6:30 am to 7:30 pm, as well as on Saturday from 9:30 am to 5:30 pm. Trips must be scheduled at least a day in advance, and service is limited to pre-registered riders who have passed an eligibility screening.

Fares

Service within Kingston is $1.00 for a one-way trip, while a one-way trip to or from Port Ewen is $1.50. Half-fare is allowed for older adults, persons with disabilities, and Medicare card holders. Transfers between Citibus routes are $0.30. Passengers transferring between a Citibus and a UCAT route must request a transfer slip from their driver, and deposit the transfer slip, plus $0.50 on the next system bus.

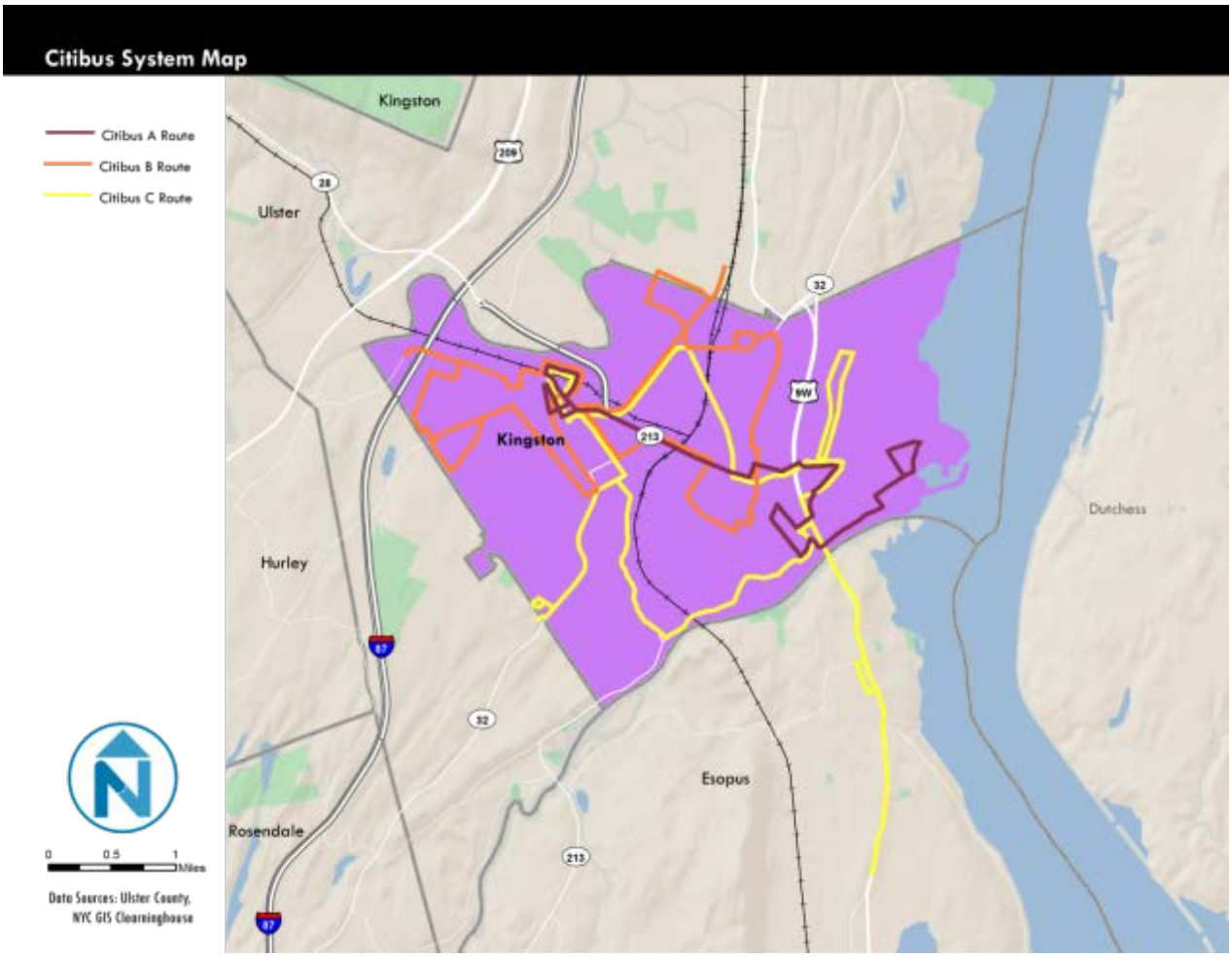
Fleet

The Citibus fleet consists of four 35-foot Gillig buses, two replica trolleys, and two paratransit vans. Three fixed-route buses and two paratransit vans are needed for peak-pull out. The replica trolleys were used for a summer tourist service, but are now used mostly as spare vehicles.

Passenger Amenities

Many on-street Citibus stops are marked with a bus stop sign that includes the letter of the route or routes that serve the stop and the estimated minutes past the hour when the stop is served (although no information is provided on which hours service is available). Off-street stops such as Kingston Plaza or Gateway Community Industries generally do not have bus stop signs. A small number of bus shelters are available throughout the system, but a comprehensive shelter deployment plan does not exist.

Figure 2–1 Citibus Service



Passenger Information

Citibus information is available on the City of Kingston's website, but is located rather deep into the site: http://www.kingston-ny.gov/content/76/78/787/default.aspx. A system map and individual route schedules are also available on this site. These are formatted to be printed out on regular letter-size paper and are provided in the same format on buses, at Kingston City Hall, and at social services locations. However, the study team found that the availability of these schedules is inconsistent even on buses.

The schedules have an untraditional format that shows a number of bus stops being served at the same time (Figure 2–2). The implication is that the stops are in close proximity to each other and will be served at nearly the same time, but there are no instructions to lead customers to this conclusion. Citibus schedules also lack any information about connecting services.

Figure 2–2 Citibus Passenger Schedule

LOCATION	HANNAFORD OLD AMES CLINTON & MAIN MAIN & FAIR	WALL STREET AND OLD DUTCH CHURCH JOHN STREET N. FRONT ST FAIR ST PEARL ACADAMEY GREEN	BROADWAY AND ST. JAMES LIBERTY VAN BUREN	BROADWAY AND HENRY (BANK) DUNKIN DONUTS HOFFMAN ST W. ORIELLY ANDREW BREWSTER W. CHESTER ORCHARD DELAWARE AND LIVINGSTON, NEWKIRK JARROLD	MURRAY AND DELAWARE JARROLD ROUNDOUT GARDENS GARRAGHAN DRIVE BROADWAY AT FUNERAL HOME WURTS AND PIERPONT W. UNION	ABEEL AND-BROADWAY MARINERS HARBOR ROSITA'S RESTAURANT STRAND AND TOMPKINS SYCAMORE E. UNION AND GILL ABRUY CRANE LINSLEY AND DELAWARE	NORTH AND DELAWARE E. UNION E.UNION AND LINSLEY CRANE ABYRUN AND GILL SYCAMORE STRAND ACROSS FROM ROSITA'S	ACROSS FROM MARINERS HARBOR ABEEL & POST WURTS & W., PEIRPONT MCENTEE & BROADWAY GARRAGHAN DRIVE	ROUNDOUT GARDENS & MURRAY JARROLD DELAWARE DELAWARE & 3RD,1ST, & HASBROUCK HASBROUCK PLACE	BROADWAY AT BURGER KING, KINGSTON HOSPITAL E. ORIELLY ST, ACROSS FROM YMCA CORNELL ST. SMITH AVE & BRIGHAM APTS DOWNS & BROADWAY	BROADWAY & ELMENDORF, ST. JAMES, ALBANY & CLINTON
AM							6:30	6:35	6:40	6:45	6:50
	7:00	7:05	7:07	7:10	7:20	7:25	7:30	7:35	7:40	7:45	7:50
Service Break	8:00	8:05	8:07	8:10	8:20	8:25	8:30	8:35	8:40	8:45	8:50
Mon-Fri	9:00	9:05	9:07	9:10	9:20	9:25	9:30/9:30	9:35/9:35	9:40/9:40	9:45/9:45	9:50/9:50
10:00-11:00	10:00	10:05	10:07	10:10	10:20	10:25	10:30	10:35	10:40	10:45	10:50
SAT. 12-1	11:00/11:00	11:05/11:05	11:07/11:07	11:10/11:10	11:20/11:20	11:25/11:25	11:30/11:30	11:35/11:35	11:40/11:40	11:45/11:45	11:50/11:50
	12:00	12:05	12:07	12:10	12:20	12:25	12:30	12:35	12:40	12:45	12:50
PM	1:00/1:00	1:05/1:05	1:07/1:07	1:10/1:10	1:20/1:20	1:25/1:25	1:30/1:30	1:35/1:35	1:40/1:40	1:45/1:45	1:50/1:50
	2:00	2:05	2:07	2:10	2:120	2:25	2:30	2:35	2:40	2:45	2:50
Service Break	3:00/3:00	3:05/3:05	3:07/3:07	3:10/3:10	3:20/3:20	3:25/3:25	3:30/3:30	3:35/3:35	3:40/3:40	3:45/3:45	3:50/3:50
Mon-Fri	4:00/4:00	4:05/4:05	4:07/4:07	4:10/4:10	4:20/4:20	4:25/4:25	4:30/4:30	4:35/4:35	4:40/4:40	4:45/4:45	4:50/4:50
2:00-3:00	5:00/5:00	5:05	5:07	5:10	5:20	5:25	5:30	5:35	5:40	5:45	5:50
	6:00	6:05	6:07	6:10	6:20	6:25	6:30	6:35	6:40	6:45	6:50
	7:00	7:05	707	7:10							

Ulster County Area Transit (UCAT)

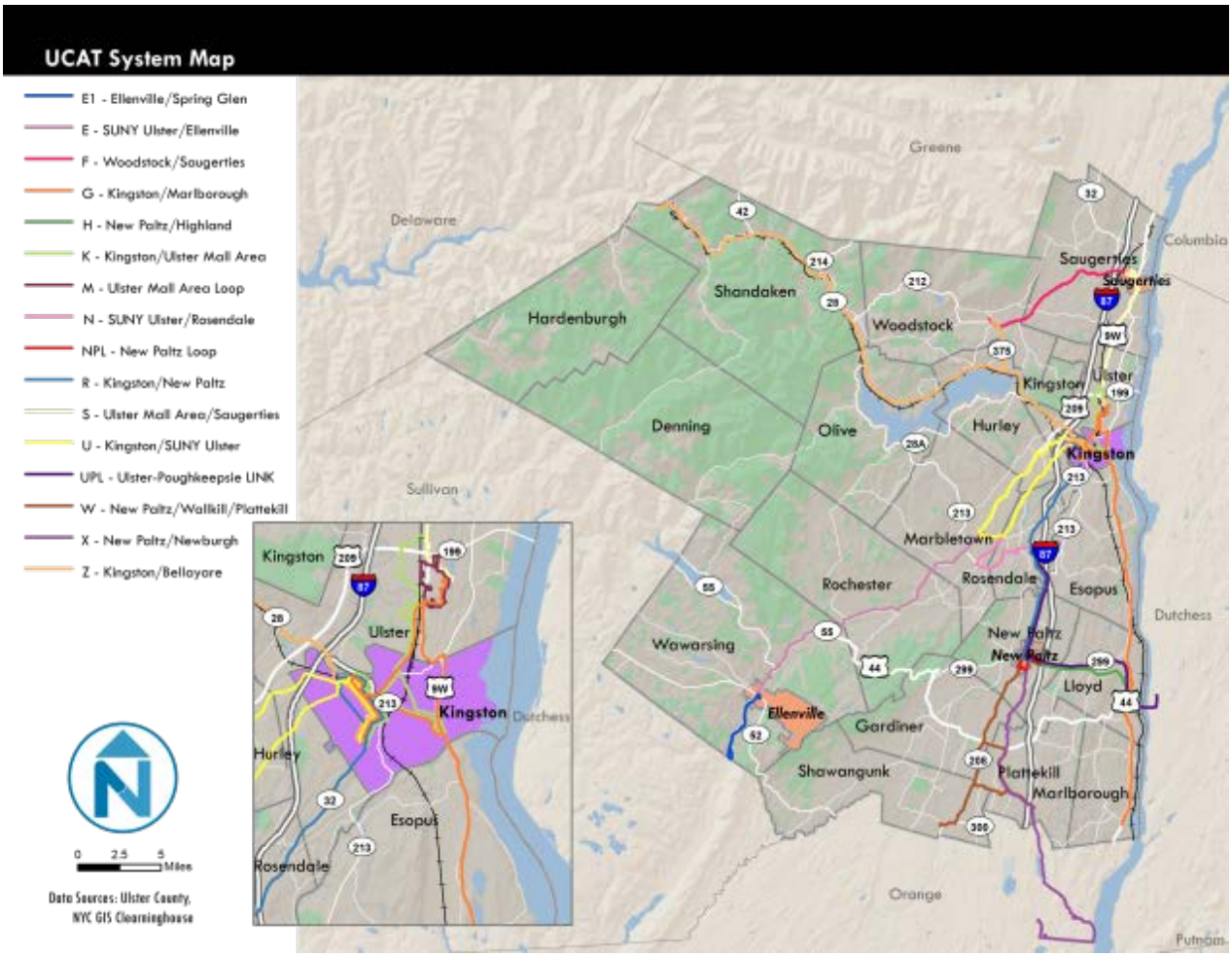
UCAT is operated by Ulster County. Its current schedule has 16 fixed-route bus lines connecting the population centers and major travel corridors in Ulster County and beyond. Two UCAT routes serve destinations beyond the county's borders: Newburg in Orange County and Poughkeepsie in Dutchess County (Figure 2–3).

Fixed-Route Service

UCAT currently operates as a "flag-stop" fixed-route system, meaning passengers may board at any location that is safe for the bus to stop along a bus route by flagging down an approaching bus. Similarly, passengers may request to exit the bus anywhere along the route. In the City of Kingston UCAT buses will drop passengers off upon request, but will only pick up passengers at Kingston Plaza and along Albany Avenue (for trips to Hudson Valley Mall).

Most UCAT routes connect at least two municipalities. A circulator route serves the Ulster mall area. The New Paltz Loop, which is fully funded by the Village and Town of New Paltz, serves the New Paltz area including the students and staff of SUNY New Paltz.

Figure 2–3 UCAT Service



Most UCAT routes are designated by letter. However, the letters A, B, and C, which are used for Citibus routes, are not used by UCAT. In addition, two routes (the New Paltz Loop and the Ulster-Poughkeepsie LINK (UPL)) are exceptions to the alphabetic naming convention.

While individual UCAT service start and end times depend upon the route, the fixed-route system as a whole begins around 4:55 am and continues until about 10:30 pm, Monday through Friday. There is a wide range of frequencies among the routes (Figure 2–4). Saturday service is limited to the K, S, U, Z, and UPL routes, with an over-all span of service of roughly 7:50 am to 6:15 pm. Sunday service is available year-round on the UPL and during ski season only (November 15th to April 15th) on Route Z.

Figure 2–4 UCAT and Citibus Weekday Service Characteristics

Route Number	Route Name	Begin	End	Daily Trips	Regular Frequency (Y/N)	Peak Headway	Max Headway
UCAT							
LINK	Ulster Poughkeepsie Link	5:03 AM	12:09 AM	42	N	10m	2h 5m
E	SUNY Ulster - Ellenville	5:37 AM	10:05 AM	14	N	60m	3h 30m
E1	Ellenville - Spring Glen	9:10 AM	5:10 PM	4	N/A	7h40m	7h40m
F	Woodstock - Saugerties	10:50 AM	2:55 PM	4	N/A	4h5m	4h5m
G	Kingston - Marlboro	6:30 AM	6:45 PM	4	N/A	10h5m	10h5m
H	New Paltz - Highland	9:15 AM	3:15 PM	6	N	1h30m	3h30m
K	Kingston - Ulster Mall Area	5:20 AM	10:10 PM	30	Y	45m	1h45m
M	Ulster Mall Area	7:00 AM	9:22 PM	22	Y	30m	1h30m
N	SUNY Ulster/Rosendale	8:10 AM	4:30 PM	8	N	1h20m	3h30m
Loop	New Paltz Loop	7:30 AM	10:00 PM	23	Y	30m	1h
R	Kingston/New Paltz	5:00 AM	10:15 PM	22	N	10m	3h30m
S	Ulster Mall/Saugerties	5:50 AM	9:45 PM	28	Y	45m	2h
U	Kingston - SUNY Ulster	5:05 AM	10:30 PM	20	N	1h10m	3h15m
W	New Paltz/Wallkill/Plattekill	6:45 AM	6:40 PM	4	N/A	10h50m	11h
X	New Paltz/Newburgh	5:25 AM	8:30 PM	10	N	2h	5h30m
Z	Kingston/Woodstock/Pine Hill/Belleayre	4:55 AM	8:10 PM	14	N	1h5m	3h30m
CitiBus							
A	A	6:30 AM	7:20 PM	11	Y	1h	2h
B	B	6:30 AM	7:15 PM	11	Y	50m	2h
C	C	6:25 AM	7:15 PM	11	Y	1h	2h

Demand-Responsive Service

In addition to the traditional fixed-route service, UCAT also provides demand-responsive service in rural areas of Ulster County, with different parts of the county served on different days. For this service, passenger reservations can be made up to one week in advance, and will be accepted up until the day before the trip.

In 2010, UCAT began providing ADA paratransit service. Prior to that, the agency relied on fixed-route trip deviations to meet their ADA requirements. Because of the rural nature of much of the county, the ADA capture zone extends 1.5 miles from each fixed-route bus line, rather than the ¾ mile buffered required by federal law. Reservations for ADA paratransit service must be made at least a day in advance.

Fares

For both fixed-route and rural service, the UCAT fare structure is based on a zonal system, with zones corresponding to municipal boundaries. The base fare for boarding and travel within 1 zone is $1.00. For each additional zone traveled, the fare increases $0.25. Bus routes are generally divided into two or three zones, but depending on the route, there can be as many as five zones.

UCAT does offer discounted bus passes in several forms: unlimited monthly for $65.00 per month as well as 20 and 40 ride passes that provide a 10% discount from the total amount that would otherwise be paid as fare. In addition, under an agreement between UCAT and the Ulster County Office for Aging, county residents who are 60 years old and older may register to ride free on UCAT's fixed-route or rural service for one roundtrip each week for shopping purposes and two round trips each week for medical appointments. Older adults also have the option of riding UCAT fixed-route service for half fare between 10:00 am and 2:00 pm. Personal care attendants may accompany a qualified rider for free. UCAT also has contracts with several human services agencies that allow clients of those agencies to board for free. Fares for these passengers are paid for by the respective human services agencies.

The Ulster-Poughkeepsie LINK, which provides connecting service to the MTA Metro-North Railroad at Poughkeepsie Station, has a separate fare structure from other UCAT routes. Depending upon one's boarding location within the route, the fare ranges from $1.25 to $2.00 one-way. Frequent travelers can purchase Monthly or Weekly UniTickets, which combine bus and rail fare, at $483.00 or $153.75, respectively.

Fleet

UCAT has an active fleet of 24 fixed-route vehicles and four paratransit vans. However, some of the fixed-route vehicles are also used for the rural demand-responsive service. In 2010, 16 fixed-route and four paratransit vehicles were required for peak service.

Passenger Amenities

Efforts are underway to install bus stop signs at regularly used stops. However, the flag-stop system will remain as well. The new bus stop signs will feature schedule information and route maps. Bus shelters are available at key locations, and UCAT has a program of providing shelters to on-route property owners that are willing to install and maintain them.

Passenger Information

UCAT route maps, schedules, and general information are available online at the following website: http://www.co.ulster.ny.us/ucat/. UCAT also maintains a Facebook page, which is used primarily to issue rider alerts regarding service disruptions and detours.

Individual pocket schedules are available for each UCAT route and can be found on the buses and at the Ulster County Transit Center. Each pocket schedule also includes a small UCAT system map. The pocket schedules do not contain information about connecting services (Citibus, Trailways, etc.).

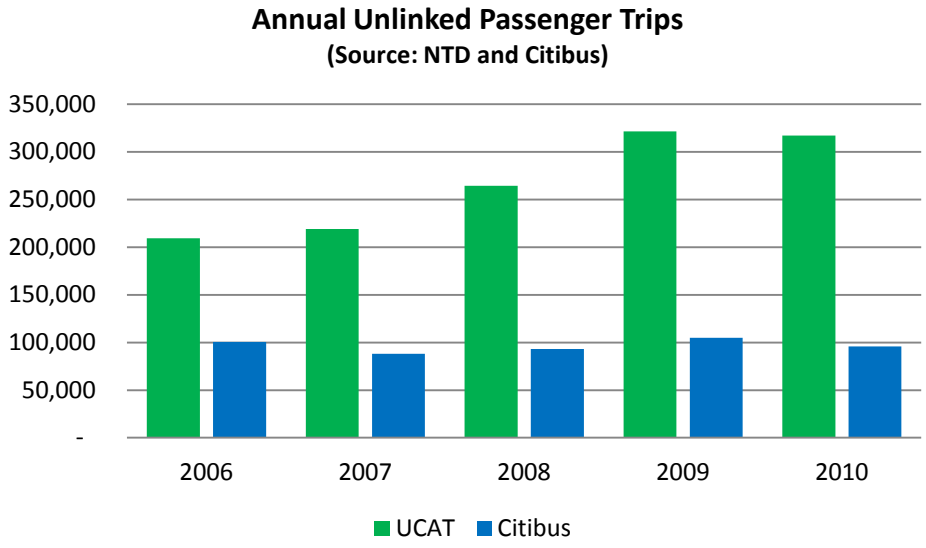
Chapter 3. System Performance

The performance of existing UCAT and Citibus services provides insight into what works and what does not, in terms of service design.

Ridership and Productivity

Ridership trends are a good indicator of system performance. UCAT ridership grew consistently between 2006 and 2009, after which it leveled off slightly (Figure 3–1). Citibus ridership has remained fairly flat over the past five years, and according to previous studies, is down significantly from the first half of the decade.

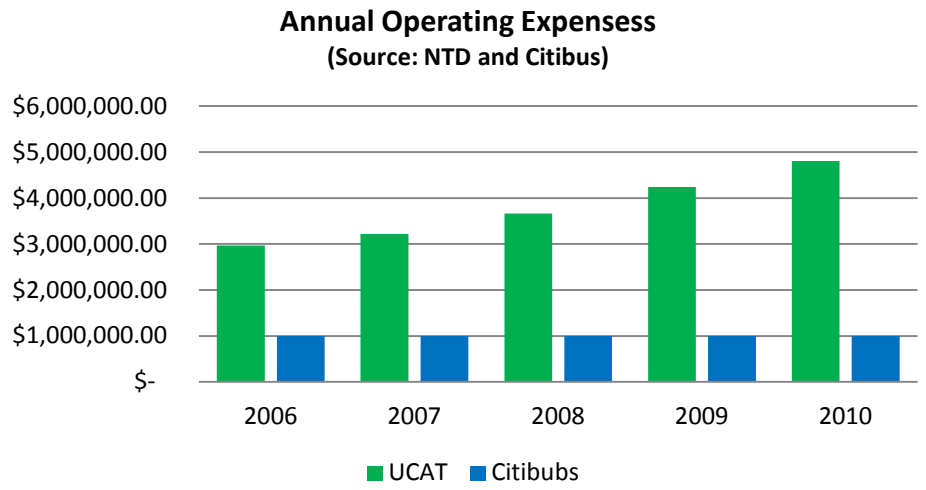
Figure 3–1 Transit Ridership



Source: UCAT and Citibus data adapted by Nelson\Nygaard

At the system level, UCAT's ridership growth in recent years has been facilitated by increased investment in the system. Between 2006 and 2010, UCAT's operating budget increased by 62% (Figure 3–2), allowing for a substantial increase in the amount of service provided (measured by vehicle revenue hours and revenue miles). According to Citibus staff, the agency's operating budget has stood at roughly $1 million for the past several years.

Figure 3–2 Operating Budget



Source: UCAT and Citibus data adapted by Nelson\Nygaard

Taken together, ridership and operating cost help define system productivity, or how efficiently the systems generate ridership. Typical productivity metrics include the following:

- **Passengers per Revenue Hour and Revenue Mile**. These indicators provide a measure of service productivity – that is, how much ridership is being generated in relation to the amount of service available. These indicators track closely to one-another, and show the extent to which a transit system is getting the greatest ridership return on its resource investment.
- **Operating Cost per Passenger**. This indicator measures cost effectiveness by assessing total operating costs over consumption of service (total ridership).
- **Farebox Recovery Ratio**. This indicator also measure cost effectiveness but is often better understood by policy makers who want to know how much each passenger is being subsidized. The farebox recovery ratio is defined as the total fare revenue divided by the total operating costs.

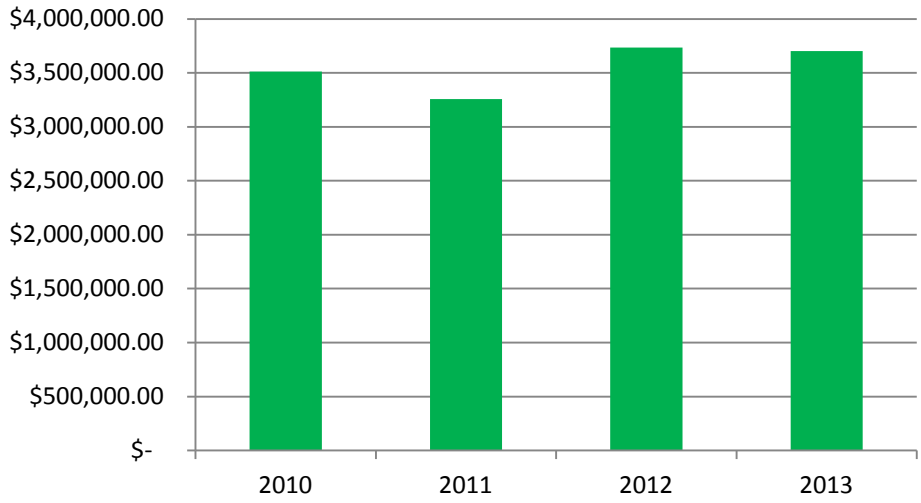
These metrics are tracked by agencies throughout the transit industry, in part because there is a Federal requirement for any agency receiving FTA grant funding and operating more than nine vehicles to report the statistics annually to the National Transit Database (NTD). This practice allows transit agencies to compare their system performance and productivity against their peers. It should be noted though that UCAT maintains two practices that must be considered when reviewing the analysis below.

1. **Interlining** - Interlining is a common practice in the transit industry in which one operator switches from one route to another without changing vehicles but by simply switching the destination sign. This improves the passenger experience by allowing one-seat rides on common trips and may also have operational benefits for shift scheduling or headways. UCAT uses interlining extensively, which makes sense given the service area's rural nature. However, at the time of this analysis, the agency was not counting passengers remaining on board during the destination sign switch as additional passengers. For this reason, UCAT undercounts its passengers and therefore its operational statistics show lower than actual utilization.

2. **Cost Reporting** - At the time of this analysis, NTD statistics for the most recent year available (in this case, 2010) were used, as is common practice when conducting a peer review to ensure standardized reporting across multiple agencies and geographies. UCAT, however, has a practice of grouping capital costs together with operating costs to ensure a budget is passed that meets both needs. This means that the operating costs reported to NTD in years with capital purchases appear much higher than they actually are.

To illustrate how current reporting affects productivity metrics, Figure 3–3 shows annual operating costs actually incurred by the agency, net of capital costs. Costs in 2010 decrease quite a bit compared to the figures reported to NTD as UCAT made several capital purchases that were reported as operating cost. Thus what appears to be an upward trend in operating costs in Figure 3-2 becomes more of a level pattern, and the 62% increase since 2006 is now a much more modest 17% for 2010 and 23% for 2013.

Figure 3–3 Annual Operating Expenses Net of Capital Costs



Source: UCAT. 2013 budget is requested, not adopted.

This reporting practice also has a ripple effect when comparing transit agency statistics against one another. For example, according to NTD data, UCAT had the third highest cost per revenue hour among its peers (Figure 3–4). Factoring out capital cost, UCAT's cost per revenue hours drops to the second lowest among its peers (Figure 3–5).

Figure 3–4 Operating Cost per Revenue Hours - NTD Data

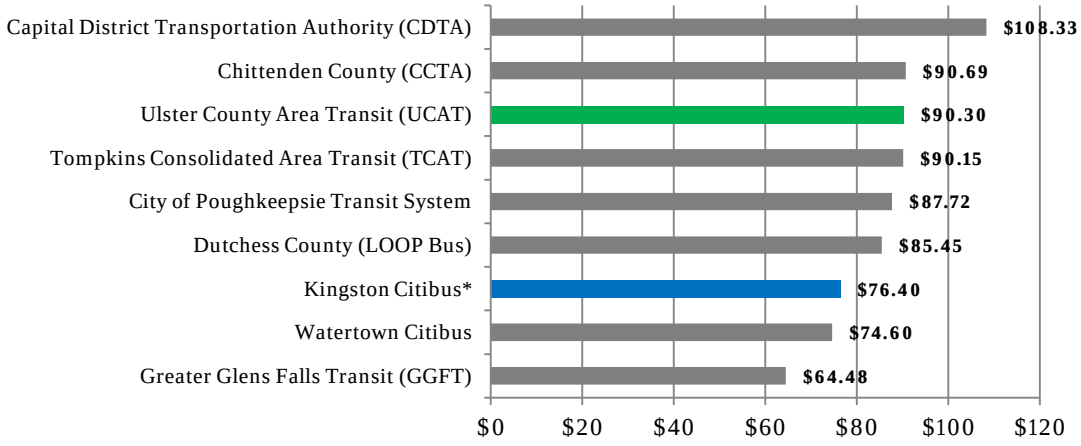
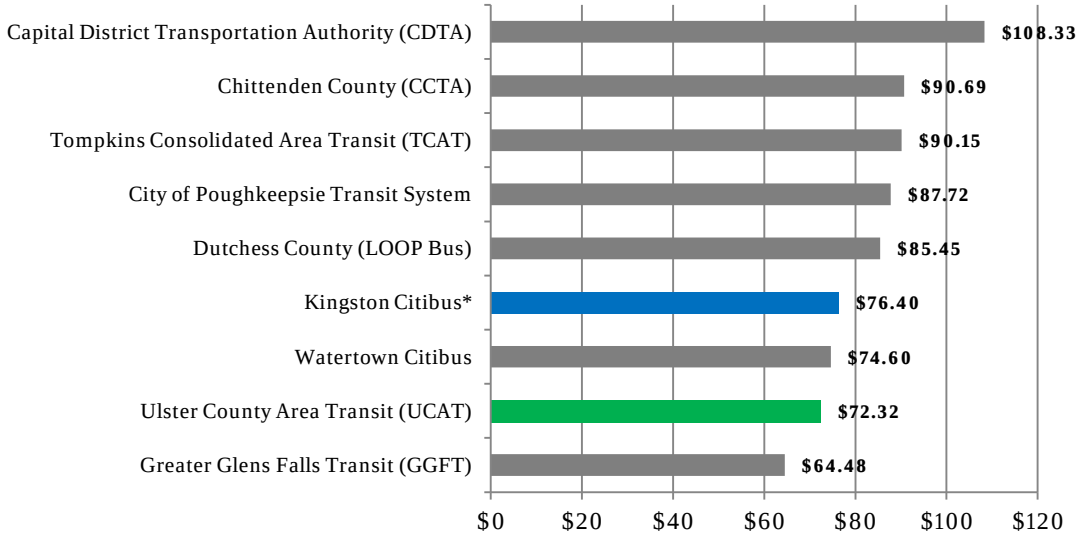


Figure 3–5 Operating Cost per Revenue Hour - UCAT Data Net of Capital Costs

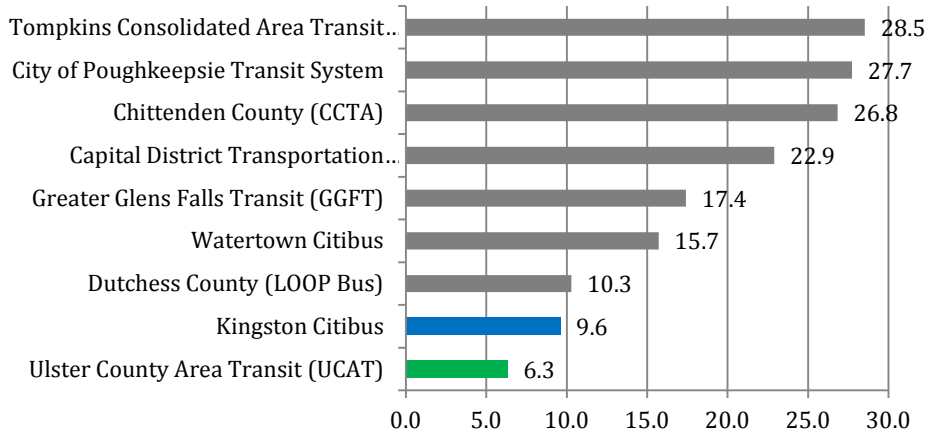


Other agencies may also have similar nuances in the numbers that they report to NTD, but lacking insight into each agency's accounting practices, the study team chose to use data directly from each agency's NTD report for comparative purposes. These comparisons are the focus of the following section.

Peers Analysis

Compared to regional peers, UCAT carries the fewest fixed route passengers per revenue hour (Figure 3–6). This is due, in part, to the county's rural nature and the long distances (and hence time) it takes to connect people to destinations. The Dutchess County system showed a somewhat similar low number of passengers per revenue hour, and this system, like UCAT, covers a large rural county. Citibus ranks second lowest and carries less than 10 passengers per revenue hour. Its closest peer, Watertown, operates 54% more hours than Kingston Citibus, and carries more than 15 passengers per hour (63% more than Kingston Citibus).

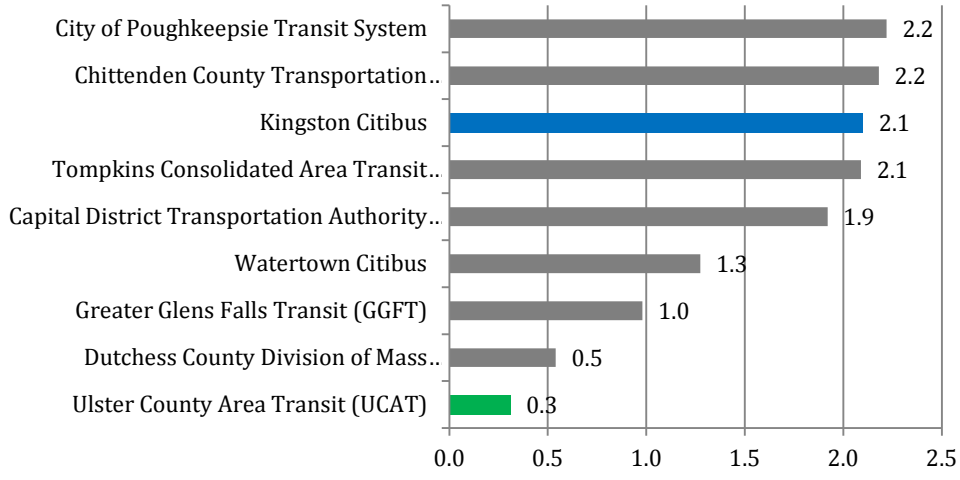
Figure 3–6 Fixed Route Passengers per Revenue Hour (2010)



Source: NTD and Citibus

As with passengers per hour, the county-wide systems of UCAT and Dutchess County carry a low number of passengers per mile (Figure 3–7). Ulster and Dutchess Counties are the only peer systems that cover service areas of more than 1,000 square miles. Citibus does well on this metric, as its service area is just 9 square miles.

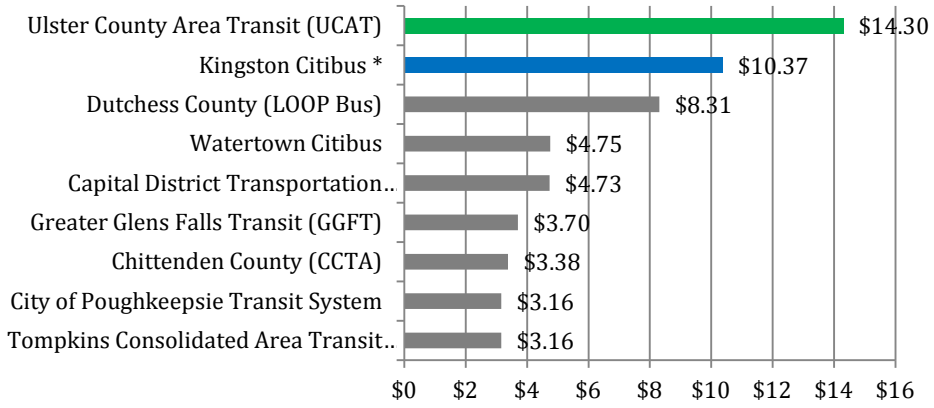
Figure 3–7 Fixed Route Passengers per Revenue Mile (2010)



Source: NTD and Citibus

In general, the operating cost per passenger trip for fixed-route transit service should be no more than $5 per passenger trip. As shown in Figure 3–8 below, both UCAT and Citibus exceed this threshold. Even taking into account the rural nature of the county, UCAT's return on investment is low. The high cost per passenger trip on Citibus shows that, while service per hour is being operated in a fairly cost-effective manner, the system is yielding little ridership.

Figure 3–8 Fixed Route Operating Cost per Passenger Trip (2010)



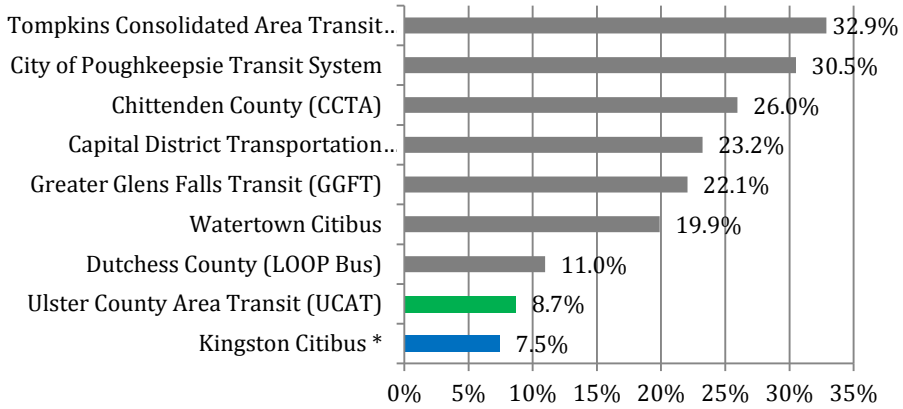
Source: NTD and Citibus

* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Both UCAT and Citibus recover a low percent of operating cost through fares (Figure 3–9). A general rule of thumb for a small to medium transit operation is to maintain a recovery rate of 10-15% (e.g., fares cover 10-15% of operating costs).

UCAT's fares are quite low when considering the miles of service provided. Kingston to Pine Hill measures 36 miles and a one-way fare covers five zones and costs $2, which is fairly low in comparison to peers. Dutchess County's base fare is $1.75 for one-way trips. In Tompkins County, fares were recently raised to $2.50 for trips originating in rural areas and destined for Ithaca. Citibus' low fare box recovery rate is primarily due to low ridership rather than low fares - base fare is $1.25 and the service area is small.

Figure 3–9 Fixed Route Total Farebox Recovery (2010)



Source: NTD and Citibus

* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

A more comprehensive discussion of UCAT and Citibus performance metrics compared to the group of regional peers is available in Appendix A and includes both fixed-route and demand-responsive services.

Route Profiles

Although not required for NTD reporting, many transit systems also track productivity metrics at the route level. This allows an agency to identify individual routes that are performing above or below the system average or standards set by an oversight body. By recognizing the under-performers or over-performers, informed decisions can be made regarding resource allocation.

Historically, neither Citibus nor UCAT have tracked productivity metrics at the route level. Citibus operates only 9 vehicles, and is thus not required to report to NTD. UCAT does report to NTD, but has traditionally collected data by driver assignment blocks rather than by route (Figure 3–10), making an accurate analysis of route productivity difficult.

Figure 3–10 2010 UCAT Ridership[1] and Revenue Hours by Driver Assignment Block

UCAT Fixed-Route Blocks	Component Routes	Annual Weekday Passengers	Annual Weekday Revenue Hours
E Route	E, E1	24,777	2,238
E pm Route	U, E, E1	16,387	1,830
G am/pm Route	G	2,059	1,283
K Route	K, S	20,989	2,289
K pm Route	K, S	6,889	1,358
S Route	K, S	22,015	2,275
S pm Route	K, S	9,639	1,872
R Route	R, H	13,020	2,296
U Route	U, N	26,533	2,247
W am Route	W	9,323	1,824
W pm Route	W	2,039	658
X am/pm Route	X	21,071	3,192
Z am/pm Route	Z	14,419	2,411
Z Route	Z	11,384	2,251
M Route	M	2,393	2,465
NPL	NPL	38,278	3,958
UPL	UPL	42,532	6,773

Source: UCAT

[1] Passenger counts include paying passengers only. Special needs assistants and other passengers riding free of charge are not shown.

To develop a detailed understanding of existing services, the study team conducted a "100% survey" of Citibus and UCAT to collect ridership by route and by trip. A 100% survey is a survey of every scheduled trip that is available on a route for each unique service period (weekday service period, Saturday service period, and Sunday service period). From this data, the study team developed detailed route profiles describing each route based on a range of quantitative and qualitative metrics.

Qualitatively, each route was examined for how well it serves its intended markets and what role it plays within the regional transit network. Quantitatively, the routes were measured for productivity and efficiency expressed in terms of ridership, passengers per trip, passengers per revenue hour, and on-time performance. The complete set of route profiles can be found in Appendix A of this document.

The tables in Figures 3–11 to 3–16 below illustrate the wide differences that exist among Ulster County's transit routes in terms of ridership and service productivity. While ridership is a useful metric for comparing service performance, it presents an incomplete picture as some routes run far more often than others. The affects of service frequency on total ridership can however be controlled for by comparing service performance among routes in terms of ridership per trip and ridership per revenue hour rather than just ridership.

In the absence of defined service standards a useful way to identify underperforming routes is to compare each route to the service area average for a particular metric. Routes that fall below the average can be considered to be in greatest need of attention by service planning staff.

Figure 3–11
Average Weekday Ridership

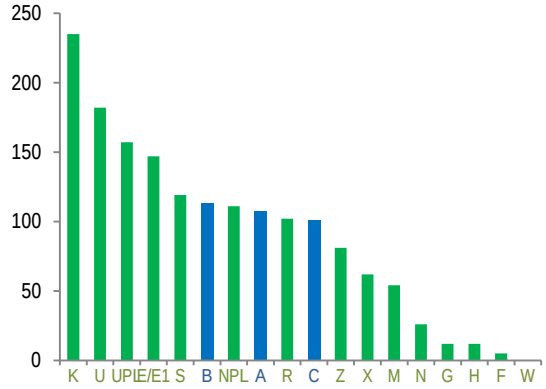


Figure 3–12
Average Saturday Ridership

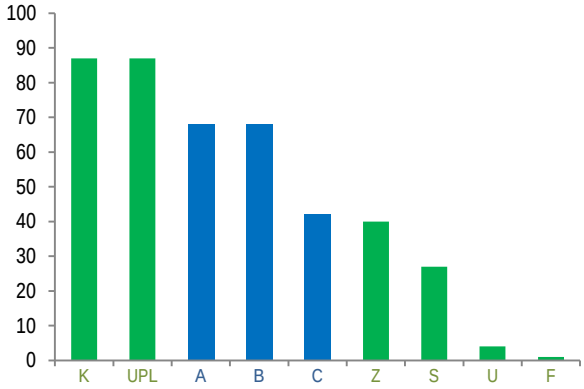


Figure 3–13
Average Weekday Ridership per Trip

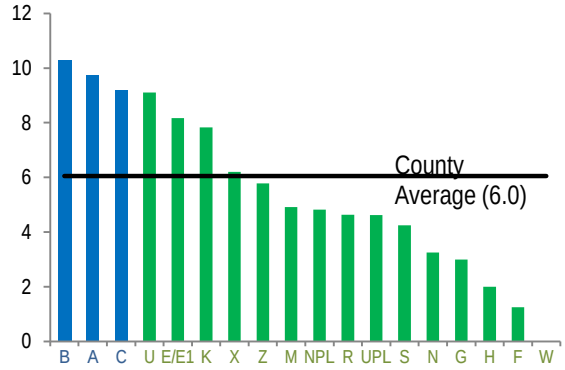


Figure 3–14
Average Saturday Ridership per Trip

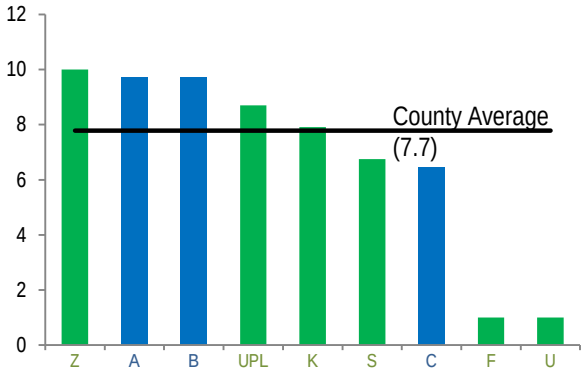


Figure 3–15
Average Weekday Ridership per Revenue Hour

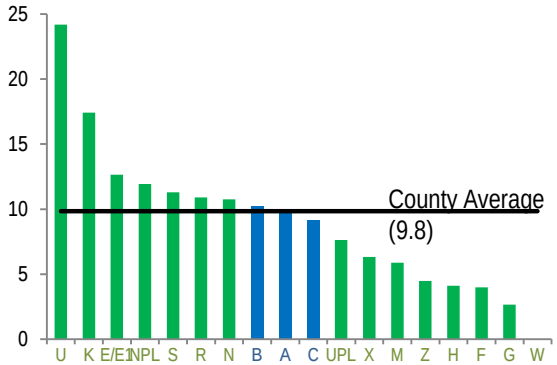
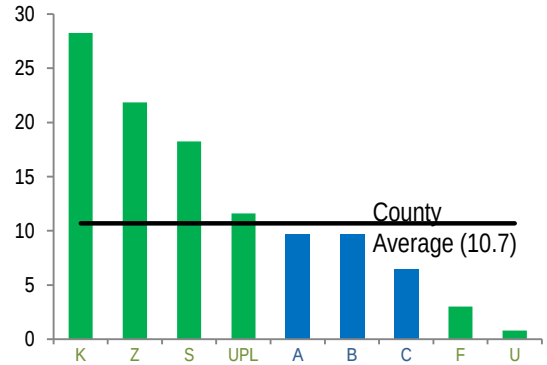


Figure 3–16
Average Saturday Passengers per Revenue Hour



Source: Nelson\Nygaard ride check 2011-2012

Chapter 4. Customer Satisfaction and Public Input

Among the best ways to determine the strengths and weaknesses of a transit service is to specifically ask current riders how well the existing service is working and how the services could be improved; and to ask non-riders why they choose not to use the service and if there are any changes that may encourage them to ride. The following section highlights some of the survey questions that were presented to transit users and members of the general public. The full rider and non-rider surveys and analyses are included in Appendix B of this document.

Passenger Survey

For Citibus and UCAT routes, on-board surveyors or bus operators handed out surveys to passengers. Every trip on both Citibus and UCAT's schedule was surveyed. A total of 332 responses were collected from UCAT riders (representing 25% of average daily ridership) and 177 from Citibus (38% of average daily ridership). However, some survey participants chose not to answer every question.

Tell us how you feel about UCAT/Citibus. Please circle the number that most closely reflects your experience. (1=Poor to 5=Excellent)

UCAT and Citibus riders were asked to rank their experience with existing services, including where the systems need improvement and places they wish buses would go. Based on their responses, customers of both services are most satisfied with the current fares and least satisfied with the days and hours of operation (Figures 4–1 and 4–2).

Figure 4–1 Citibus Responses to Customer Satisfaction Question

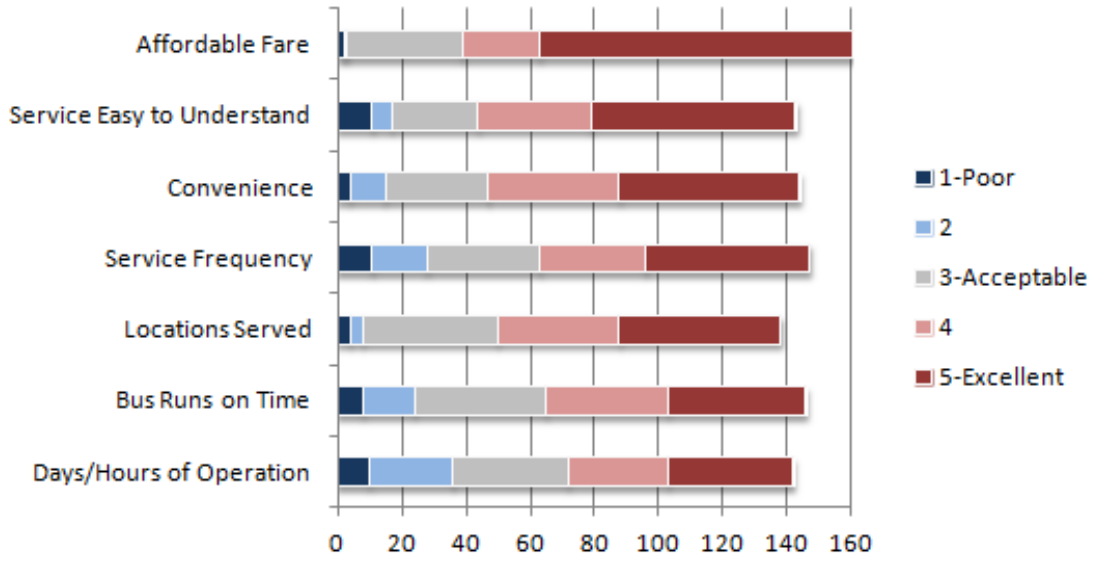
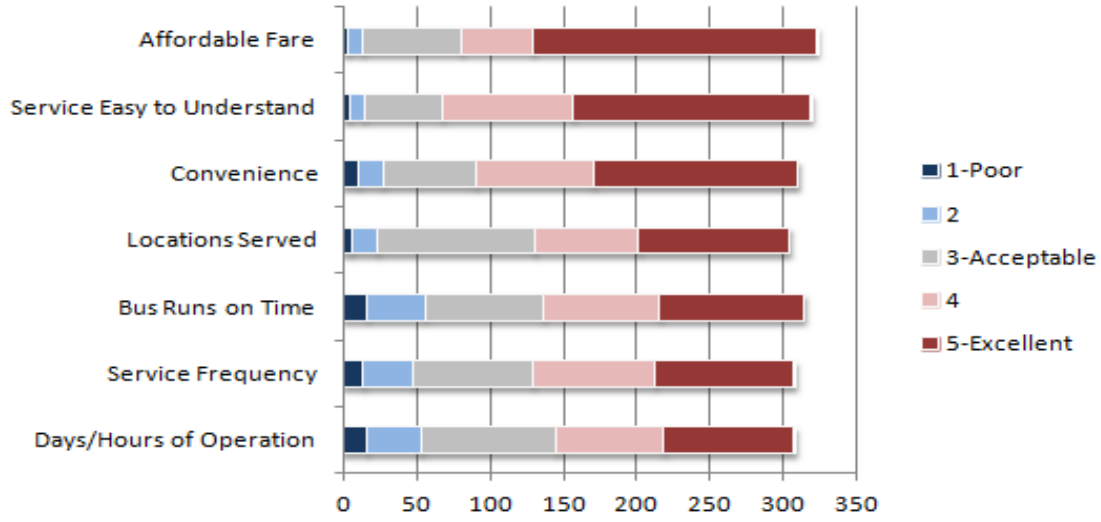


Figure 4–2 UCAT Responses to Customer Satisfaction Question



What service changes would you like to see? Please circle the number that most closely reflects your priority. (1=Low to 5=High)

When asked how service can be improved, Citibus and UCAT customer preferences fell in a similar order, with increasing the number of trips as the highest priority. Next to the "extend bus route" response, space was provided for people to write in where they wanted service. For Citibus riders, the most common place was the "Malls" – presumably Hudson Valley Mall (7 respondents). On UCAT, customers listed a wide range of places, including many places UCAT serves today. This likely indicates the need for better customer information. The most common response for UCAT riders was service on weekends (9 respondents).

Figure 4–3 Citibus Responses to Service Improvement Question

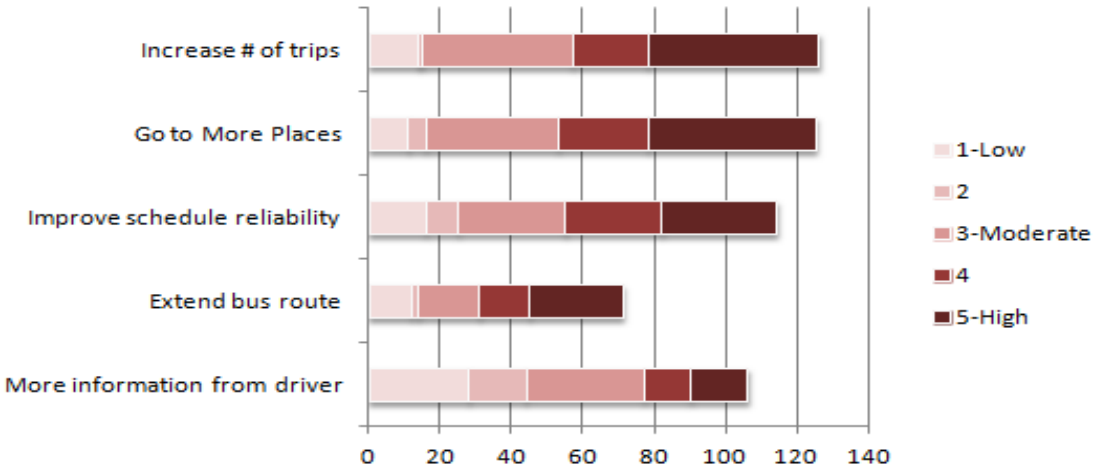
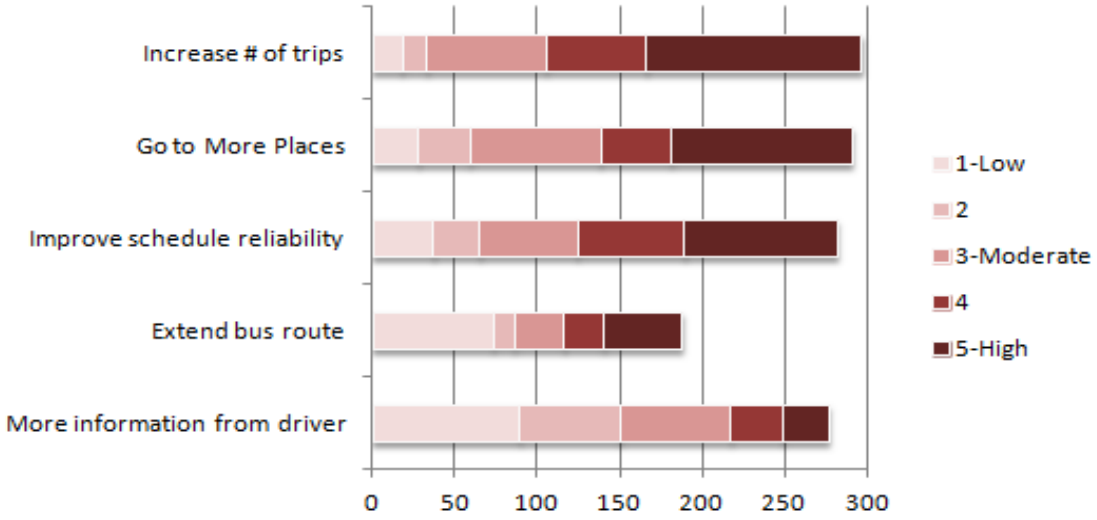


Figure 4–4 UCAT Responses to Service Improvement Question



An open ended question asked current riders if there were any places that they wish a bus went to. Responses were similar to responses to the service extension question, with people requesting the Hudson Valley Mall and weekend service the most. On UCAT, customers requested the following locations (places requested by multiple respondents are shown first):

- Poughkeepsie Galleria (6 respondents)
- Newburgh (3 respondents – Newburgh is served by UCAT Route X)
- Kingston on weekends (presumably on E Route)
- More service between Ellenville and Stone Ridge
- Saugerties to SUNY Ulster
- Weekends on New Paltz Loop
- Dutchess Community College (many students come from New Paltz)
- Earlier UPL at Rosendale
- Downtown Kingston destinations like the YMCA and the Strand area (served by Citibus)

Citibus responses focused on Hudson Valley Mall and stores in the mall area like Wal-Mart (18 responses), as well as other locations served by UCAT like New Paltz and Woodstock. It is clear that some passengers of both UCAT and Citibus either do not know about, or prefer not to transfer to the other system, but do have an interest in the destinations that the other system serves. The hesitancy to transfer between systems is a reflection of the perceived lack of integration between the two systems.

General Public Survey

A more broadly-focused survey was distributed at stakeholder and public meetings, online, and at senior resident centers. The goal of the survey was to collect feedback on how well UCAT and/or Citibus are or are not meeting the needs of County residents. This survey differed from the on-board ridership survey, which focused more on trip-specific information for each rider, such as origin and destination.

A total of 111 general public surveys were collected. 26 were collected online; 18 were collected at a public meeting and 67 were mailed in to the UCTC office.

Nearly half of the general public survey participants had never used either UCAT or Citibus (Figure 4–5). Of those who do use the services, the majority use transit very regularly. The diverse nature of this cohort may explain the high number of skipped questions among the respondents. Some survey takers may have decided that certain questions were not relevant to their situation.

Below is a summary of the responses to the general public survey:

How many times have you used UCAT or Citibus in the past month?

Figure 4–5 Frequency of Use

Answers	Number of Responses	Percentage of Responses
Once	4	3.7%
1 or 2 times	9	8.3%
More than 3 times	34	31.5%
Not in the past month	8	7.4%
Never	53	49.1%
Answered Question	*108*	*97.3%*
Skipped Question	*3*	*2.7%*

The high frequency of transit use among the majority of survey participants who reported using UCAT or Citibus in the past month is consistent with the data collected through on-board surveys. **Transit use in Ulster County appears to be an all-or-nothing proposition, with very few occasional users**.

If you have never used UCAT or Citibus or have only used it a couple of times, what is your primary reason for not using these two services (check all that apply)?

Figure 4–6 Reasons for Not Using Transit

Answers	Number of Responses	Percentage of Responses
Bus stop is too far from my home	13	14.8%
Bus does not go where I need it to	15	17.0%
Too expensive	2	2.3%
Ride is too long	6	6.8%
Service not frequent enough	17	19.3%
Unsure how the service works	12	13.6%
Other	23	26.1%
Answered Question	*60*	*54.1%*
Skipped Question	*51*	*45.9%*

Write-in comments included:

- Bus will not go back to the 5000 Bldg at Birchez Assoc. Housing.
- Citibus breaks too long.

How might UCAT/Citibus change their service to better meet your needs and encourage you to ride the bus more often (check all that apply)?

The greatest reason for not using UCAT and/or Citibus was reported as 'Other'. Additional reasons reported include 'Bus stop is too far from my home,' 'Bus does not go where I need it to' and 'Service not frequent enough'. A significant number of respondents also claimed to be 'Unsure how the service works'. This indicates that better communication and education about UCAT/Citibus is needed.

Figure 4–7 Service Improvement Suggestions

Answers	Number of Responses	Percentage of Responses
More frequent service	36	18.5%
Shorter travel time	9	4.6%
Bus stop closer to my home	20	10.3%
Bus stop closer to my destination	18	9.2%
Longer service hours during the weekday	25	12.8%
Weekend service hours	45	23.1%
Better information about services	27	13.8%
Other	15	7.7%
Answered Question	*85*	*76.6%*
Skipped Question	*26*	*23.4%*

Write-in comments included:

- Not having to wait 45 min in between transfers.
- UCAT and Citibus to agree on transfer times and connections.
- New shopping destinations.
- Need shelters and hardcopy schedules on buses.
- More transfers and buses that don't break down.
- Less complicated routes to Poughkeepsie and Newburgh
- No transportation between 9:00-10:00AM and 3:00-4:00PM

The majority of respondents selected a service improvement issue related to schedules such as 'More frequent service,' 'Longer service hours during the weekday,' or 'Weekend service.' This suggests that schedule adjustments may be more critical than routing adjustments as a key to increasing ridership.

Are there any specific destinations that you would like to see UCAT and/or Citibus go to? Please write in the name of the destination.

Figure 4–8 Suggested Destinations

Written-In Responses	
More rural areas	Port Ewen to Kingston
Middletown, NY	Shopping at Aldi
Poughkeepsie, Galleria	Esopus, New York
More frequent access to Port Ewen BOCES and Ulster County Mental Health	230 Sawkill Road, Kingston
West Shokan, NY	1 Webster Ave, Poughkeepsie
Ellenville on weekends	Citibus should go to Town of Ulster
Probation Department on Broadway	YMCA and Kingston Library
28 A Route - West Shokan	CVS/Dunkin Donuts on Ulster Ave.
Route 209 Past Davenports Farm	Shoprite
More Kingston Parks	Ten Broeck Commons
Kingston to New Paltz	Wal-Mart without a transfer
Rail Trail Heads, Red Hook and Rhinebeck, farm stands on county and state roads.	New Paltz Family Medical
212 to Woodstock	Mall
West of New Paltz	From midtown between Burger King and Kingston High School to uptown
Coleman School and Bailey School	Fishkill
Ulster and Dutchess County Fairgrounds	Kingston to Margaretville
East Kingston	

Answers	Number of Responses	Percentage of Responses
Answered Question	36	32.4%
Skipped Question	75	67.6%

The majority of respondents chose not to answer this question, which again suggests that scheduling may be a far more pressing issue than routing for both providers.

Of the responses that were given, many of the destinations are in fact currently served by one of the County's transit systems, but perhaps not the one that the survey taker was most familiar with. This again points to a transit environment in Ulster County where the perception among some riders is that the two transit systems are poorly integrated or the routes and destinations are poorly marketed.

Please use this area for any other comments or suggestions that you may have for UCAT/Citibus services.

Figure 4–9 Open Comments

Written-In Responses	
Although I drive and have a vehicle so I don't use the bus, I work with young people and adults, many of whom have disabilities, who need better public bus transportation in order to obtain employment.	I understand that transportation to the mall is very difficult for youth, especially those who are employed at the mall. In general, I think that youth should be heavily considered when making decisions for changes in the UCAT/Citibus system.
There are no buses on the weekends, so I can't work outside of Ellenville due to weekend transportation issues.	More people should know bus routes, and the schedule should be printed in the newspaper.
I think the current service is very confusing. I also think UCAT and Citibus should combine efforts.	Spanish schedules.
The people on the bus could be friendlier.	Cleaner buses.
It is very difficult/impossible for anyone coming from Ellenville to get to Port Ewen BOCES for classes.	Special events buses.
Services to Ellenville are not offered on weekends - they should be.	Better linkages between events in Ulster and Dutchess Counties
I am a student at UCCC, and UCAT service is too limited. I work and I can't get to the campus for night classes. From Saugerties to the BRC the service is good. I can get to the BRC on time, but to get to the campus it is just impossible. Look at the itinerary. It takes me one hour to get to Hannaford Kingston, and then twenty minutes to get to the Campus. On top of it, I have to wait at Hannaford Kingston: 25 minutes after 7:20 am, one hour and 10 minutes if I want to take the bus that arrives at 11:50 because there is no bus from Saugerties to Hannaford Kingston Plaza at 10:30, 40 minutes if I want to get at UCCC by 1:20, in short, it is too complicated to get to school. Night classes are a nightmare.	Sunday for church service and Saturday for recreation.
	Schedules confusing for all routes.
	Cart needed to carry groceries and accommodations for walkers.
	Not having to wait on the corner of Stewart's on Albany Ave. for so long to come back to Birchez at Chambers 5000 Bldg.
	Saturday C-Bus only comes 2 to 3 times.
I don't ride the bus, but the route goes directly in front of my house often and never seems to have more than 2-3 people on it.	Ellenville needs more than just Kingston and needs more direct routes.
Should be free to use for students.	Have a phone number to call for updates and closing information.
I believe we should have one bus service, not two! If they were combined, there would be much better service.	Need a direct service to medical facilities for testing and visiting.
The buses seem quite large for the number of riders on them. It makes me wonder if there could be smaller buses covering more routes.	More direct route between Saugerties and UCCC.
	Need to have schedule printed in newspaper.

Answers	Number of Responses	Percentage of Responses
Answered Question	30	27.0%
Skipped Question	81	73.0%

The free response questions covered several issues, including a number of recurring themes:

- There is a desire for a single transit provider in the county
- Passenger information should be improved and more readily available
- More direct service between Saugerties and UCCC is requested
- Service to Ellenville is insufficient
- Residents of the county question the choice of vehicles used by the transit providers

Chapter 5. Lessons Learned and Recommended Improvements

As demonstrated in previous chapters, there are several distinct areas where UCAT and Citibus could improve their approach to transit service in Ulster County. A number of recurring themes emerged from the analysis of UCAT and Citibus services and the perception of those services by county residents. The following is a synopsis of the lessons learned from the Ulster County Transit Development Plan Study:

- While Ulster County is geographically well-covered by transit services, this coverage is at the expense of service frequency. Such a coverage model tends to meet the needs of transit-dependent populations, but is less appealing to choice riders who often value service frequency.
- Neither UCAT nor Citibus offers information about the other's service on their printed materials, and the format of Citibus' schedule is non-traditional. The lack of information or information that is difficult to interpret can act as barriers to access for new customers and cause existing customers to complain about the lack of service that actually exists.
- Compared to regional peers, UCAT and Citibus carry the fewest fixed-route passengers per revenue hour, and have the highest operating costs per passenger trip. This is due, in part, to the county's rural nature and the long distances (and hence time) it takes to connect people to destinations. However service design is a major contributing factor as well.
- UCAT reports operating and capital costs combined as operating cost, which skews productivity statistics when comparing the system to peers.
- Both systems' current approaches to data collection make it difficult to pinpoint areas of unproductive service or make informed decisions on resource allocation. Citibus is exempt from NTD reporting due to its small fleet, and thus collects a very limited amount of service performance information. UCAT collects service performance data by driver assignment block rather than by route. Neither system allows for the assessment of service performance at the route level.
- Riders want more service. The over-all perception is that most existing services are not frequent enough, and do not operate sufficient hours in the evening/weekends, making it difficult for residents without vehicles to meet their mobility needs.
- The actual and desired travel patterns of county residents (transit riders and non-riders) transcend municipal boundaries. For example, Kingston residents travel to retail destinations in the Town of Ulster on a regular basis and would like to do so more easily. Similarly, Ulster County residents have a strong interest in regional destinations within the county, such as SUNY Ulster, in neighboring counties, such as Newburgh and Poughkeepsie, and in more distant regional destinations like Albany and New York City.
- In surveys, many of the top suggestions for new service destinations are are in fact already served by one of the County's two public transit systems, but perhaps not the one that the survey taker is most familiar with. If, for a variety of reasons, passengers are unwilling to transfer between the County's two transit systems, then there are lost ridership opportunities for both systems. A single, county-wide public transportation system would likely result in higher over-all ridership and cost savings associated with duplicate equipment and staffing.

The following chapter outlines a set of recommendations to address the lessons learned over the course of the Ulster County Transit Development Plan study.

Recommendation: Improve Data Collection and Set Service Standards

Citibus is exempt from NTD reporting (due to its small fleet), and thus collects a very limited amount of service performance information. UCAT collects service performance data by driver assignment block rather than by route. Neither system allows for the assessment of service performance at the route or stop level, and without such information, it is difficult to pinpoint areas of unproductive service or make informed decisions on resource allocation.

In November 2011, UCAT began testing a new electronic data collection system. This system uses GPS-enabled mobile data terminals to track passenger boarding and alighting activity at the stop level. Once fully implemented, the system promises to simplify the data collection process for UCAT staff and give UCAT the ability to mine the newly available data for "actionable" information.

Route Definition

To further improve the data collection and analysis process, the internal UCAT definition of a "route" should be re-examined. Currently, UCAT applies this term to what is essentially a driver assignment. For example, a UCAT driver assigned to the "U Route" will actually drive a route that consists of U Route service and N Route service as defined by the system map.

Aggregating ridership data by driver assignment is useful for the purpose of calculating the average passenger trip length, which is a required statistic for NTD reporting, but it does not allow UCAT to distinguish between strong routes and weak ones as defined by the system map. Rather than applying the term "route" to both passenger routes and driver assignments, the following definitions are recommended:

- ***Route*** - A specified path taken by a transit vehicle, along which passengers are picked up or discharged. In Ulster County a route is designated by a letter or letters (A Route, Z Route, UPL Route, etc.).
- ***Block*** - A collection of trips operated by a single vehicle from garage pull-out to garage pull-in. Blocks should have a separate naming convention so as not to be confused with routes (Block 101, Block 102, Block 201, etc.).

By focusing on block-level ridership rather than route-level ridership, UCAT is likely undercounting the total number of passenger trips it serves. The FTA defines a passenger trip as one passenger taking one trip on one transit route. A transfer from one route to another will thus generate two passenger trips. When routes are interlined, passengers that ride through the interline point can be considered transferring passengers, and counted as two separate passenger trips.

Standards and Guidelines

By aggregating ridership data at the route level, UCAT (as well as Citibus) can begin setting route-specific service performance standards. Service standards are a benchmark by which service operations performance is evaluated. There are no national service standards or guidelines established by FTA, but the Center for Urban Transportation Research at the University of South Florida has produced a national best-practices guide (Project #BD549-38), which can be viewed online.

The establishment of standards should reflect the goals and objectives of a community. For transit systems that do not have an established set of service standards, it is often useful to initially set a baseline that reflects current performance, while also establishing a set of goals by which to judge future service performance measures. The example below is taken from Community Transit in Snohomish County, Washington:

Figure 5–1 Example of Service Performance Goals and Measures

Goals and Measures	Baseline (2006)	Definition of Success
Goal: Customer Satisfaction and Ridership Growth		
Boardings per Capita	21.1	Increase over Baseline
Boardings per Revenue Hour	15.2	Increase over Baseline
Goal: Good Stewards of Public Funds		
Cost per Passenger Mile	$0.75	Decrease over Baseline
Cost per Revenue Hour	$142	Decrease over Baseline
Farebox Recovery	17%	Movement towards 20% goal

Monitoring system performance and designing the "right" services are important tasks for transit operators. Goals provide a "vision" for public transit, whereas standards provide a formal, quantifiable structure for how the service should perform. Through performance monitoring, service inefficiencies and negative trends become visible, allowing timely corrective action. Changes to existing service and the introduction of new service can be justified through performance measurements.

- **Performance measures** are the criteria by which specific achievements consistent with system objectives are determined. They provide a means to assess whether actual performance is meeting or has met adopted objectives. Selected measures should be monitored on a regular basis (month-to-month, quarterly) by transit staff, and regularly reported to advisory groups or policy makers.
- **Standards** define acceptable thresholds of accomplishment or action items that represent attainment of an objective at a given point in time. Standards are typically quantitative and directly measurable (e.g., 10 passengers per revenue hour) but can also be qualitative (e.g., service should be user-friendly). Standards should be agreed-upon targets for the transit system to achieve and may be recalibrated annually or more frequently to reflect changing circumstances such as market changes, funding changes, and operational changes.

Performance measures can be used to gauge both the efficiency and reliability of a transit service. Recommended efficiency performance measures include:

- **Operating Cost per Passenger:** Calculated by dividing all operating and administrative costs by total passengers. The subsidy per passenger is a further refinement of this measure and is calculated by subtracting farebox revenue from gross operating and administrative costs and dividing by total passengers. This measure is useful when service cuts or enhancements are being considered and justified.
- **Operating Cost per Revenue Hour:** Calculated by dividing all operating and administrative costs by the total number of vehicle revenue hours (with revenue hours defined as time when the vehicle is actually in passenger service). Operating cost per

revenue hour measures system-wide efficiency and should be tracked on a monthly and annual basis.

- **Passengers per Revenue Hour:** Calculated by dividing the total number of passengers by the total number of vehicle revenue hours. The number of passengers per hour is a good measure of service productivity.
- **Farebox Recovery Ratio:** Calculated by dividing all farebox revenue by total operating and administrative costs. Farebox recovery evaluates both system efficiency (through operating costs) and productivity (through boardings).

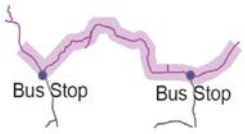
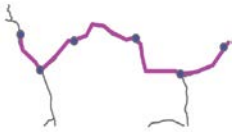
These indicators are largely consistent with operating and cost data already required for NTD reporting. Other performance measure are useful indicators of service quality and reliability. These include the following:

- **On-Time Performance:** Measured by recording bus departure and arrival times on a regular schedule to monitor pickup times.
- **Passenger Complaints:** Records the number of passenger complaints that are submitted in writing or verbally conveyed to the transit agency. This is typically measured as number of complaints divided by 500 or 1,000 passengers.
- **Preventable Accidents/Revenue Mile:** Calculated by dividing the number of preventable accidents by revenue miles.
- **Road Calls/Revenue Mile:** Measures the condition of the vehicles and reliability of the service and is calculated by the number of road calls divided by revenue miles.
- **Service Denials:** This measure is applicable only for demand-responsive service such as UCAT's Rural Route and is the number of trips requested that cannot be fulfilled because of other trips already booked.

The measures described above can be tracked at the system-level or at the route level. At the system level, these measures are useful for peer comparisons, while at the route level, the measures can help identify underperforming routes.

Both UCAT and Citibus should determine which set of service performance metrics are the best measures of their agency and community goals. Consideration should include the use of the most common single service performance measure: passengers per revenue hour. The table below shows how this metric fits in with other factors that should be considered when designing an appropriate level of transit service.

Figure 5–2 Service Guidelines (for small urban and rural environments)

	Demand-Responsive	Anchored Flex Route	Deviated Fixed-Route	Fixed-Route
				
Description	Residents within a certain geographic area may call to schedule a curb-to-curb trip. Service may be open to the general public, persons with disabilities, or clients of particular services.	Anchored Flex routes have fixed time points in town centers or major destinations, often with connections to other services. Passengers who live between the time points may call to request a curbside pick-up. The operator takes the most direct route between time points to pick up the passenger.	Service runs along a published alignment. Passengers living a certain distance from this route may call to request a curbside pick-up. Since the route is specified, the bus must return to the point where it left the route after a deviation.	A set route and schedule are published and open to the general public.
Passengers per Revenue Hour	2-3	3-5	5-8	8-10
Benefit	In rural areas with dispersed destinations, demand-response service provides the ability to serve a large geographic area.	Anchored Flex service combines the accessibility features of demand-response with the scheduled reliability of fixed-route service.	In lower-demand areas where deviations can be accommodated, the agency effectively provides both fixed and ADA service with one vehicle.	This type of service typically provides the fastest travel times between points, which makes service attractive to choice riders.
Challenge	Demand-response has high cost per trip as clients are typically traveling long distances.	To accommodate flex pick-ups, the travel time between time points must be a factor longer than direct travel.	In rural areas with sparse road networks, accommodating out-and-back deviations may add significant travel time.	Fixed service means the agency must also provide ADA paratransit.

This table offers a useful way of determining when service models are ready for change. For example, a demand-response service that is yielding 4-5 passengers per hour may benefit from adding a couple of time points and transitioning to flex service. If a fixed-route service is carrying 7 or less passengers, then transitioning to flex or deviated fixed-route may serve the current clientele just as well.

Recommendation: Improve Passenger Information and Marketing

For many prospective transit users in Ulster County, a passenger schedule or bus stop is their first introduction to UCAT or Citibus service. Even for seasoned transit users these elements are important way-finding tools. Thus, passenger schedules and bus stop amenities can play a key role in both attracting and retaining transit users.

Passenger Schedules

Two primary changes are recommended to make passenger schedules more intuitive and informative for transit users in Ulster County.

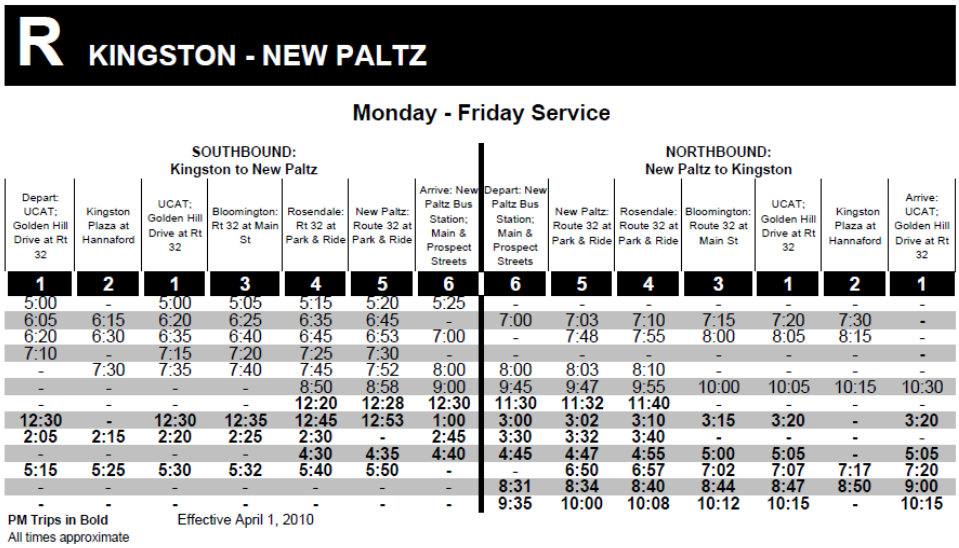
1. ***Standardize format of passenger schedules for UCAT and Citibus routes.*** Currently, Citibus schedules (Figure 5–3) and UCAT schedules (Figure 5–4) are designed very differently. This requires passengers who utilize both systems for their commutes to constantly reorient themselves to interpret the varying information. The Citibus schedules would also benefit from added clarity.

Figure 5–3 Citibus Passenger Schedule

LOCATION	HANNAFORD OLD AMES CLINTON & MAIN MAIN & FAIR	WALL STREET AND OLD DUTCH CHURCH JOHN STREET N. FRONT ST FAIR ST PEARL ACADAMEY GREEN	BROADWAY AND ST. JAMES LIBERTY VAN BUREN	BROADWAY AND HENRY (BANK) DUNKIN DONUTS HOFFMAN ST W. ORIELLY ANDREW BREWSTER W. CHESTER ORCHARD DELAWARE AND LIVINGSTON, NEWKIRK JARROLD	MURRAY AND DELAWARE JARROLD ROUNDOUT GARDENS GARRAGHAN DRIVE BROADWAY AT FUNERAL HOME WURTS AND PIERPONT W. UNION	ABEEL AND-BROADWAY MARINERS HARBOR ROSITA'S RESTAURANT STRAND AND TOMPKINS SYCAMORE E. UNION AND GILL ABRUY CRANE LINSLEY AND DELAWARE	NORTH AND DELAWARE E. UNION E.UNION AND LINSLEY CRANE ABYRUN AND GILL SYCAMORE STRAND ACROSS FROM ROSITA'S	ACROSS FROM MARINERS HARBOR ABEEL & POST WURTS & W., PEIRPONT MCENTEE & BROADWAY GARRAGHAN DRIVE	ROUNDOUT GARDENS & MURRAY JARROLD DELAWARE DELAWARE & 3RD,1ST, & HASBROUCK HASBROUCK PLACE	BROADWAY AT BURGER KING, KINGSTON HOSPITAL E. ORIELLY ST, ACROSS FROM YMCA CORNELL ST. SMITH AVE & BRIGHAM APTS DOWNS & BROADWAY	BROADWAY & ELMENDORF, ST. JAMES, ALBANY & CLINTON
AM							6:30	6:35	6:40	6:45	6:50
Service Break	7:00	7:05	7:07	7:10	7:20	7:25	7:30	7:35	7:40	7:45	7:50
Mon-Fri	8:00	8:05	8:07	8:10	8:20	8:25	8:30	8:35	8:40	8:45	8:50
10:00-11:00	9:00	9:05	9:07	9:10	9:20	9:25	9:30/9:30	9:35/9:35	9:40/9:40	9:45/9:45	9:50/9:50
SAT. 12-1	10:00	10:05	10:07	10:10	10:20	10:25	10:30	10:35	10:40	10:45	10:50
	11:00/11:00	11:05/11:05	11:07/11:07	11:10/11:10	11:20/11:20	11:25/11:25	11:30/11:30	11:35/11:35	11:40/11:40	11:45/11:45	11:50/11:50
	12:00	12:05	12:07	12:10	12:20	12:25	12:30	12:35	12:40	12:45	12:50
PM	1:00/1:00	1:05/1:05	1:07/1:07	1:10/1:10	1:20/1:20	1:25/1:25	1:30/1:30	1:35/1:35	1:40/1:40	1:45/1:45	1:50/1:50
Service Break	2:00	2:05	2:07	2:10	2:120	2:25	2:30	2:35	2:40	2:45	2:50
Mon-Fri	3:00/3:00	3:05/3:05	3:07/3:07	3:10/3:10	3:20/3:20	3:25/3:25	3:30/3:30	3:35/3:35	3:40/3:40	3:45/3:45	3:50/3:50
2:00-3:00	4:00/4:00	4:05/4:05	4:07/4:07	4:10/4:10	4:20/4:20	4:25/4:25	4:30/4:30	4:35/4:35	4:40/4:40	4:45/4:45	4:50/4:50
	5:00/5:00	5:05	5:07	5:10	5:20	5:25	5:30	5:35	5:40	5:45	5:50
	6:00	6:05	6:07	6:10	6:20	6:25	6:30	6:35	6:40	6:45	6:50
	7:00	7:05	707	7:10							

Source: Citibus

Figure 5–4 UCAT Passenger Schedule



R KINGSTON - NEW PALTZ

Monday - Friday Service

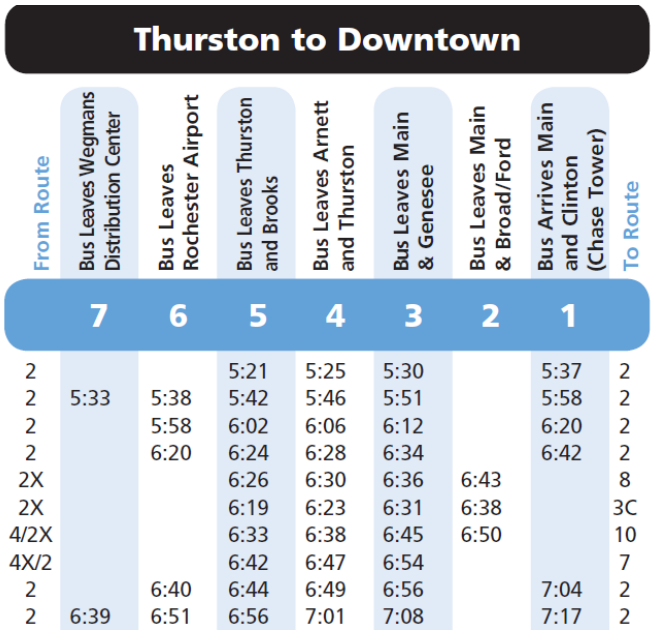
SOUTHBOUND: Kingston to New Paltz							NORTHBOUND: New Paltz to Kingston						
Depart: UCAT; Golden Hill Drive at Rt 32	Kingston Plaza at Hannaford	UCAT; Golden Hill Drive at Rt 32	Bloomington: Rt 32 at Main St	Rosendale: Rt 32 at Park & Ride	New Paltz: Route 32 at Park & Ride	Arrive: New Paltz Bus Station; Main & Prospect Streets	Depart: New Paltz Bus Station; Main & Prospect Streets	New Paltz: Route 32 at Park & Ride	Rosendale: Route 32 at Park & Ride	Bloomington: Route 32 at Main St	UCAT; Golden Hill Drive at Rt 32	Kingston Plaza at Hannaford	Arrive: UCAT; Golden Hill Drive at Rt 32
1	**2**	**1**	**3**	**4**	**5**	**6**	**6**	**5**	**4**	**3**	**1**	**2**	**1**
5:00	-	5:00	5:05	5:15	5:20	5:25	-	-	-	-	-	-	-
6:05	6:15	6:20	6:25	6:35	6:45	-	7:00	7:03	7:10	7:15	7:20	7:30	-
6:20	6:30	6:35	6:40	6:45	6:53	7:00	-	7:48	7:55	8:00	8:05	8:15	-
7:10	-	7:15	7:20	7:25	7:30	-	-	-	-	-	-	-	-
-	7:30	7:35	7:40	7:45	7:52	8:00	8:00	8:03	8:10	-	-	-	-
-	-	-	-	8:50	8:58	9:00	9:45	9:47	9:55	10:00	10:05	10:15	10:30
-	-	-	-	**12:20**	**12:28**	**12:30**	**11:30**	**11:32**	**11:40**	-	-	-	-
12:30	**-**	**12:30**	**12:35**	**12:45**	**12:53**	**1:00**	**3:00**	**3:02**	**3:10**	**3:15**	**3:20**	**-**	**3:20**
2:05	**2:15**	**2:20**	**2:25**	**2:30**	**-**	**2:45**	**3:30**	**3:32**	**3:40**	**-**	**-**	**-**	-
-	-	-	-	**4:30**	**4:35**	**4:40**	**4:45**	**4:47**	**4:55**	**5:00**	**5:05**	**-**	**5:05**
5:15	**5:25**	**5:30**	**5:32**	**5:40**	**5:50**	**-**	-	**6:50**	**6:57**	**7:02**	**7:07**	**7:17**	**7:20**
-	-	-	-	-	-	-	**8:31**	**8:34**	**8:40**	**8:44**	**8:47**	**8:50**	**9:00**
-	-	-	-	-	-	-	**9:35**	**10:00**	**10:08**	**10:12**	**10:15**	-	**10:15**

PM Trips in Bold Effective April 1, 2010
All times approximate

Source: UCAT

2. ***Provide interline information on published passenger schedules***.
In many cases, UCAT provides a one-seat connection between important destinations, but this fact is not apparent to passengers based on published schedules. When a vehicle serving two destinations changes head-signs in the course of an interline, the two destinations end up shown on separate passenger schedules. An effective approach to sharing interline information with passengers is show in Figure 5–5 below. In this example from Rochester, NY, two columns are added to the beginning and end of the timetable to show which route the bus is coming from and going to before and after each trip.

Figure 5-5 Interlines on Passenger Schedule



Thurston to Downtown

From Route	Bus Leaves Wegmans Distribution Center	Bus Leaves Rochester Airport	Bus Leaves Thurston and Brooks	Bus Leaves Arnett and Thurston	Bus Leaves Main & Genesee	Bus Leaves Main & Broad/Ford	Bus Arrives Main and Clinton (Chase Tower)	To Route
	7	**6**	**5**	**4**	**3**	**2**	**1**	
2			5:21	5:25	5:30		5:37	2
2	5:33	5:38	5:42	5:46	5:51		5:58	2
2		5:58	6:02	6:06	6:12		6:20	2
2		6:20	6:24	6:28	6:34		6:42	2
2X			6:26	6:30	6:36	6:43		8
2X			6:19	6:23	6:31	6:38		3C
4/2X			6:33	6:38	6:45	6:50		10
4X/2			6:42	6:47	6:54			7
2		6:40	6:44	6:49	6:56		7:04	2
2	6:39	6:51	6:56	7:01	7:08		7:17	2

Source: RGRTA

The example above is not the only way to display interline information, and Ulster County's transit providers may choose to develop their own method. What is most important though is a consistent approach that will allow users to seamlessly navigate between routes and between systems. Below is a table of common best practices for the design of transit maps and schedules.

Figure 5–6 Best Practices in Map and Schedule Design

	Best Practices	What to Avoid
Font	Font point size between 10 and 16 Sans serif font	Print that is too small to be legible to readers with visual impairments
Colors	Black and white is acceptable for systems that do not rely on color coding of routes. If color is used, number of colors is limited and not too busy.	
Printing	Balance cost of printing (higher for color, lower for B&W) with higher level of distribution for less expensive materials.	High cost printing that results in low level of distribution.
Route Schedules	List time points for only key stops along the route. For linear routes, as few as three stops can be listed: two terminal points and a mid-point. (Riders interpolate arrivals at other timepoints.)	
Layout/Display	Focus on clear information. Similar content elements grouped together.	Focus on graphics or aesthetic elements.
Maps	Route lines do not overlap. Names of all streets on which the routes operate are visible and legible on the map. Names of key adjoining streets are also legible. Minor street names are provided when they do not otherwise interfere with overall map legibility. On map, streets are white on a grey background.	Street names omitted. Maps difficult to use for non-locals.

Equally important to the consistency of the information is its accuracy. Keeping information as up to date as possible is of utmost importance to riders. Over the course of the study, the study team identified several apparent discrepancies between Citibus' published passenger information and actual bus routing:

- Stop at Academy Green on the A Route are listed as 5 past the hour but the sign at the stop says 10 past the hour.
- Map shows A Route buses traveling on Wall Street but the actual routing uses Fair Street.
- A Route buses serve the Smith Avenue housing complex and is listed on the schedule but not shown on the map.

- C Route buses turn from Albany Avenue and completes a loop on Bryun, O'Neill, and Major but this is not shown on the map.
- C Route buses serve The Birches in Port Ewen after BOCES but this is not shown on the map.
- In Port Ewen, the map shows C Route bused running on Green Street but buses actually stays on Broadway.

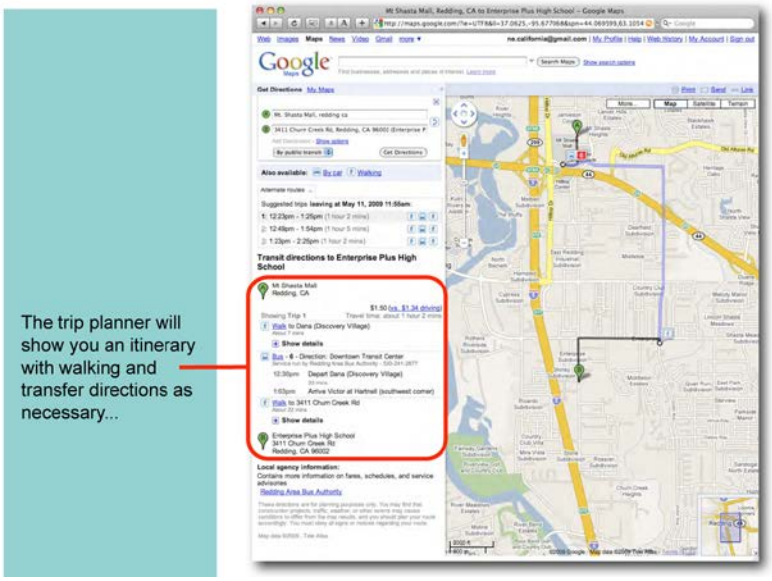
An effective way to ensure that passenger information is kept current is to tie content revisions to regularly scheduled service reviews. As UCAT and Citibus define and adopt service performance standards, the performance of each route can be reviewed quarterly, bi-annually, or annually. Underperforming routes can be refined and passenger information can be revised in the process.

Google Transit

In addition to traditional passenger schedules, UCAT and Citibus should join the growing number of transit systems that have made their transit data available to the public through the Google Transit Partners Program (Figure 5–7). Google Transit is a powerful trip planning and online mapping tool that can improve the transit experience of existing riders and make transit options known to a new market of potential riders. Google's free trip planner presents transit users (and prospective users) with an online tool similar to the driving directions that so many internet users are already familiar with. Google Transit makes public transportation easy to navigate and removes an element of the unknown that acts as a barrier for many potential transit riders. Users can access Google Transit data on any internet-enabled device including hand-held mobile devices.

NYSDOT provides transit providers in the state with a simple path to uploading their data to Google. NYSDOT has developed an interface that allows transit operators to enter, store, and manage their routing and schedule information. This interface is designed to feed into the State's 511 system, but once transit information is entered, it can also be exported in a format that is compatible with Google Transit and uploaded to the Google Transit Partners Program. UCAT is currently working on the first step of this process: creating a NYSDOT 511 data set.

Figure 5–7 Google Transit



Bus Stop Signs

Unlike Citibus, UCAT has historically been a flag-stop system with no marked bus stops. However, that policy is now changing, and UCAT is in the process of installing bus stop signs throughout its service area.

Bus stop signs help create a more predicable transit experience for existing passengers while advertising the existence of transit service to prospective passengers. After signs have been installed it is important to ensure that all route and schedule information on the signs is kept current so as not to misinform passengers. The design of the signs can be a key factor in keeping the signs up to date. For example, including schedule information on the sign face itself (Figure 5–8) can make it difficult and expensive to update the information if schedules change. There is also the risk that planners will be hesitant to make needed schedule adjustments in the future because of the expense or inconvenience of updating the bus stop signs.

Figure 5–8 Bus Stop Signs

A more flexible approach is to include route names or numbers on the signface, to educate and inform current and prospective riders of the routes that serve each stop, and to place schedule information into a weatherproof holder attached to the bus pole (Figure 5–9). Route names and numbers tend to change far less frequently than schedules, so including route information on the signface is far less risky than including schedule information. Implementation of the bus stop signage for both systems should allow for future flexibility as illustrated in Figure 5-9.

Figure 5–9 Weatherproof Schedule Holder

Campus Presence

In addition, UCAT should make every attempt to have a more prominent presence at both SUNY New Paltz and SUNY Ulster. This includes attending orientation events and ensuring that passenger schedules are available and prominently displayed at both campuses and on each school's website. Currently, there is no mention of UCAT on the New Paltz site (even though there is an entire page dedicated to public transportation), and the SUNY Ulster website refers to "Ulster County Rural Transportation."

Recommendation: Improve Service Design

Together, UCAT and Citibus play a critical role in the mobility and quality of life of Ulster County residents and visitors. Based on the public input discussed in Chapter 4, existing services are appreciated and valued by the community, but there is also a pervasive view that service could be better.

Guiding Principles

While Ulster County is geographically well-covered by transit services, this coverage is often at the expense of service frequency. Such a coverage model tends to meet the needs of transit-dependent populations, but is less appealing to choice riders who often value service frequency. To appeal to both sets of riders, UCAT and Citibus must strive to balance often competing service demands. The following service design principles should serve as the basis for changes as they are likely to improve service for nearly all riders:

- **Service Should be Simple:** First and foremost, for people to use transit, service should be designed so that it is easy to use and intuitive to understand. This applies not only to the routing and scheduling of service, but also to the information presented to customers at the stop and on passenger information materials.
- **Service Should Operate at Regular Intervals:** In general, people can easily remember repeating patterns, but have difficulty remembering irregular sequences. For this reason, routes should operate at regular frequencies to the extent possible.
- **Routes Should Operate Along a Direct Path:** The fewer directional changes a route makes, the easier it is to understand. Conversely, circuitous alignments are disorienting and difficult to remember. Routes should not deviate from the most direct alignment unless there is a compelling reason, such as to provide service to a major ridership generator. In such cases, the benefits of operating the route off of the main route must be weighed against the inconvenience caused to passengers already on board.
- **Routes Should be Symmetrical:** Routes should operate along the same alignment in both directions to make it easy for riders to know how to get back to where they came from. In cases where such operation is not possible due to one-way streets or turn restrictions, routes should be designed so that the opposite directions parallel each other as closely as possible.
- **Routes Should Serve Well Defined Markets:** To make service easy to understand and to eliminate service duplication, routes should be developed to serve clearly defined markets. Ideally, major corridors should be served by only one route unless the routes are complementary, such as providing greater over-all service frequency, or serve different functions, such as local vs. regional trips.
- **Service Should be Well Coordinated:** At major transfer locations, schedules should be coordinated to the greatest extent possible to minimize connection times for the

predominant transfer flows. In corridors with multiple routes, schedules should be strategically staggered to avoid bunching and to maximize the over-all service frequency in the corridor. Coordination can also include fare policies and reciprocal fare agreements, allowing passengers to seamlessly transfer between multiple operators.

Ulster County staff also indicated that they consider "Serve Intermodal Centers" to be an important service design principle. However, this must be considered in the context of the user experience. For example, the needs of park & ride commuters are not always the same as the needs of local transit users. Park & ride commuters often value easy access to parking and highway exits, while local users may be more interested in the availability of retail and service providers in close proximity to a transit center. Often these features are mutually exclusive.

NYSDOT is currently evaluating a site near NY-28 and the New York State Throughway for a possible park & ride facility. While the location is ideal for commuters arriving by car and heading to New York City or Albany by bus, it is also a sterile environment in terms of retail and consumer services. Thus the site offers few benefits for local transit users who are not transferring to long-haul buses, and with the exception of the UCAT Z Route, would require additional running time on most UCAT and Citibus routes, with very little ridership gain.

UCAT Route-Specific Recommendations

The recommendations presented below are budget neutral, except where noted. There is ample opportunity to grow transit ridership in Ulster County though better marketing and service design. In fact, it would be premature to invest significant additional resources into either transit system until a set of route-level service standards have been defined and adopted. Without service standards and a plan for ongoing data collection and analysis, it is difficult to accurately measure the effectiveness of such an investment.

The guiding design principles discussed above provide a framework by which to analyze the strengths and weaknesses of each UCAT and Citibus route's design. This analysis, together with the passenger input and service performance data described in previous chapters, form the basis for the route-specific recommendations presented below.

Cultivate SUNY Ridership

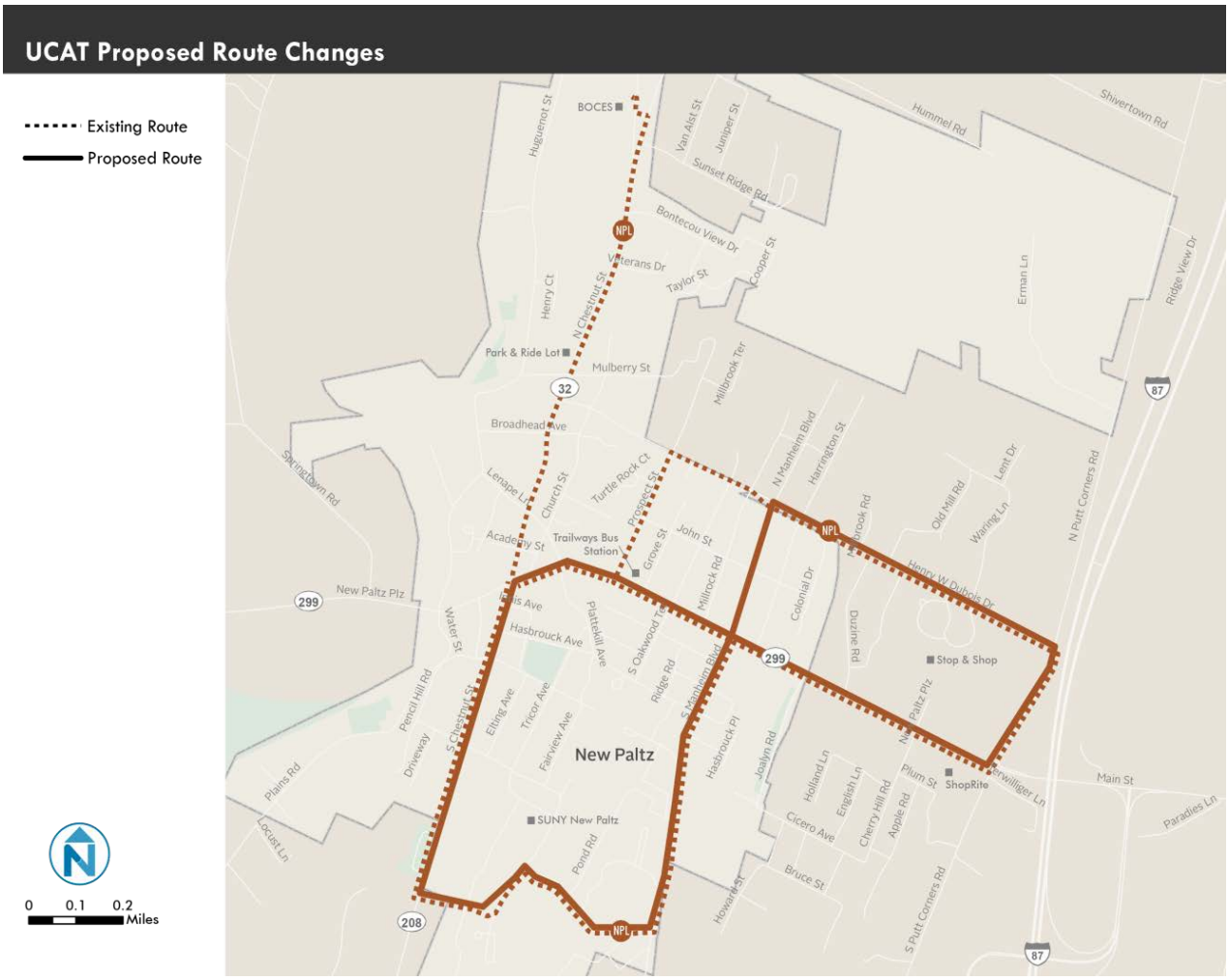
Students are among the most receptive market segment for public transportation. Ulster County hosts two SUNY campuses, representing significant transit ridership potential. SUNY New Paltz and SUNY Ulster are both served by several UCAT routes. These routes generally underperform relative to their potential, and ridership could grow substantially with relatively simple and cost-neutral changes.

The NPL Route, for example, is a local circulator route connecting the SUNY New Paltz campus with major destinations within the town of New Paltz (Figure 5–10). The way the route is currently configured, passengers traveling from SUNY New Paltz to retail destinations along Main Street or apartments along Dubois Drive must first travel north on Chestnut Street to BOCES. This significant diversion from a direct path likely makes the service unappealing to many perspective riders.

Removing North Chestnut Street from the route would increase service frequency and reduce travel time between SUNY Ulster campus, Main Street retail destinations and Dubois Street residential areas. This change would not impact operating cost, makes the route far more attractive to students residing in off-campus apartments along Dubois Street, and may entice existing riders to ride more often as service would be available more frequently. North Chestnut Street would still be served by other UCAT service including the UPL Route.

Figure 5–10 UCAT NPL Route

Figure 5–11 Proposed NPL Route Changes



For a variety of reasons, there is a strong connection between SUNY New Paltz and SUNY Ulster. Some students take courses at both institutions concurrently, others begin their studies at SUNY Ulster and then transfer to New Paltz. Due to a lack of housing options around SUNY Ulster, or because they plan to transfer to New Paltz, a number of SUNY Ulster students live in New Paltz.

Despite the close connection between the two schools, there is currently no transit route that is explicitly dedicated to shuttling students between the two institutions. However, most N Route trips to SUNY Ulster (Figure 5–12) begin as R Route trips in New Paltz (Figure 5–13) and transition to the N Route in Rosendale, with the majority of passengers continuing on to SUNY Ulster.

A convenient one-seat connection between SUNY Ulster and SUNY New Paltz exists but this fact is not published on any passenger schedule. UCAT should take advantage of the close connection between the schools and simply rebrand the interlined R/N trips as a single route connecting the two SUNYs. The service will be far simpler for prospective passengers to understand (Figure 5-14). UCAT staff have discussed branding such a service as "College Link," which is a good way to get the attention of students who would certainly benefit from the service, but may not be aware of it.

Figure 5–12 UCAT N Route

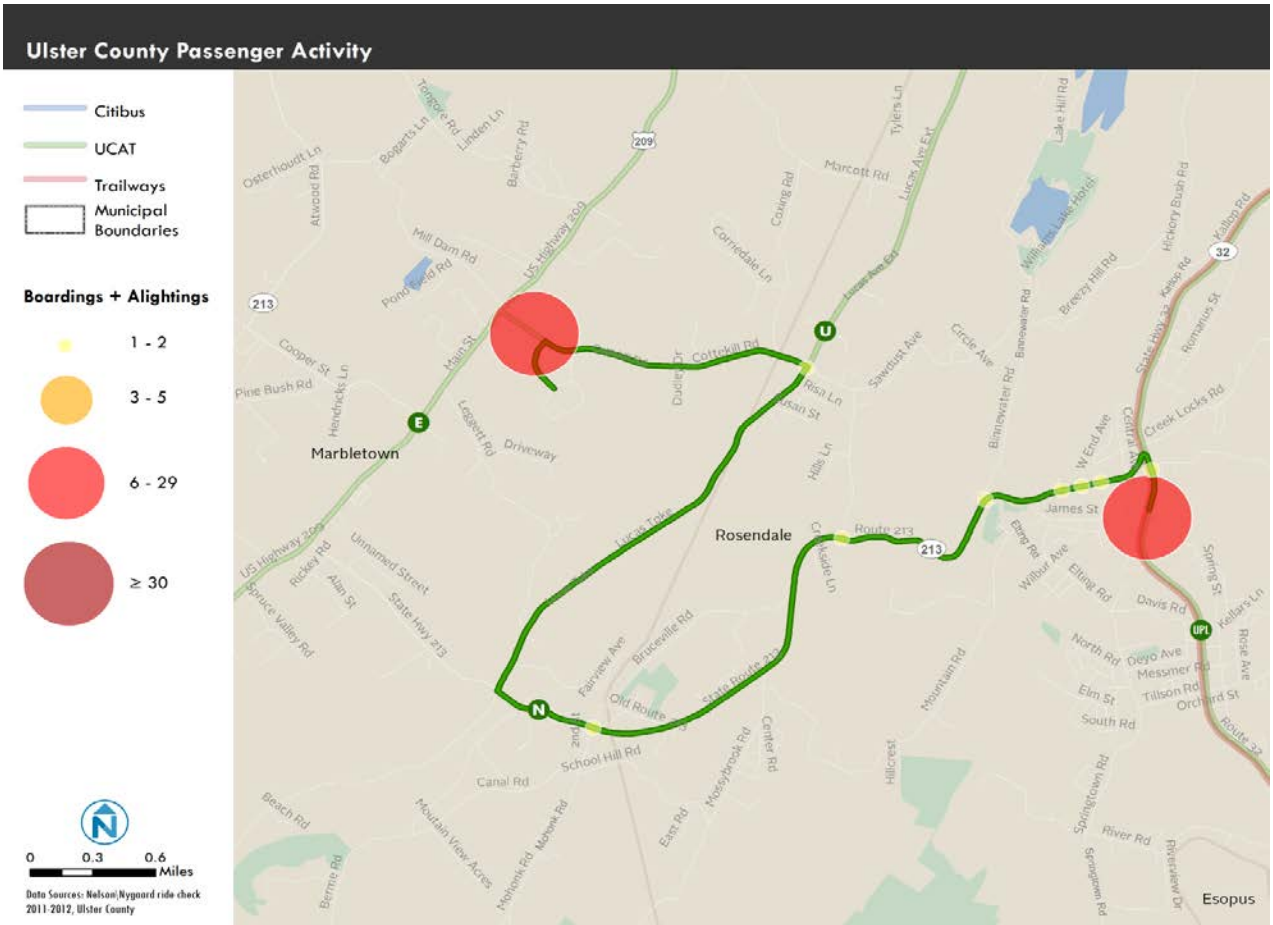


Figure 5–13 UCAT R Route

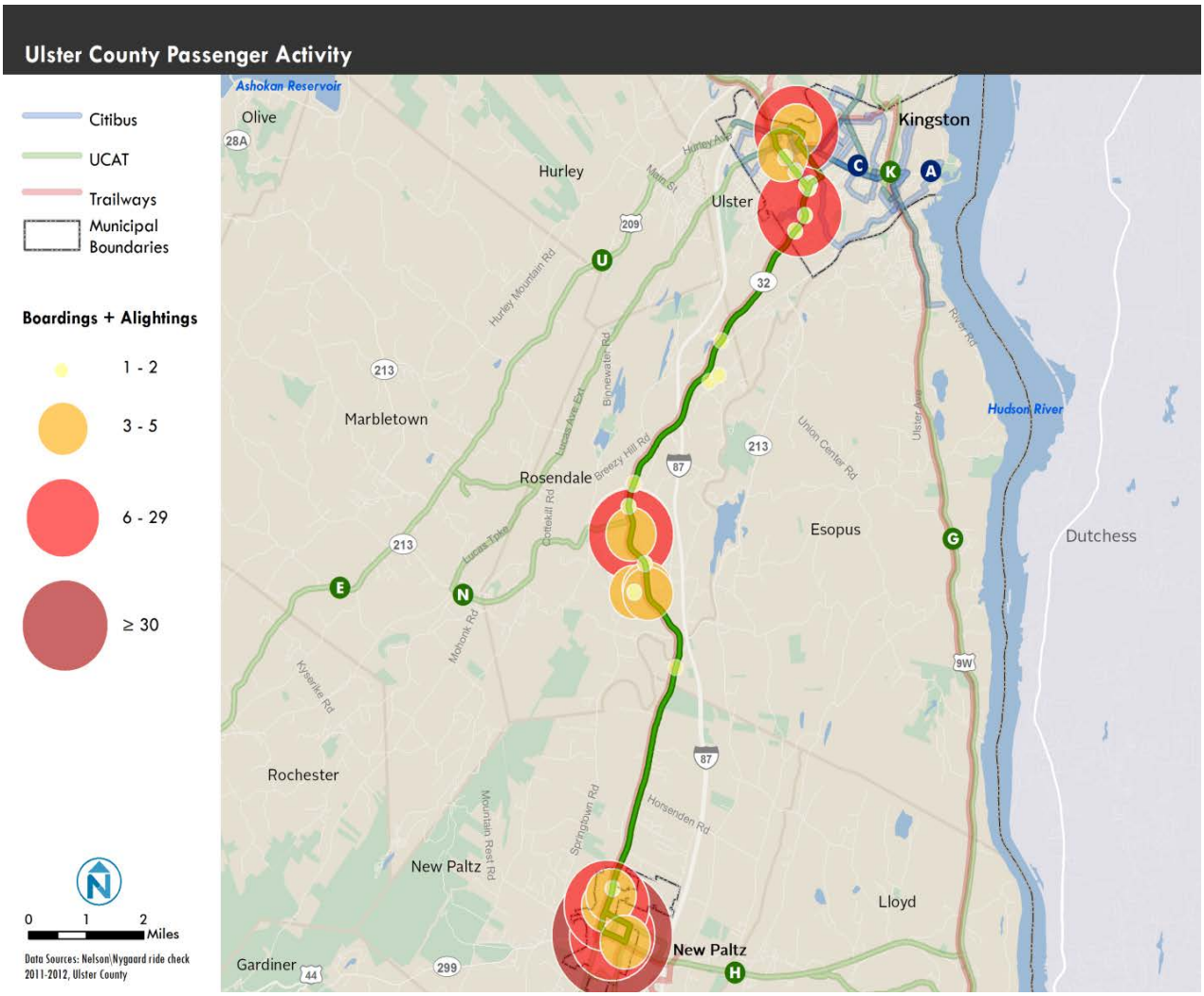


Figure 5-14 Proposed N Route Changes

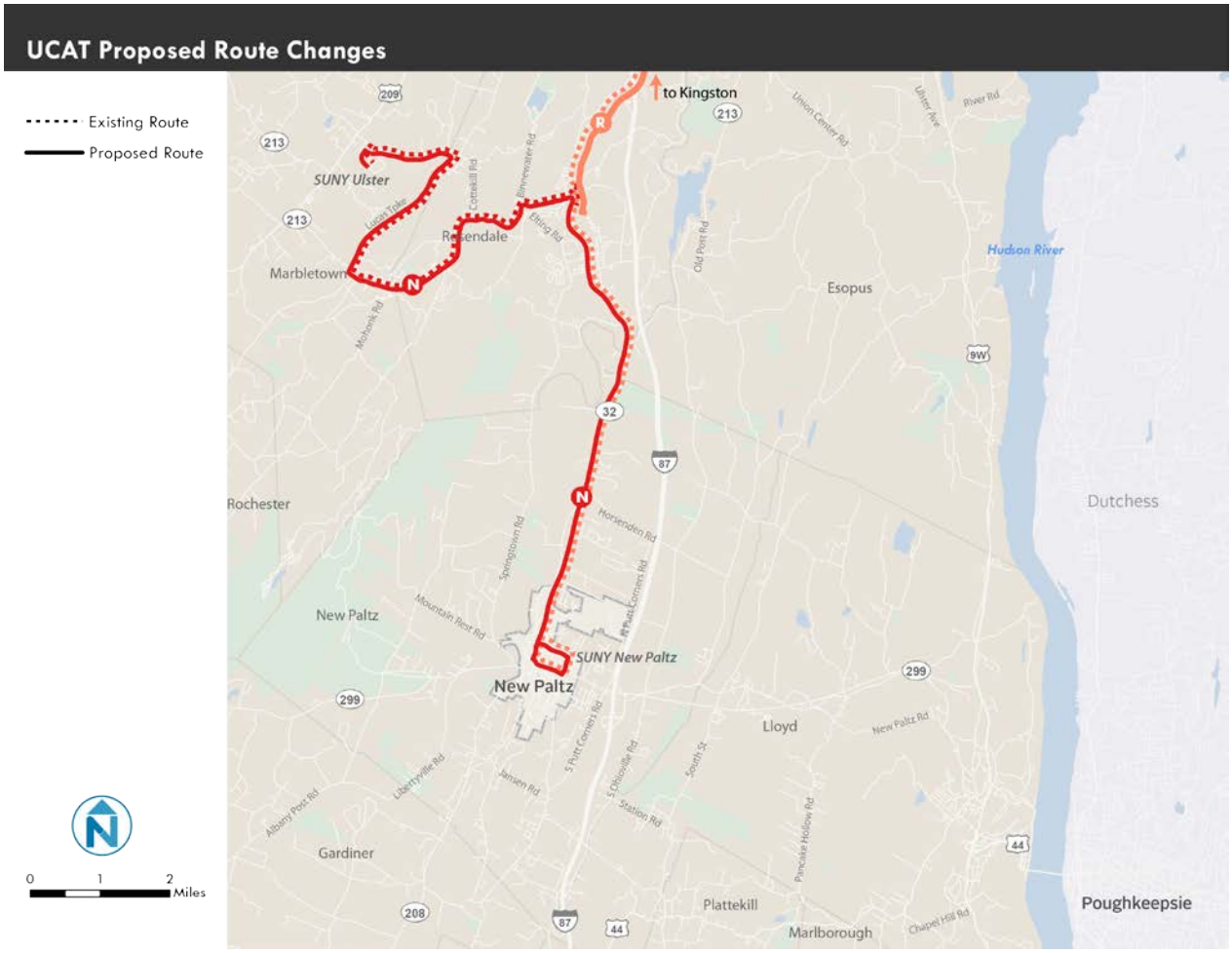


Figure 5–15 Projected Ridership Impacts for NPL, N, and R Routes

Route	Changes	Budget Impact	Projected Ridership Impact (Passenger Trips per Day)
NPL	Revise routing, improve marketing	None	+ 50
N/R	Rebranding, improved marketing	None	+ 15

Streamline Saugerties-Kingston Corridor

Three UCAT routes currently operate in the Saugerties-Kingston Corridor:

- The K Route links Kingston and the Ulster Mall Area, serving Kingston Business Resource Center, TechCity, the Social Security Administration Office, and Hudson Valley Mall (Figure 5–16).
- The S Route links Saugerties and Lake Katrine with the Ulster Mall Area via US 9W (Figure 5–17).
- The M Route is a local circulator linking several retail destinations lining US 9W between Ulster Avenue / Miron Lane and US 209, including Hudson Valley Mall, Kohl's, Kings Mall, Burlington Coat Factory, and Wal-Mart (Figure 5–18).

Figure 5–16 UCAT K Route

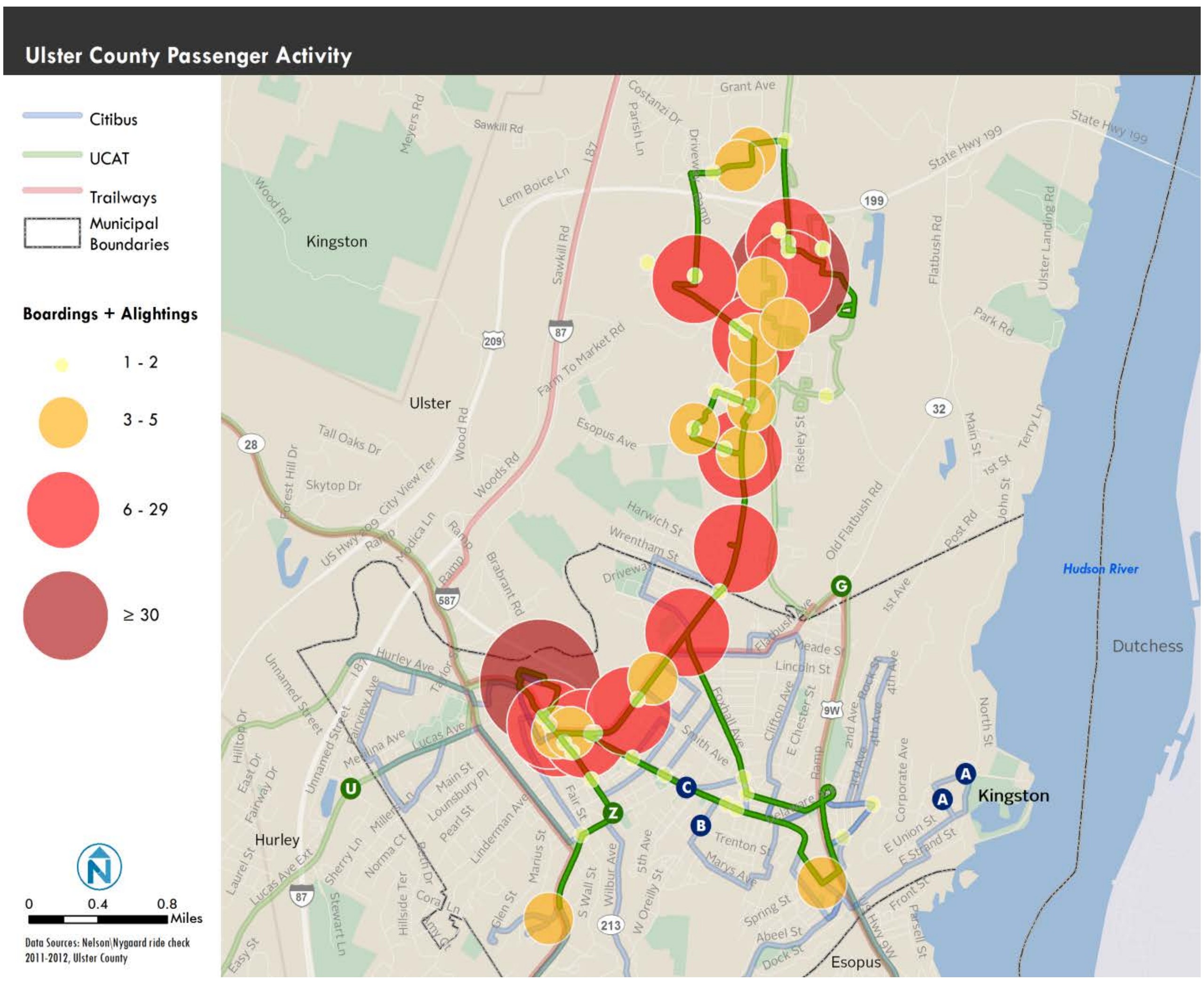


Figure 5–17 UCAT S Route

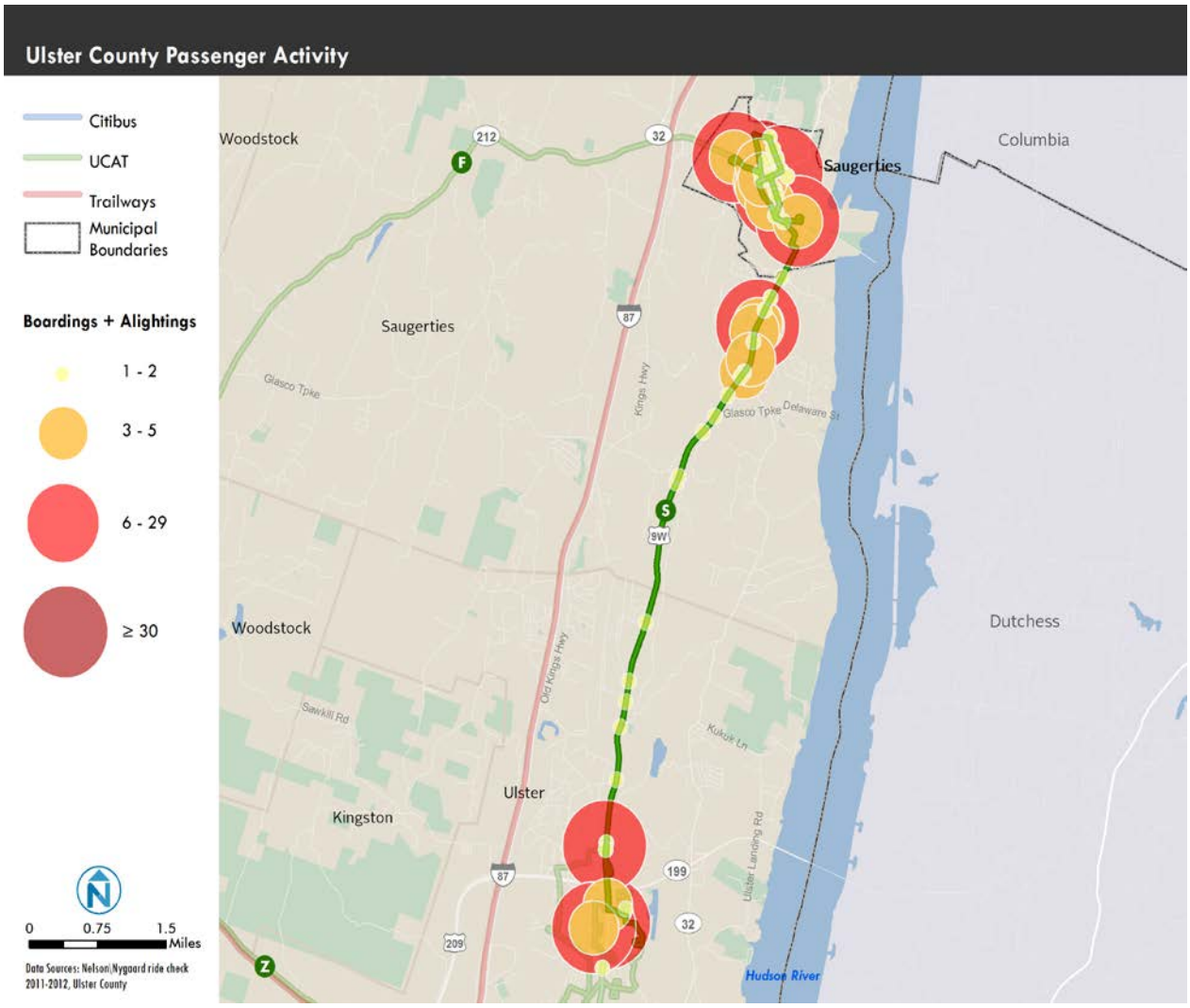
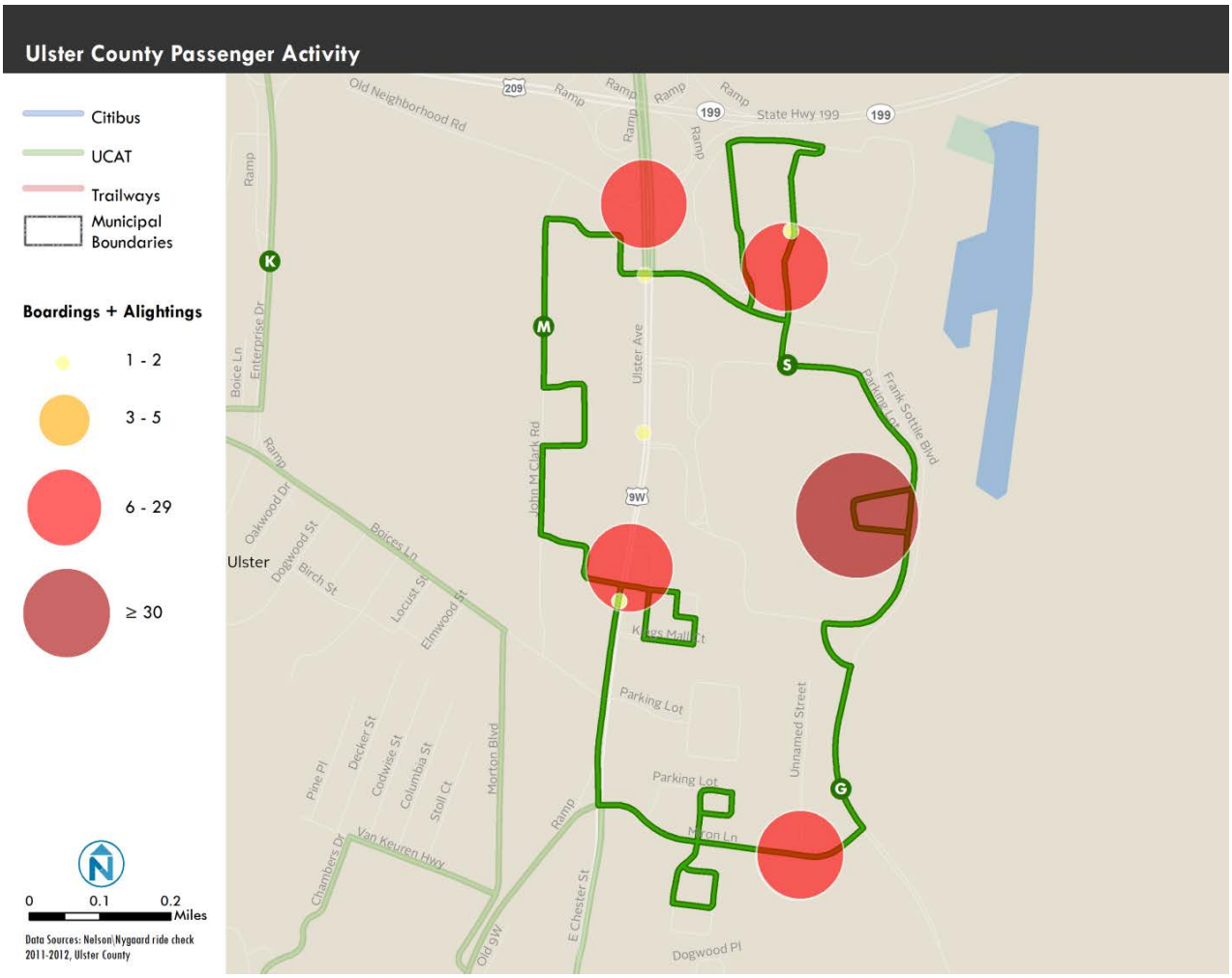


Figure 5–18 UCAT M Route



Most S Route and K Route trips are currently interlined to provide a one-seat connection between Kingston and Saugerties. However, these interlines take place on the east side of Hudson Valley Mall (near the food court entrance), which adds at least 20 minutes to total travel time between Kingston and Saugerties. Streamlining service between Kingston and Saugerties could be done in two ways, each relying on the M Route to play an important role:

1. Inter-line the S and K routes at TechCity instead of Hudson Valley Mall. This alignment would decrease scheduled travel time as well as the potential for unscheduled delays caused by heavy traffic in the vicinity of the mall. To allow S and K Route passengers to access the mall, a branch could be added to the existing M Route loop to provide a connection between TechCity and the mall area S (Figure 5-19).
2. Inter-Line the S and K routes at Hudson Valley Mall, but avoid Ulster Avenue traffic congestion, by using Frank Sottile Boulevard as the main alignment through the mall area. Under this scenario, the M Route would again be used to link the Tech City with the mall area, with the Social Security Administration Office added to the M Route alignment as well (Figure 5-20).

Figure 5–19 UCAT Proposed Route Changes, Option 1

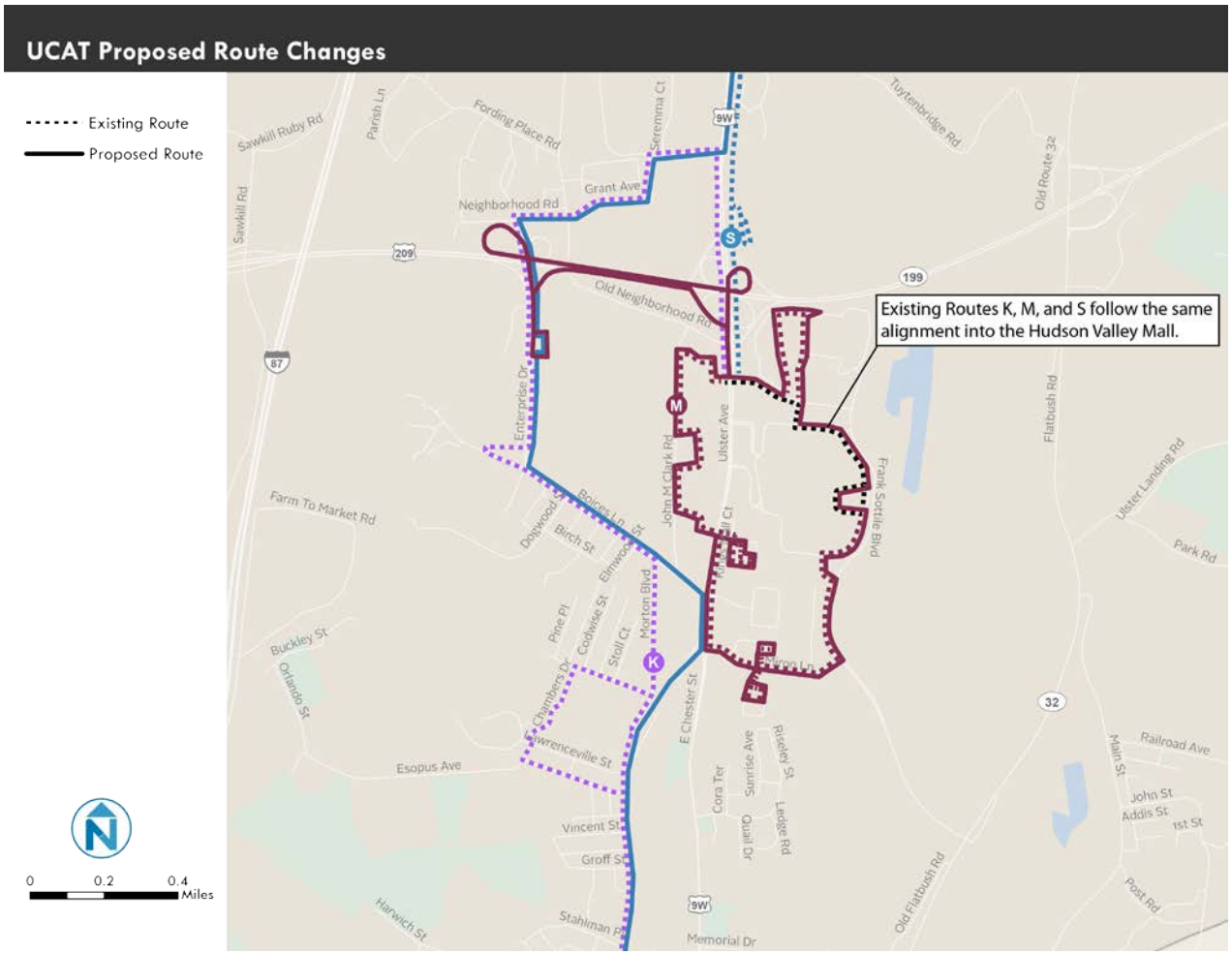
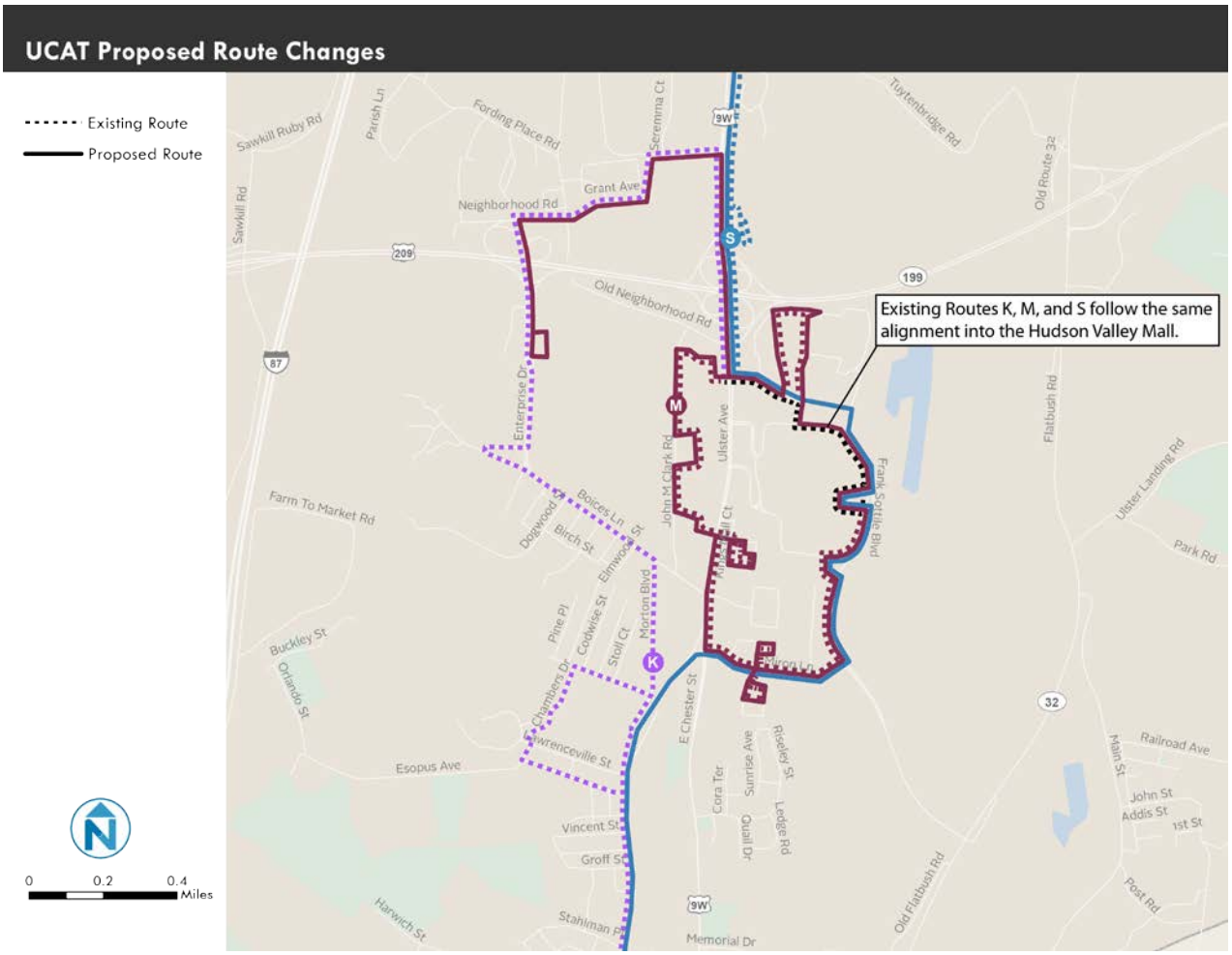


Figure 5–20 UCAT Proposed Route Changes, Option 2



The decision on which of the two scenarios would better serve passengers depends on the evolution of TechCity and the restructuring of Kingston Citibus service. If TechCity evolves into a major employment center, direct service to the campus from both Kingston and Saugerties could make transit an appealing choice for workers. However, if TechCity remains underutilized, more passengers would likely benefit from a direct link to Hudson Valley Mall.

If Kingston Citibus service is restructured to provide a one-seat connection to Hudson Valley Mall, a direct link from Kingston to TechCity would offer passengers more direct destinations from Kingston.

Regardless of the ultimate alignment of the S/K inter-line, if the route is streamlined, it would be advisable to brand the service as a single route, rather than two separate routes in order to emphasize the direct connections between Kingston and Saugerties. If a single route name is applied to the corridor, destination signs could read: "S - Saugerties-Kingston w/ Mall Connection" on southbound trips and " S - Kingston-Saugerties w/ Mall Connection" on northbound trips. Passengers would then understand to refer to the S Route passenger schedule for information on service times and route alignment.

Although Saugerties is quite a distance from SUNY Ulster, access to the community college was a frequently cited issue by Saugerties residents who responded to passenger surveys. In order to reach SUNY Ulster from Saugerties, passengers must transfer at Kingston Plaza. The journey from Saugerties is itself nearly an hour because of the circuitous routing connecting Hudson

Valley Mall, the Social Security Office, and TechCity. Streamlining this routing would save approximately 20 minutes and greatly improve the passenger experience.

While not part of the Saugerties-Kingston corridor itself, the F Route, linking Saugerties and Woodstock, is interlined with the S Route. Twice a day, S Route buses travel to Woodstock and back as the F Route. Each of these trips creates a one-hour service interruption on the S Route and generates less than two boarding's per trip. By eliminating the F Route, service frequency could be maintained on the S Route, likely resulting in a net ridership gain for UCAT.

Figure 5–21 UCAT F Route

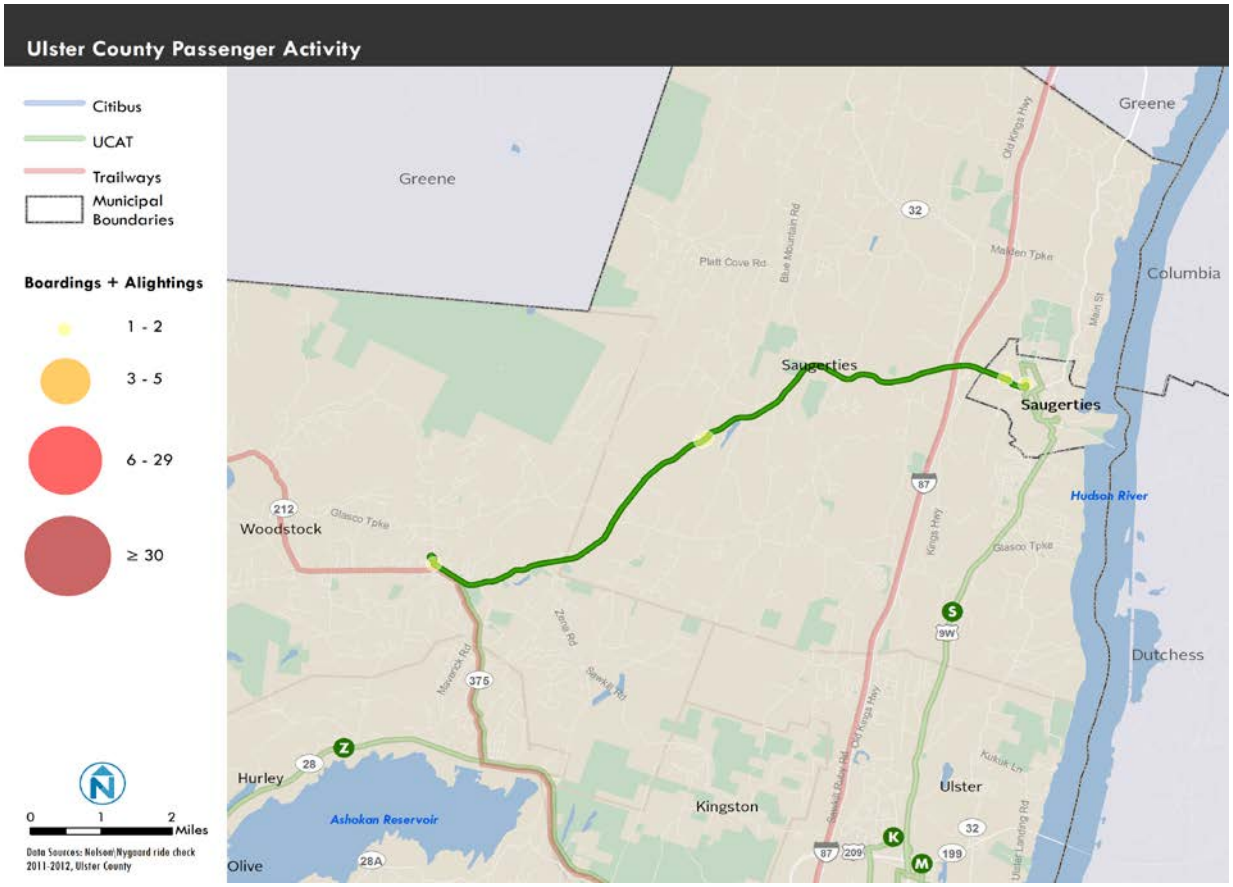


Figure 5–22 Projected Ridership Impacts for S, K, M, and F Routes

Route	Changes	Budget Impact	Projected Ridership Impact (Passenger Trips per Day)
S/K	Revise routing, improve marketing	None	+ 30
M	Rebranding, improved marketing	None	+ 15
F	Eliminate route	None	+ 5

Minimize Deadhead

The size of the UCAT service area, the location of the UCAT garage, and the travel patterns of commuters combine to create a number of unproductive trips that are essentially "deadhead" trips needed for staging purposes. For example, in order to be in Pine Hill for the relatively popular 6:15 am trip to Kingston (Figure 5–23), a Z Route bus must depart Kingston at 4:55 in the morning (Figure 5–24). The outbound trip is too early to attract any riders, and is thus unproductive. A similar situation occurs on the last trip back to Kingston in the evening.

A satellite bus storage facility in the Pine Hill area would avoid these long, unproductive deadhead runs. Buses assigned to the route should be rotated out periodically so that regular preventative maintenance can be performed at the main UCAT maintenance facility.

Figure 5–23 Z Route Weekday Ridership by Trip - To Pine Hill

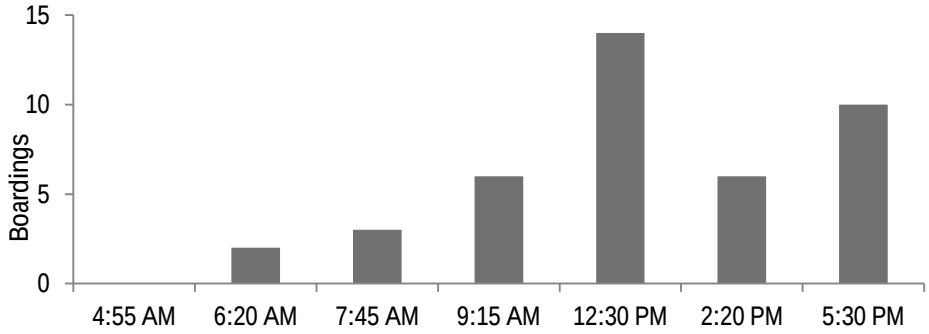
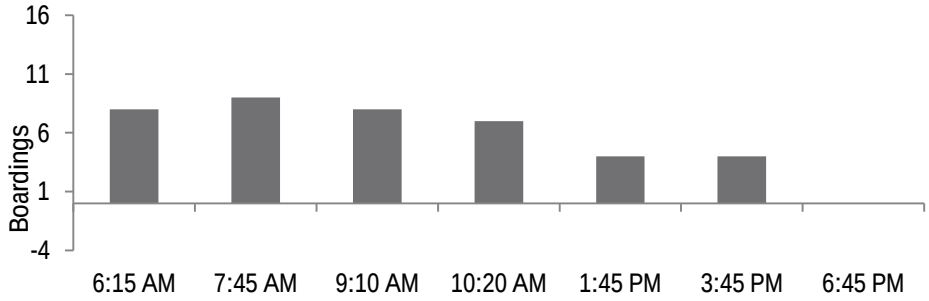


Figure 5–24 Z Route Weekday Ridership by Trip - To Kingston



Source: Nelson\Nygaard ride check 2011-2012

A similar situation exists on the E Route in Ellenville and a satellite storage facility here would improve productivity on the E Route and better align service with ridership demand (Figures 5–25 and 5–26).

Figure 5–25 UCAT E Route Weekday Ridership by Trip - to SUNY Ulster

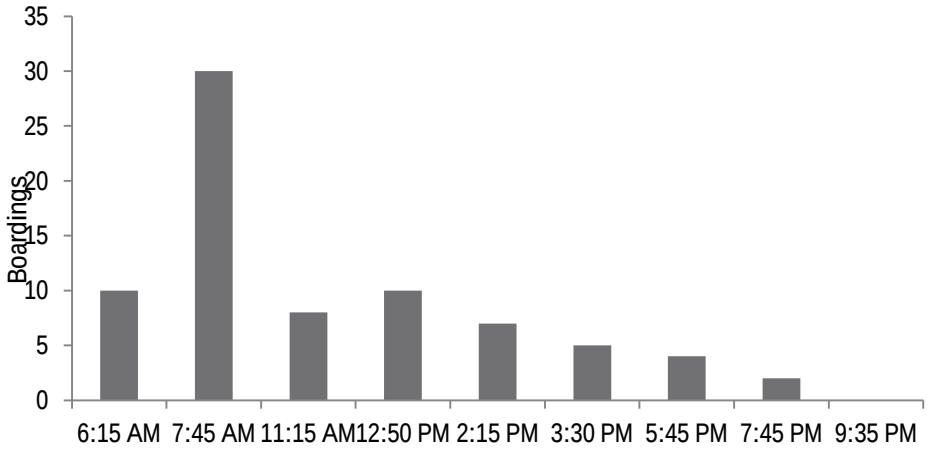
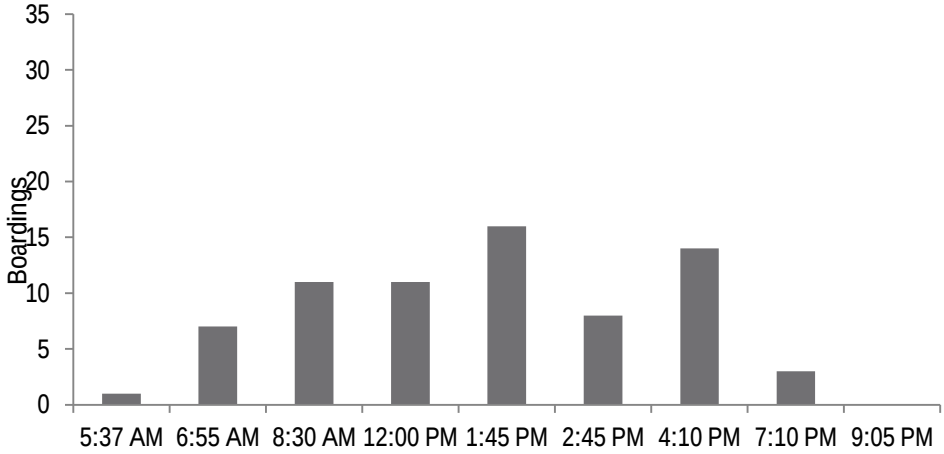


Figure 5–26 UCAT E Route Weekday Ridership by Trip - to Ellenville



Source: Nelson\Nygaard ride check 2011-2012

Improve Saturday Service in US 209 Corridor

On weekdays, many U Route trips are interlined with the E Route, providing the opportunity for a one-seat connection between Kingston and Ellenville. The U Route also provides two round trips between Kingston and SUNY Ulster on Saturdays, but generates almost no ridership (Figures 5–27 and 5–28). The E Route does not currently operate on weekends.

Saturday service in the US 209 corridor must include both the U Route and the E Route to be effective, because there is little weekend activity at their junction - SUNY Ulster. By providing weekend E Route service, Ellenville residents would have access to Kingston and the Hudson Valley Mall area (a frequent request in passenger schedules). In the future, residents of the corridor would also be able to access the planned Wal-Mart in Ellenville.

Without the E Route in service on Saturdays, U Route trips will likely continue with virtually no ridership and cancellation of the service should be considered.

Figure 5–27 U Route Saturday Ridership by Trip - to Kingston

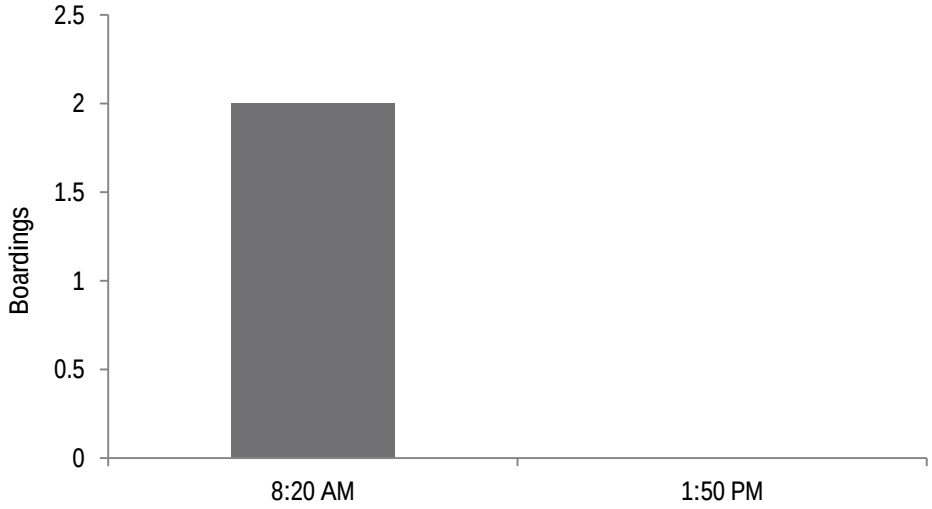
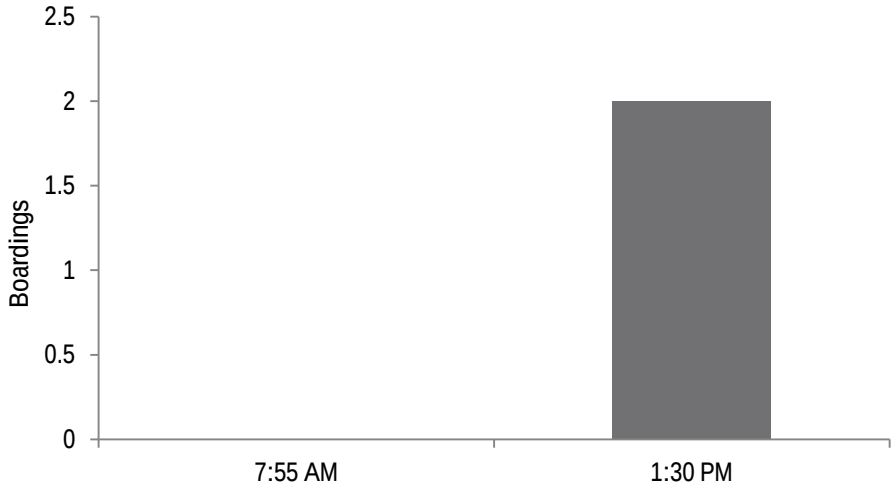


Figure 5–28 U Route Saturday Ridership by Trip - to SUNY Ulster



Source: Nelson\Nygaard ride check 2011-2012

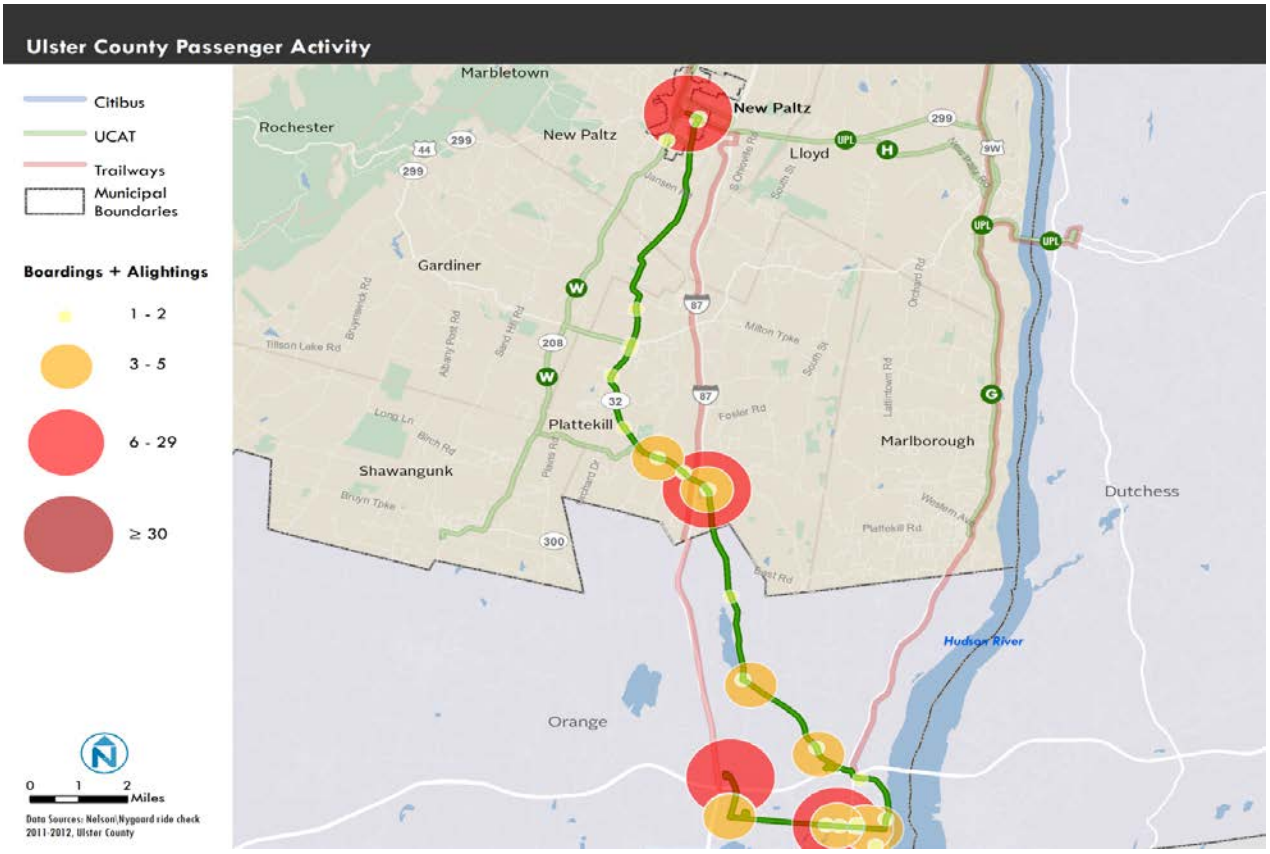
Figure 5–29 Projected Ridership Impacts for Z and E Routes

Route	Changes	Budget Impact	Projected Ridership Impact (Passenger Trips per Day)
Z	Store vehicle in Pine Hill	None	+ 0
E	Store vehicle in Ellenville	None	+ 0
E (Saturday)	Add Saturday service, interlined with U Route	None	+ 10 (U and E combined)

Improve On-Time Performance

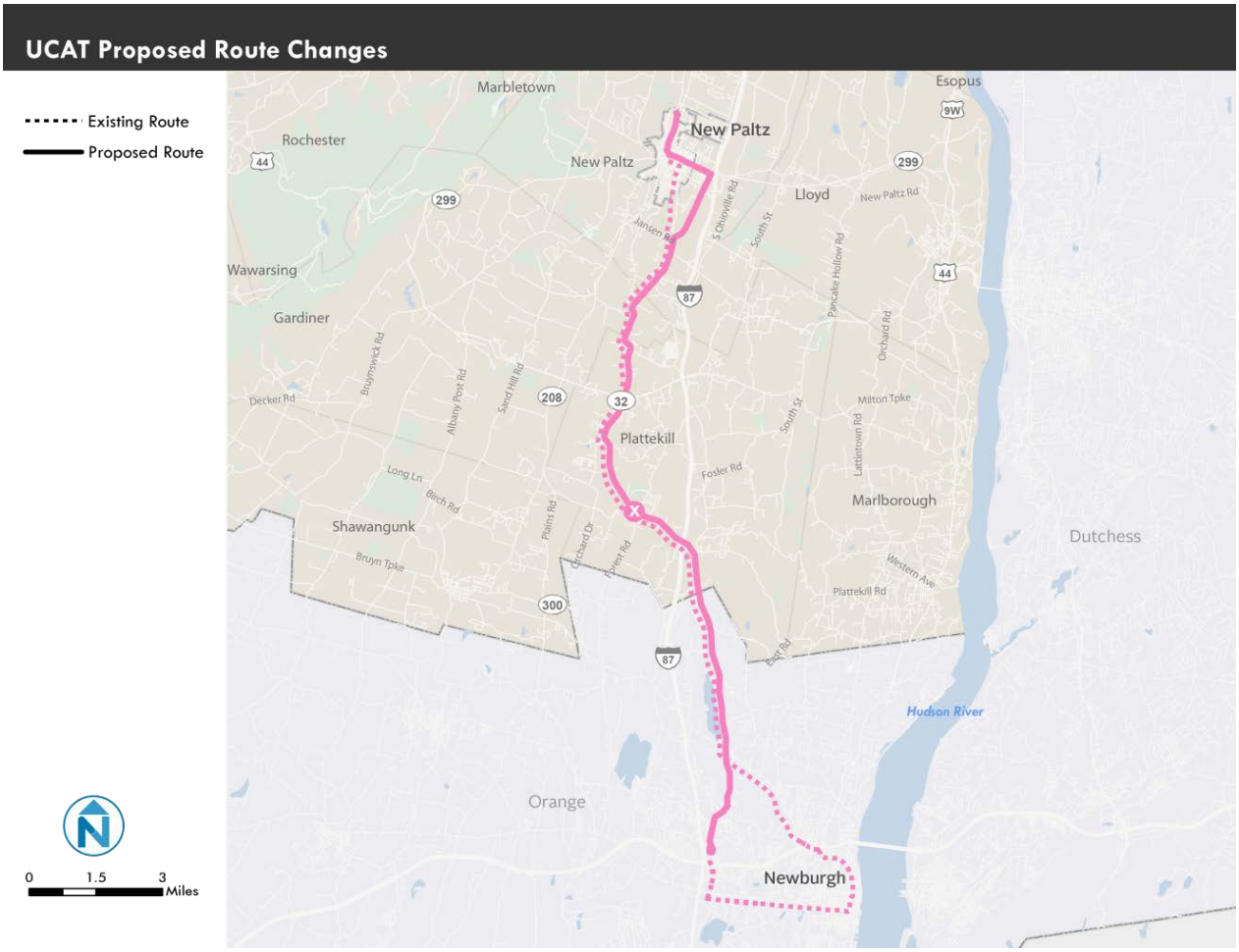
During the ridership survey period, The X Route had one of the lowest on-time performance rates (44%) among UCAT routes. The X Route provides an important regional link between Ulster County and Newburgh in Orange County (Figure 5–30), but the route also operates ten revenue miles of local service in Newburgh. This is not only a drain on Ulster County resources, it also contributes to the poor on-time performance of the route by making it too long.

Figure 5–30 UCAT X Route



To increase on-time performance and reduce out-of-county revenue miles, UCAT should choose a single destination that is also served by the Newburgh transit provider to serve as a transfer hub. Based on existing ridership, Newburgh Mall would be an ideal candidate for such a hub, as it is the highest ridership UCAT stop in Newburgh and is served by Newburgh local service (Figure 5–31). The Waterfront District is a good choice as well because of connection opportunities to the Newburgh-Beacon Ferry, which is partly funded by Ulster County. However, this would result in an over-all longer route with higher operating cost.

Figure 5–31 Proposed X Route Changes



Several X Route stops in Newburgh have relatively high ridership, so truncating the route may initially result in a slight ridership reduction. However, the expected improvement to the route's on-time performance should attract new riders over time.

Figure 5–32 Projected Ridership Impacts for X Route

Route	Changes	Budget Impact	Projected Ridership Impact (Passenger Trips per Day)
X	Truncate route at Newburgh Mall	None	- 10

Simplify Service

As a general rule, transit services attract more passengers if they are simple and consistent. The Ulster Poughkeepsie Link, which provides important regional connections to Poughkeepsie, Dutchess County, and the Metro-North Railroad with service to New York City, has multiple variants, with almost no two trips alike in their routing (Figure 5–33). In addition, the H Route duplicates much of the UPL's routing.

Figure 5–33 UPL Passenger Schedule

WEEKDAYS *FROM ULSTER VIA POUGHKEEPSIE TO* **GRAND CENTRAL TERMINAL**

AM Light Face, **PM Bold Face**	AM Peak				AM				PM								
Rosendale *Park & Ride*	5 05	6 00	–	–	–	–	9 30	11 30	1 35	3 00	–	–	4 35	–	–	–	–
New Paltz/Route 32 *Park & Ride*	5 15	6 10	6 30	–	7 45	8 30	9 38	11 38	1 43	3 07	3 45	4 15	4 45	5 50	6 45	7 45	9 00
New Paltz – SUNY *HAR Shelter*	–	–	–	–	–	–	–	11 43	1 48		3 53	–	–	–	–	–	–
Old New Paltz Rd/ Rt. 299	–	–	–	–	7 55	–	–	–	–		–	–	–	–	–	–	–
Old New Paltz Rd/ Pancake Hollow Rd	–	–	–	–	7 57	–	–	–	–		–	–	–	–	–	–	–
Old New Paltz Rd/ Chodikee Lake Rd	–	–	–	–	7 58	–	–	–	–		–	–	–	–	–	–	–
Highland/Route 299 & 9W *Park & Ride*	5 35	6 25	6 45	c 7 30	8 03	8 45	9 50	12 00	2 05	3 30	4 10	4 30	5 05	6 05	7 00	8 00	9 15
Woodside Place	–	–	–	–	8 06	–	–	–	–	3 31	–	4 31	–	–	–	–	–
Milton & Vineyard	–	–	–	7 33	8 07	8 48	9 53	–	2 08	3 32	–	4 32	–	–	–	–	–
Haviland/Tillson & Rt. 9W	–	–	–	–	8 08	–	–	–	–	3 35	–	4 35	–	–	–	–	–
Wingate	–	–	–	–	8 13	–	–	–	–	3 40	–	–	–	–	–	–	–
Bridgeview Plaza	–	6 30	–	–	8 15	–	–	–	–	3 45	–	4 40	–	–	7 10	–	–
Poughkeepsie Station	5 50	6 40	7 00	7 45	8 30	9 00	10 10	12 15	2 20		4 25	4 50	5 20	6 20	7 20	8 15	9 30
Poughkeepsie *Main & Market*	x	x	x	x	x	x	x	x	–	x	–	x	x	x	x	x	x
	[Express]																
Poughkeepsie Station	6 00	6 15	6 48	7 12	8 03	8 47	9 40	10 40	12 40	2 40	–	4 40	5 01	5 40	6 40	7 40	8 40	9 59
Grand Central Terminal	7 42	7 47	8 31	8 55	9 40	10 28	11 21	12 25	2 25	4 18	–	6 20	6 39	7 18	8 25	9 25	10 25	12 09

Prospective passengers who view the UPL schedule may be intimidated by its complexity and choose to avoid the service all together. To improve the passenger experience, UCAT should consider consolidating the UPL and H Routes into a single route and selecting no more than three variant for the service.

Figure 5–34 Projected Ridership Impacts for UPL and H Routes

Route	Changes	Budget Impact	Projected Ridership Impact (Passenger Trips per Day)
UPL	Reduce number of Variants	None	+ 20
H	Integrate into UPL	None	- 12

Kingston Citibus Route-Specific Recommendations

While most of the transit service changes proposed for Ulster County can be described as evolutionary, the changes needed to generate ridership on Kingston's Citibus service and increase the mobility of City residents is more transformational.

Citibus currently operates three fixed-routes (Route A, B, and C), providing weekday and Saturday service to major destinations throughout Kingston and in Port Ewen. While the three routes provide extensive coverage, they are also extremely circuitous and with the exception of the A Route, provide primarily one-way service. This results in very long travel times for passengers who are forced to travel in the opposite direction of their desired final destination along a one-way loop. The ridership distribution for the three routes is shown below in Figures 5–35, 5–36, and 5–37.

To transform the Citibus system, the following problems require solutions:

- Many portions of the Citibus network serve few riders.
- Even popular stops have long headways (hourly at best)
- Residents want to travel to destinations beyond the City border, including Hudson Valley Mall
- Service restrictions between UCAT and Citibus hamper both services' ability to meet their customers' mobility needs.

Figure 5–35 Citibus A Route

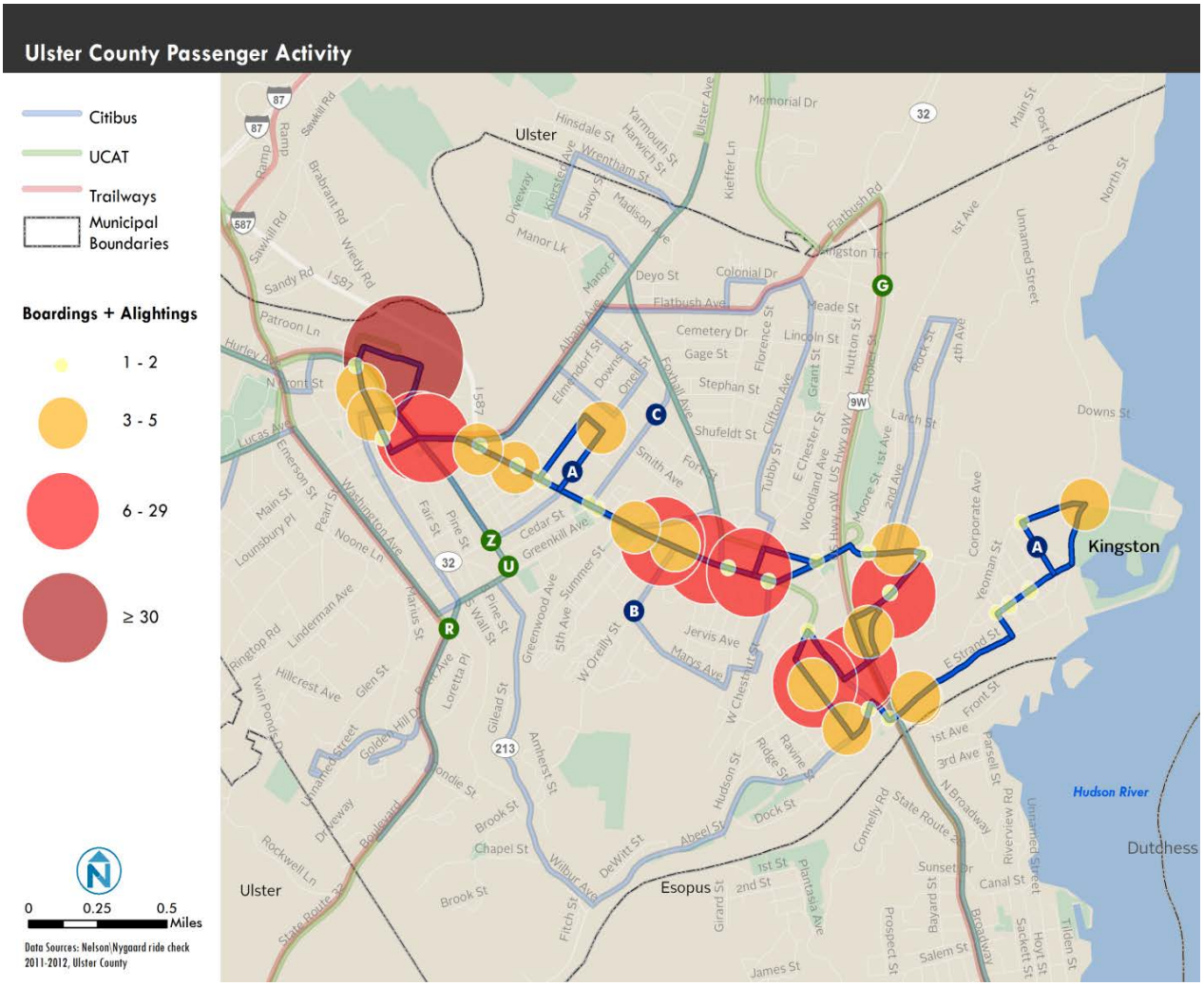


Figure 5–36 Citibus B Route

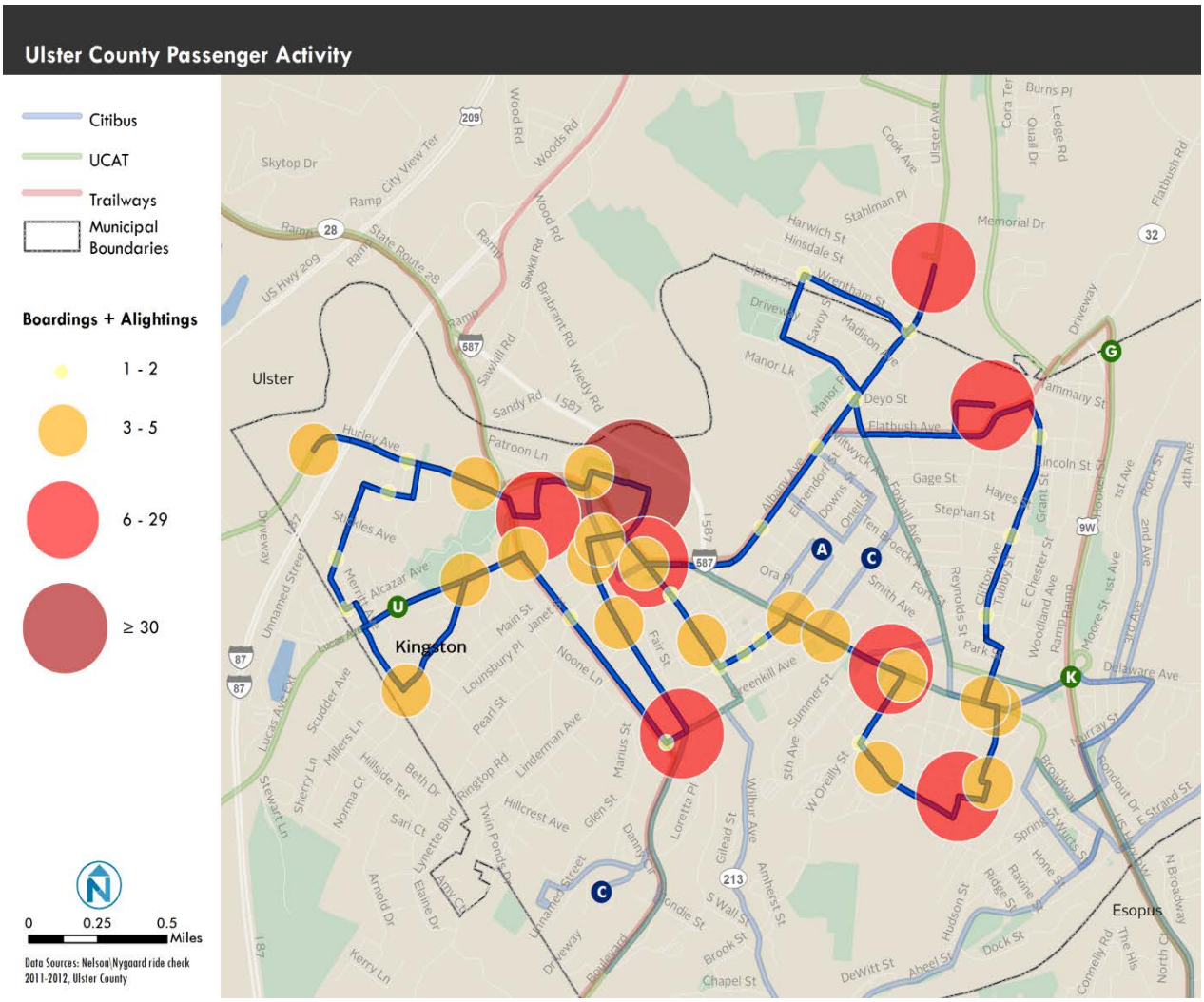
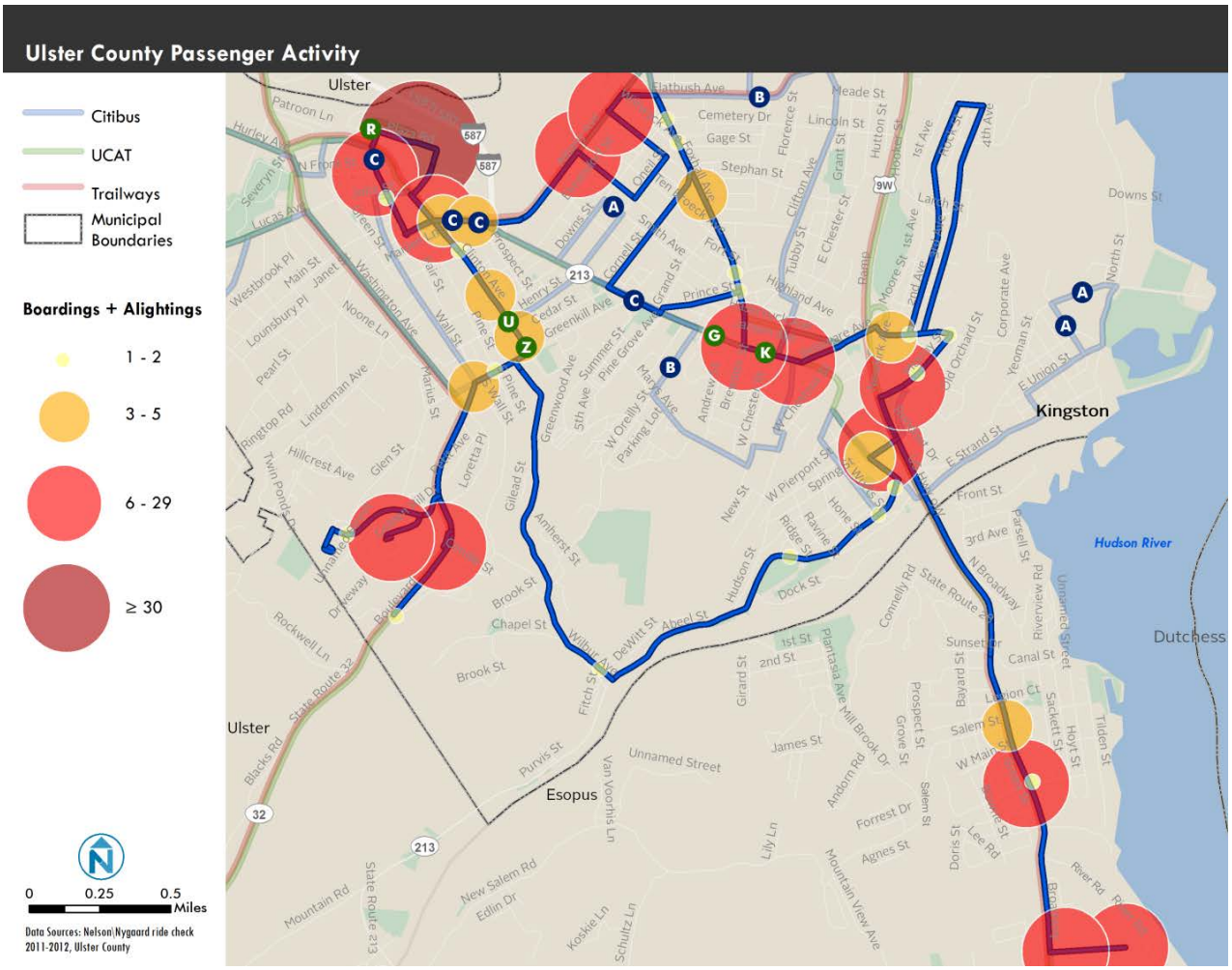


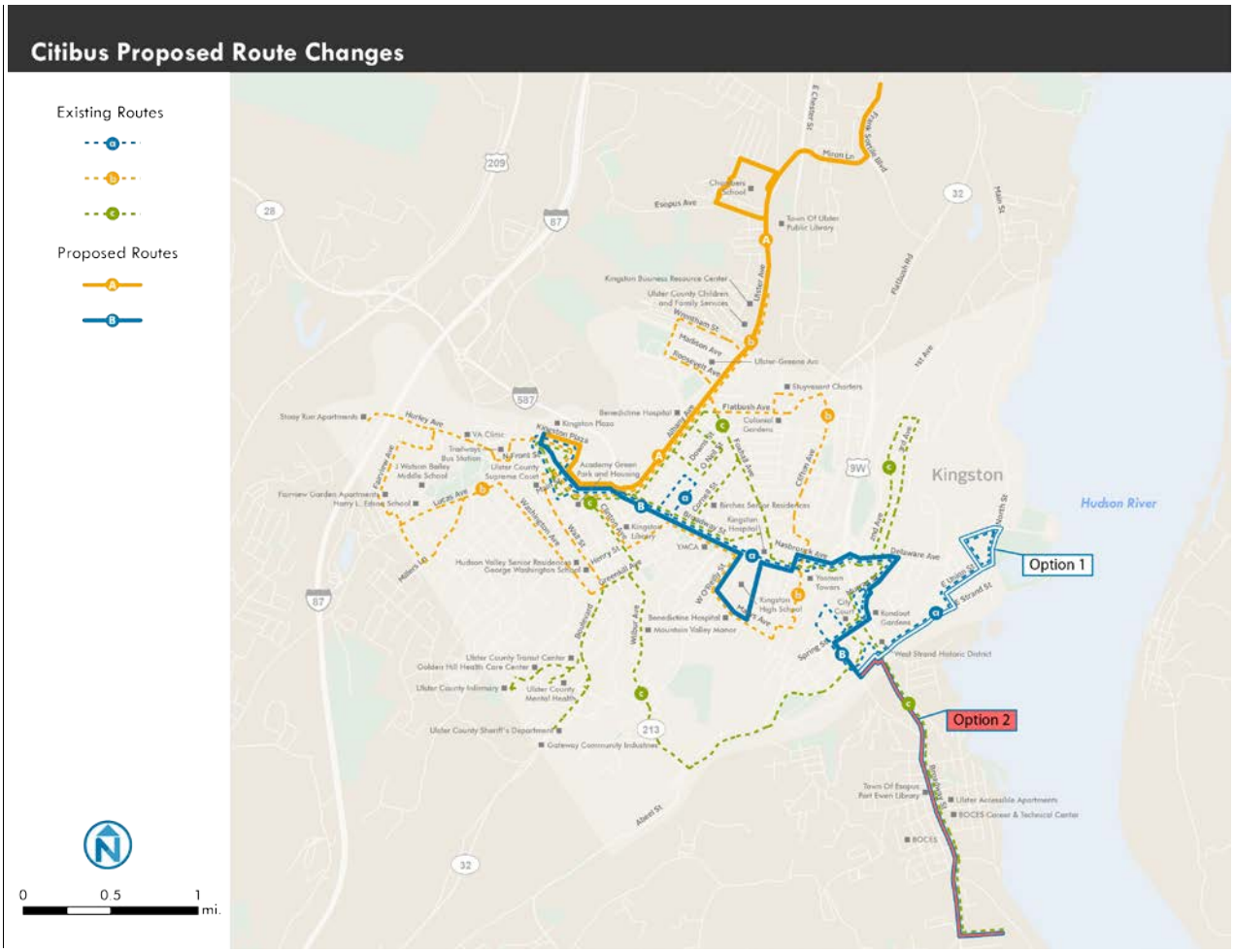
Figure 5–37 Citibus C Route



To improve Citibus service, a comprehensive restructuring of the Kingston transit network is proposed (Figure 5–38). The new network would include two bi-directional routes serving the strongest transit corridors in the city – Albany / Ulster Avenue and Broadway.

The A Route would primarily serve the Albany/Ulster Avenue corridor, while the B Route would serve the Broadway Corridor and nearby destinations, as well as Port Ewen.

Figure 5–38 Proposed Kingston Citibus Network



Under Citibus' current service structure, three vehicles are each assigned to one route, resulting in hourly service on each route. Under the proposed service design, three vehicles would be assigned to two routes to maximize service frequency. The two routes would be interlined at Kingston Plaza, and each of the three vehicles would alternately serve the A Route corridor and the B Route corridor.

By assigning three vehicles to this two-route circuit, service frequencies could be improved to 40 minutes for most of the service day. 18 trips per day in each direction could be provided on each of the two routes, compared to the 11 mostly one-way trips that are currently provided on each Citibus route. A sample operating schedule for Citibus services is shown in Appendix C.

Service between Kingston and the Ulster mall area would be even more frequent than every 40 minutes, as the Ulster/Albany corridor would be served by UCAT's S/K Route as well. The UCAT service could function more as an express service in the corridor, with stops placed at greater intervals, while the Citibus A Route would provide more frequent local stops along the corridor and also serve the Chambers Senior Housing complex west of Ulster Avenue.

In the Broadway corridor, two variants can be considered for Route B.

- Variant 1 would have Route B serving the Rondout Landing area and terminating at North Street.
- Variant 2 would have Route B serving Port Ewen as Route C does currently. Based on current ridership, Variant 2 serving Port Ewen is the higher priority segment to serve. However, UCAT's G Route also serves Port Ewen, although with very limited service (two round-trips per day). If UCAT can identify additional funding to increase service frequency on the G Route, Citibus could apply its resources to serving Rondout Landing.

With Trailways moving service off of the 9W corridor south of Kingston, a UCAT G Route operating with limited stops along the Broadway Corridor (complementing the proposed Citibus B Route), serving Port Ewen, and then providing semi-express service to Poughkeepsie (flag-stop between Port Ewan and Highland) would likely enjoy strong ridership if a full-day schedule could be established. As mentioned, this will require additional resources. As an alternative or interim solution, Citibus could serve both variants on an alternating basis. Every trip would serve either Port Ewen or Rondout Landing, but not both.

Besides Port Ewen, the proposed A and B routes would serve the vast majority of current Citibus stops that generate five or more boardings and alightings per day. A few important destinations that would not be on the proposed A or B routes are the Golden Hill complex, the Stony Run Apartments, and the Colonial Gardens apartments.

The Golden Hill Complex could be served by UCAT's R Route on its way to and from New Paltz. Interlining the R Route with both the W and X Route allows for a fairly robust schedule on the R Route with several trips per day to the Golden Hill Complex.

Service to the Stony Run apartments would benefit from the consolidation of all U Route service into the Hurley Avenue / US 209 corridor. Ridership is quite low on the Lucas Avenue branch of the U Route, and higher frequency along Hurley Avenue would likely result in higher ridership among Stony Run residents.

With UCAT serving both the Golden Hill Complex and the Stony Run Apartments, Colonial Gardens would be the only significant ridership generator not served by fixed-route service.

Colonial Gardens is generally difficult to serve because of its location away from the other major transit corridors and its proximity to an active freight railroad corridor (Figure 5-31). Freight trains passing through Kingston often force Citibus buses to make long detours to serve Colonial Gardens.

To reduce fixed-route detours and delays, Colonial Gardens can be removed from the fixed-route network, and instead be served with “anchored flex” trips. Under this scenario, during certain times of the day, Colonial Gardens and Kingston Plaza would be designated timepoints on a route served by a paratransit vehicle. The path between the two time-points would not be defined, allowing for paratransit or other demand-responsive pick-ups along the way. When not serving Colonial Gardens, the demand-responsive vehicle would revert to traditional paratransit service in Kingston.

Figure 5–39 Colonial Gardens Location

In general, Citibus should consider the possibility of expanding demand-responsive service. Many neighborhoods of the city lack the density needed to support fixed-route service, but still have residents who are dependent on transit. Some residents qualify for paratransit service, others do not. Citibus could expand the eligibility of paratransit service to include any Kingston resident living more than 3/4 mile from a fixed-route. Non-ADA passengers could be served based on prioritization. Traditional ADA passengers would receive highest priority in trip scheduling, followed by seniors, and members of the general public. If new demand for curb-to-curb service becomes too high, Citibus should consider adding one additional vehicle to the paratransit fleet or relying on UCAT to meet some of its paratransit needs.

Figure 5–40 Projected Ridership Impacts for A, B, C, U, R, and G Routes

Route	Changes	Budget Impact	Projected Ridership Impact (Passenger Trips per Day)
A/B/C	Restructure service into two strong routes, increase frequency of service	None	+ 50
U	Consolidate service to one corridor, operate open-door in Kingston	None	+10
R	Operate open-door in Kingston	None	+10
G	Semi-express service to Poughkeepsie	None	+5

Improving Regional Coordination

Besides UCAT and Citibus, Ulster County is served by private long-haul provider Adirondack Trailways. Trailways service complements the local and county-wide services of the County's public providers by providing more mobility opportunities for Ulster County residents. Citibus has a stop near the Trailways terminal in Kingston and UCAT serves the Trailways station in New Paltz. However, there is neither fare-coordination nor sharing of route or stop information between the public and private systems.

A local example of fare coordination is the arrangement that UCAT has with the Metro-North Railroad. UCAT and Metro-North have collaborated to create a monthly or weekly UniTicket for unlimited bus and rail travel costing $483 per month. Without the coordinated card, commuters traveling to and from New York on a daily basis (weekdays only) would pay more than $515 a month by purchasing separate UPL and Metro-North passes.

An example of fare coordination between public and private bus operators can be found in the Capital District region. The Capital District Transportation Authority (CDTA) allocates a portion of its CMAQ funds to Transportation Demand Management programs, which consist of incentives and policies that encourage commute alternatives to driving alone. One such TDM program is called "LINK" and consists of free transfers distributed to regional bus passengers who need to take local CDTA service to their final destination. This program both increases CDTA ridership and makes long-haul carriers more attractive. Participating providers include Adirondack Trailways, Brown Coach, Northway Express, Yankee Trails, Coxsackie Transport, City of Watervliet shuttle, and Schoharie County Transit. CDTA uses the CMAQ funds to reimburse itself for the free transfers. In 2011, an average of 3,550 riders used LINK tickets each month, for a total value of $63,906.[2]

Similar fare coordination arrangements sould be considered by UCAT, Citybus and Trailways, while route and schedule information could be shared by simply stocking buses and transfer facilities with schedules and maps of all relevant providers or by developing a comprehensive transit service guide for the county.

[2] CDTA. "Travel Demand Management (TDM) at CDTA, 2011." March 15, 2012. http://www.cdta.org/uploads/2011AnnualReportTDMFinalReport.pdf.

Chapter 6. Financial Strategy

Overall, both UCAT and Citibus are trying to accomplish a lot with limited resources. For Citibus, the main limiting factor is fleet size -- the service operates in a small service area, but to provide service frequencies that are attractive to all but the most transit-dependent populations will require more than one vehicle per route.

UCAT's greatest challenge is its 1,126 square mile service area featuring several population centers and two major educational institutions separated by large swaths of sparsely populated territory. UCAT relies heavily on interlining to cobble together a wide variety of connections, sometimes just once or twice a day. However, if service is too limited, it is only likely to accommodate the travel needs of a very small number of passengers.

Once service standards are established and adopted, high-performing routes should be targeted for incremental improvements to service frequency and hours of operation. These improvements will require UCAT and Citibus to find new sources of funding or increase revenues from existing sources. Alternatively (or in addition) reducing current operating costs could free up funds that could be reinvested in more revenue service. One option that must be considered as part of both a financial and service strategy is the integration at some level of Ulster County's two public transportation systems.

The Case for Integration

In trying budget times, many transit agencies have sought to combine functions under one umbrella to cut costs and streamline operations. UCAT and Citibus already overlap a portion of their service areas. Today, functions are siloed at either the county or the city office. Integrating the systems is a logical vision for these two agencies looking forward into a fiscally constrained future. The benefits of integration are described below.

Cost Savings

Joint purchasing agreements, economies of scale from consolidating functions, and reduced administrative costs from coordination all are effective methods of reducing cost without cutting service. Given the overlapping service areas of UCAT and Citibus, integrating the two systems in the future makes sense from a financial and service operations perspective. Integration can be achieved relatively quickly, as many of the cost savings are accrued through administrative coordination and need not require new labor agreements.

As a preliminary result from this study, a logical step would be for Citibus and UCAT to merge under the umbrella of UCAT given the county system's much larger operation, its new administrative facilities, and facilities capacity for maintaining more vehicles. Some examples of how cost savings could be achieved include:

- **Fuel -** Ulster County can purchase 15,000 gallons of fuel at a time whereas the city cannot. The city's annual fuel cost totals $90,000. With increased purchasing power, the cost would reduce to $70,000.[3]
- **Maintenance -** Currently City of Kingston staff in the Department of Public Works devote part of their time to Citibus. Since UCAT has its own maintenance staff, city employees could be devoted to other tasks. For example, the city's safety officer and garage foreman maintain both DPW vehicles and Citibus vehicles. Under a merged scenario, UCAT's

[3] City of Kingston costs obtained from the adopted 2012 city budget under "Bus Operations," available here: http://ci.kingston.ny.us/filestorage/76/78/1007/2012AdoptedBudget.pdf.

current maintenance staff would take on Citibus' vehicles. This saves in both the labor and expenses categories.

- **Administration -** Similarly, city staff employed for Citibus bookeeping could be devoted to other city functions. UCAT's call center and staff could take on responsibility over Citibus, thereby achieving economies of scale.
- **Duplication of Equipment –** Integration of systems offers the opportunity to reduce costs associated with items such as road maintenance vehicles, bus wash facilities, fuel storage, and even spare buses.

Precedent

As is the case in many small town and rural communities, Citibus and UCAT already coordinate and collaborate to ensure service is available when needed. During early morning and late night hours, when Citibus does not operate, UCAT operates open-door and will pick up passengers within the City of Kingston. Paratransit customers needing service outside Citibus' operating hours call UCAT instead. Both systems serve many of the same locations and riders are familar with riding or at least seeing both system’s vehicles operating in the county or city.

Improved Customer Experience

Today, many customers transfer between Citibus and UCAT at Kingston Plaza. Yet there are many customers who are unsure which system to take to reach their destination. In an integrated system, a unified approach to branding and marketing would more clearly define each system's service areas. A unified fare would allow easier transfers between systems, and could also be integrated with Trailways transfers. By combining fleets, smaller buses could be used in the City of Kingston to avoid forcing operators to take full-size buses on small residential streets.

Long-Term Viability

The demand for public transportation service within Ulster County is likely to increase as the population rises. Unfortunately, funding levels are unlikely to keep pace with these demands, and the challenges faced by UCAT and Citibus in this environment can be better faced as an integrated system. Multiple levels of integration are possible, but a clear showing of advantages to each entity is likely to be the most successful in gaining approval.

This report suggests a trial program involving paratransit service (described below) and moving toward further exploration of UCAT’s current arrangement with New Paltz, where the community receives enhanced transit service provided by UCAT at a local share that is less than if it provided the service itself.

Substantial interests are at stake as Citibus currently uses all of its funding for administrative and operating expenses. In an era of flat funding levels, Citibus will be faced with a major challenge when attempting to meet its future capital investment needs.

Case Study

Lackawanna County, a 459 square mile county in Pennsylvania, had two providers: COLTS, a county-wide fixed route system, and LCCT, a human services group providing demand-response. The two agencies together operated 66 vehicles, employed 112 people, and had a $10.5 million annual budget.

A study led by the Pennsylvania Department of Transportation advised consolidating the two agencies under the COLTS umbrella, merging vehicle maintenance functions, consolidating call intake, and creating a new regional transportation authority charter. An estimate of cost savings achieved through higher ridership, shifting paratransit customers to fixed-route, streamlined administration and management, and an integrated call center totaled $740,000 annually. Consolidation is scheduled to be complete by January 2013.

Trial Program

Clearly, integration is not a simple process and will require further planning and study. As a first step, the systems could integrate paratransit operations first as a trial program. Routing all scheduling calls to the larger UCAT call center will also shed light on how well the combined fleet of UCAT and Citibus paratransit vehicles can jointly meet county-wide demand.

Funding Sources

Public transit systems in the United States are funded through a combination of programs, and most systems typically get a significant portion of the system costs from federal grants. The State of New York also provides funding to support public transportation. As a result, most systems rely on a combination of resources for the remaining funds, such as state grants, passenger fares, advertisement revenues and local contributions.

Federal Funding Programs

There are five major federal programs managed by the Federal Transit Administration (FTA) that are used to support rural and small urban public transit systems.[4] Some programs are dedicated to pay for capital, operating or planning purposes, while other programs offer more flexibility.

In general, federal programs will pay for up to 80% of capital costs and up to 50% of operating and planning costs. Most funding programs are formula based, meaning the funds are distributed according to a population based formula. Other grants, most notably the Elderly and Disabled Transportation Program (Section 5310), Job Access Reverse Commute (Section 5316), and New Freedom Funds (Section 5317) are awarded based on a competitive grant process. An overview of these major FTA funding programs is provided below.

- Urbanized Area Formula Program (Section 5307) - This program provides operating assistance to urbanized areas with a population greater than 50,000. UCAT, although a rural operator, does serve the city of Kingston at Kingston Plaza and also at times when Citibus is not in operation, thus 5307 funds are split between Ulster County and Kingston.

[4] Does not include FTA Section 5309 New Starts Funds, which can be used to fund new or extensions to fixed guideway systems.

- Elderly and Disabled Transportation Program (Section 5310) – funds capital projects to support transportation services for older adults and persons with disabilities. Funds are awarded based on a competitive grant process that is managed by the State of New York. Funds may be distributed to both urban and rural areas.
- Rural Transit Assistance Program (Section 5311) – funds capital, operating and administrative purposes, including training and technical assistance. Program may also be used to fund intercity bus service. Funds are distributed according to a formula to small urban fixed-route and community transportation services in areas with populations less than 50,000.
- Job Access and Reverse Commute (JARC) Program (Section 5316) – funds new transit service to assist low income individuals with transportation to jobs, job training and other support services, such as child car. Funds are awarded based on a competitive grant process that is managed by the State of New York. Funds may be distributed to both urban and rural areas.
- New Freedom Program (Section 5317) – funds new transportation services and public transportation alternatives beyond those required by the Americans with Disability (ADA) action. Funds are awarded statewide based on a competitive grant process and are available to both rural and urban areas.

Ulster County is part of the Transportation Management Area consisting of Ulster, Orange, and Dutchess Counties, thus all three counties compete for 5316 and 5317 funds. To provide a sense of scale, the total money available in New York State for these two programs is shown in Figure 6–1.

Figure 6–1 New York State Funding Availability 5316 and 5317

Program	FFY 2008	FFY 2009	FFY 2010	FFY 2011
JARC	$1,000,593	$1,265,534	$1,628,220	$3,251,585
New Freedom	$616,468	$1,160,301	$1,449,150	$2,168,501

State Funding Programs

One of the advantages that New York State has relative to other states is that it has developed an effective cost sharing arrangement to support transit in rural areas. This allows the cost of the service to be divided among different funding sources based on ridership. As a result it creates a clear incentive for human services coordination. This topic was not a focus of this study, but Ulster County may consider investigating coordination further in an effort to increase use of non-county resources for public transportation. Several counties in New York, most notably Steuben, have taken full advantage of the cost sharing arrangements that can occur in a coordinated system. Ontario County is also pursuing this approach by partnering with the Ontario ARC to provide general public trips in rural areas of the county. Implementing this type of shared service approach requires willing partners and a cost sharing agreement at the very least, but is most easily implemented with software that can automate the process of tracking trips and mileage and billing multiple parties accordingly.

Statewide Transportation Operating Assistance

Statewide Transportation Operating Assistance (STOA) is a New York State formula fund issued to public transit operators based on the number of passengers and number of miles they serve. The current formula is $0.405 per passenger, $0.69 per vehicle mile. In order to collect STOA, an agency must be identified by the county as a public operator. Funds received through this program may be counted as part of the local match required by federal grants. For example, should a JARC applicant write a proposal for a $100,000 grant to add new routes for job access, and the local share must be $50,000 for operations, then any STOA money the operator is receiving counts towards the $50,000. STOA typically makes up a significant portion of operating monies in New York State. Citibus, for example, received $259,112 from STOA in 2010, which covered 25% of operating costs.

Transit State Dedicated Fund (SDF) Program

The Transit State Dedicated Fund (SDF) provides funds for capital projects. Eligible projects should be identified in a needs' analysis and may include projects such as replacement buses, facilities and garage modernization projects, and transit related equipment needs.

The fund is primarily used by New York State public transportation agencies to match federal resources for capital purchases. As discussed, FTA typically funds transit capital projects at 80%; SDF funds may be used for half of the remaining share (10%) and local funds for the remaining portion of the non-federal share (10%).

Local Sources

Nearly all federal transportation funding programs require local matching resources, with matching requirements for capital programs set at 20% and operating programs at 50%. Finding and maintaining local matching funds is typically among the most challenging aspects associated with developing and maintaining local public transportation services.

In New York State, the STOA program can be used to match federal programs. The amount of funding provided by STOA varies by location, but in general local entities must raise as little as 2-5% and as much as 25% of the service operating costs, depending on how their service is structured.

In the case of UCAT, additional transit funding can also come from the municipalities it serves. An example of this is in New Paltz where the Town and Village of New Paltz sought higher service frequencies than were being provided by UCAT. The Town and Village agreed to pay for operating costs above the four trips per day which were being provided. In this arrangement, UCAT bills monthly, and the Town and Village in turn bill the SUNY New Paltz Student Association for rides taken on the NPL Route (SUNY students ride at no additional cost). Replacement vehicles are also jointly funded, with the Town and Village billed for 10% of the local share of the bus cost paid in quarterly installments. This case exemplifies how additional service to population hubs like New Paltz can be supported by a partnership of local and county governments. Similar arrangements could be considered in other parts of Ulster County and could form the basis for the integration of Citibus into the UCAT System.

Health and Human Services

Administration on Aging - Grants for Supportive Services (Title III-B)

The Administration on Aging (AoA) is responsible for the administration of a number of programs authorized by the Older Americans Act. Title III of the Older Americans Act (OAA) supports programs and services which are intended to aid active seniors and older adults who are at risk of losing their independence. Part B (Support Services) of Title III considers transportation as an allowable expense. People transported using these funds must be aged 60 or more and the operator cannot charge passengers a fare, although voluntary contributions are allowed. In New York State, OAA funds are administered by the 59 local agencies for the aging, which in most, but not all, cases are county programs or departments for the aging.

Temporary Assistance for Needy Families (TANF)

The Temporary Assistance to Needy Families (TANF) Program provides block grants to states to help finance support services for individuals receiving federal cash assistance in their efforts to find and maintain employment. According to guidance jointly issued by the Departments of Health and Human Services, Labor and Transportation,[5] examples of allowable uses of TANF funds (both federal dollars and state funds that are used to provide the required non-federal share) for transportation include the following:

- Reimbursement or a cash allowance to TANF recipients for work-related transportation expenses
- Contracts for shuttles, buses, car pools or other services for TANF recipients
- Purchase of vehicles for the provision of service to TANF recipients
- Purchase of public or private transit passes or vouchers
- Loans to TANF recipients for the purpose of leasing or purchasing a vehicle for work travel
- Programs to obtain and repair vehicles for use by TANF recipients
- One-time payments to recipients to cover expenses such as auto repair or insurance
- Payment of "necessary and reasonable" costs for new or expanded transportation services for use by TANF recipients
- Assistance to TANF recipients with the start-up of a transportation service
- Transfer of TANF funds to a Social Services Block Grant for use in efforts to provide transportation services for disadvantaged residents of rural and inner city areas
- Payment of TANF agency expenses associated with the planning of transportation services for TANF individuals

A caveat concerning the use of TANF funds for transportation services is that, according to the definition of "assistance" in the proposed TANF regulations, a transit pass constitutes assistance, and counts toward the lifetime limit of 60 months (states may set shorter limits, or provide assistance for a longer period using state funds) that a family is entitled to receive TANF benefits. This is an important stipulation that may influence an individual's decision to obtain transportation assistance.

[5] *Use of TANF and WTW Funds for Transportation*; Dear Colleague letter from the Secretaries of Health and Human Services, Labor, and Transportation dated May 4, 1998.

In New York State, a portion of TANF funds are administered as Flexible Funds for Family Services (FFFS), a program that gives local entities more control over how the funds are used, as long as they are used only for programs and activities which further the goals of the TANF program, which includes the provision of transportation service for use by eligible TANF recipients traveling for work and work-related activities. According to the regulations, TANF funds may not be used to subsidize the use of such transportation services by non-TANF individuals. However, per New York State cost allocation arrangement, some counties use TANF funds to pay for a portion of shared transportation service costs directly associated with TANF clients.

Centers for Medicare and Medicaid Services (CMS)

Title XIX of the Social Security Act of 1965 established the Medicaid program as a joint effort on the part of the federal and state governments to ensure health care services for individuals and families who meet certain income and resource requirements, or who belong to other needy groups. Medicaid issues program guidelines and requirements, but each state is responsible for the design of its own Medicaid program, including such components as eligibility standards; the type, amount, duration and scope of services to be provided; rates of payment for services; and administrative procedures.

Access to health care is considered part of the Medicaid services, thus non-emergency medical transportation (NEMT) funded by Medicaid has emerged as a major transportation program. In New York State, oversight for the NEMT program is largely carried out by the Department of Health. Administration of the program is decentralized and assigned to a network of 58 separate and unique districts. As a result, counties are responsible to ensure that Medicaid clients have transportation to Medicaid eligible services.

New York State Developmental Disabilities Planning Council

Also part of the OPDD, the New York State Developmental Disabilities Planning Council (DDPC) is a Federally-funded New York State Agency.

The DDPC is responsible for developing new ways to improve the delivery of services and support to New Yorkers with developmental disabilities and their families. The Council focuses on community involvement, employment, recreation and housing issues faced by New Yorkers with developmental disabilities and their families. In 2007, the DDPC supported a series of demonstration projects that addressed transportation barriers affecting individuals with disabilities.

Department of Labor

Workforce Investment Act

The Workforce Investment Act (WIA) provides support for national, state and local programs directed at supporting workers and employers. At the state and local level, WIA provides funding for workforce development programs as well as the establishment of “One-Stop” centers. “One Stop” centers provide employers and individuals with a centralized site for job training and development, job skills assessment, and job search and placement assistance. Transportation expenses and support services are an allowable use of these funds.

Department of Education

Rehabilitation Act

The Rehabilitation Act authorizes formula grant programs to support vocational rehabilitation, support employment, independent living and client assistance for individuals with disabilities. Among the programs funded by the Rehabilitation Act, the Vocational Rehabilitation (VocRehab) Grants to States are highly relevant to transportation funding. This formula program offers grant funds for services, including transportation. There is a local matching requirement of 21.3% of program costs.

Fares

As a general rule of thumb, small urban transit agencies aim to achieve farebox recovery of 10-15%. Both UCAT and Citibus recover a low percent of operating cost through fares (8.7% and 7.5%, respectively). UCAT's fares are quite low when considering the miles the service covers. Kingston to Pine Hill measures 36 miles and a one-way fare covers five zones and costs $2, which is fairly low in comparison to peers. Dutchess County's base fare for a one-zone trip is $1.75 for one-way trips. In Tompkins County, fares were recently raised to $2.50 for trips originating in rural areas and destined for Ithaca. Citibus farebox is low but that is due to low ridership rather than low fares - base fare is $1.25 and the service area is small.

APPENDIX A

Peers Analysis

Peers Analysis

Overview

This chapter provides a system-wide comparison of UCAT and Citibus services to several peer transit providers in the region (New York State and Vermont). This review will help Ulster County and the City of Kingston understand how they compare against peer systems, and will provide reasonable benchmarks for the services and policies of the agency.

Methodology

The first step in the peers analysis review was to identify a number of transit agencies that could potentially be compared with UCAT and Citibus. The peer transit providers were selected based on a number of factors including geographic proximity, operating environment, and service characteristics. As UCAT and Citibus are themselves quite different by these measures, the list of peers was similarly diverse.

A summary of the transit systems and locations chosen for the peers analysis is shown in Figure A-1 below:

Figure A-1 Geographic Distribution and Operating Environment of Peers

System	UZA	Service Area Size (sq mi)	Service Area Population	Population Density (pop/sq mi)
Ulster County Area Transit (UCAT)	Poughkeepsie-Newburgh, NY	1,126	181,670	161
Kingston Citibus	Kingston, NY	9	23,893	2,655
Watertown Citibus	Watetown, NY	9	27,023	3,003
Capital District Transportation Authority (CDTA)	Albany, NY	1,760	794,293	451
Tompkins Consolidated Area Transit (TCAT)	Ithaca, NY	491	101,564	207
Dutchess County Division of Mass Transportation (LOOP Bus)	Poughkeepsie-Newburgh, NY	1,067	351,997	330
City of Poughkeepsie Transit System	Poughkeepsie-Newburgh, NY	5	28,844	5,769
Greater Glens Falls Transit (GGFT)	Glens Falls, NY	46	59,743	1,299
Chittenden County Transportation Authority (CCTA)	Burlington, VT	61	86,468	1,418

Data on each peer system's service characteristics were collected through the National Transit Database whenever possible in order to ensure a standardized data base. The Citibus system in Watertown does not report to NTD because it does not meet the vehicle number threshold that requires reporting. The system, however, was of particular interest to the project team for its similarities to Kingston, thus data were collected from the transit operator. Kingston Citibus also does not report to NTD. Data for Citibus were calculated based on the following methods:

- Ridership: Average daily fixed-route ridership for a typical weekday and Saturday was collected during an on-board ridership survey (ridecheck). This was interpolated to an

annual total. For demand-response service, Citibus operators reported that, on average, this service carries 28-30 trips per weekday. It was assumed that Saturdays carry 50% of weekday service.[1]

- Operating Cost: The City of Kingston budget was used to calculate bus operations cost. The budget also lists revenues, including fares, which was used to calculate farebox recovery.[2]
- Revenue Hours: The schedules were used to calculate fixed-route hours of service per weekday and Saturday. For demand-response service, Citibus operators reported that two vehicles are in service on weekdays, one from 6 AM-1 PM and the other from 9 AM-4 PM. On Saturdays, one vehicle runs from 9:30 AM-5:30 PM. These operating hours were used to calculate demand-response annual revenue hours.
- Revenue Miles: Schedules were used to calculate fixed-route miles of service per weekday and Saturday. For demand-response service, the average miles per trip for Watertown Citibus was calculated at 3.2 miles. Since Watertown and Kingston are the same size, it was assumed that average trip length for demand-response would be the same for both systems.

Figure A-2 Service Characteristics of Peers

System	Number of Bus Routes	Annual Ridership (2010)	Annual Revenue Miles (2010)	Annual Revenue Hours (2010)	Peak Fleet (2010)	Total Operating Budget (2010)
Ulster County Area Transit (UCAT)	16	317,058	1,096,506	55,483	20	$4,803,538
Kingston Citibus	3	97,484	67,313	13,232	3	$1,010,870
Watertown Citibus	5	150,366	138,898	15,062	3	$746,990
Capital District Transportation Authority (CDTA)	56	13,801,196	8,315,877	673,065	257	$75,498,763
Tompkins Consolidated Area Transit (TCAT)	36	3,640,207	2,110,749	148,059	62	$12,178,431
Dutchess County Division of Mass Transportation (LOOP Bus)	9	467,593	1,013,469	55,963	44	$6,055,517
City of Poughkeepsie Transit System	5	423,632	191,076	15,275	6	$1,339,880
Greater Glens Falls Transit (GGFT)	12	325,117	343,833	20,641	6	$1,316,268
Chittenden County Transportation Authority (CCTA)	16	2,498,883	1,456,955	117,250	62	$9,382,711

[1] Citibus provided STOA reporting numbers for the past five-year period; however, there was no way to separate these statistics into fixed-route and demand-response.

[2] City of Kingston General Budget, http://ci.kingston.ny.us/filestorage/76/78/1007/2012AdoptedBudget.pdf, p 151

Analysis

Peer system fixed-route and demand-response services were analyzed based upon categories that illustrate the following performance measures:

1. Service Availability / Market Penetration
   a. Revenue Hours per Capita
   b. Passengers per Capita
2. Service Productivity
   a. Passengers per Revenue Hour
   b. Passengers per Revenue Mile
3. Cost Efficiency
   a. Operating Cost per Revenue Hour
   b. Operating Cost per Passenger
   c. Operating Cost per Revenue Mile
4. Farebox Recovery
   a. Total Farebox Recovery
   b. Fare per Passenger

Many of these metrics are directly related to ridership (passenger trips), and it should be noted that due to extensive inter-lining, UCAT may be unintentionally undercounting passengers, and thus appear less competitive by many measures than its peers. Inter-lining is the practice of using one transit vehicle on more than one route. After completing a route, the driver may simply change the destination sign on the bus and proceed directly to the next route. Any passengers still onboard the vehicle are then essentially on a new route. This can be convenient for passengers as it allows them a one seat connection, but it can result in undercounted ridership.

At many transit systems that make extensive use of interlining, bus drivers are instructed to count all passengers still on the bus at the inter-line point as transferring passengers. This is a reasonable approach, as it reflects a transfer of passengers from one route to another, even though the two routes happen to be operated by the same vehicle. UCAT does not follow this approach. Passengers that board a bus while it is on one route (Route S in Saugerties for example) are only counted once, even if the bus subsequently transitions into a different route (Route K in Kingston for example).

This information should be kept in mind when reviewing the following analysis.

Fixed Route Service Analysis

Service Availability / Market Penetration

Service availability and market penetration are measures of the amount of service being provided to the public and the degree to which the service is being consumed. Service availability can be expressed in terms of revenue hours per capita (Figure A-3) while market penetration is measured in terms of passenger trips per capita (Figure A-4).

Figure A-3 Fixed Route Revenue Hours per Capita (2010)

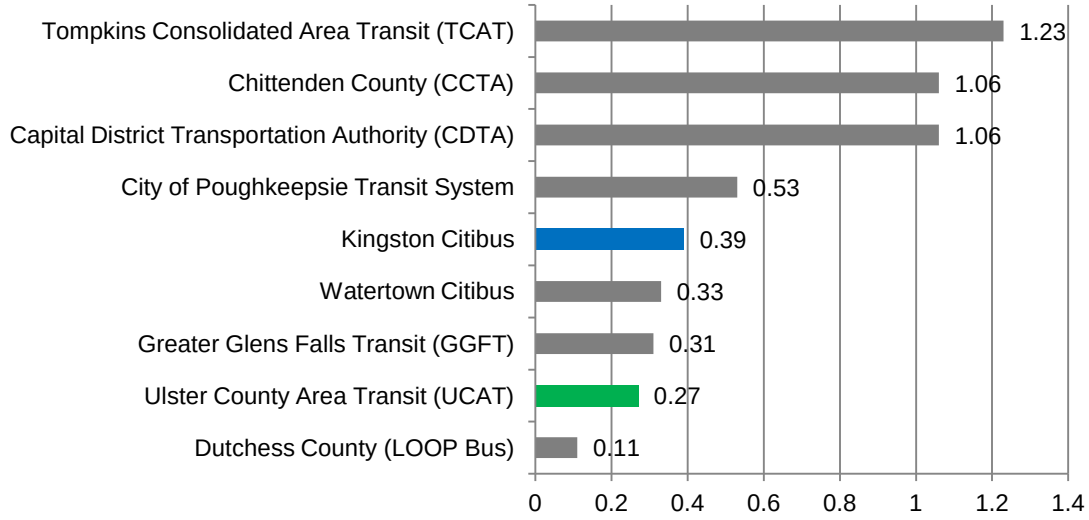
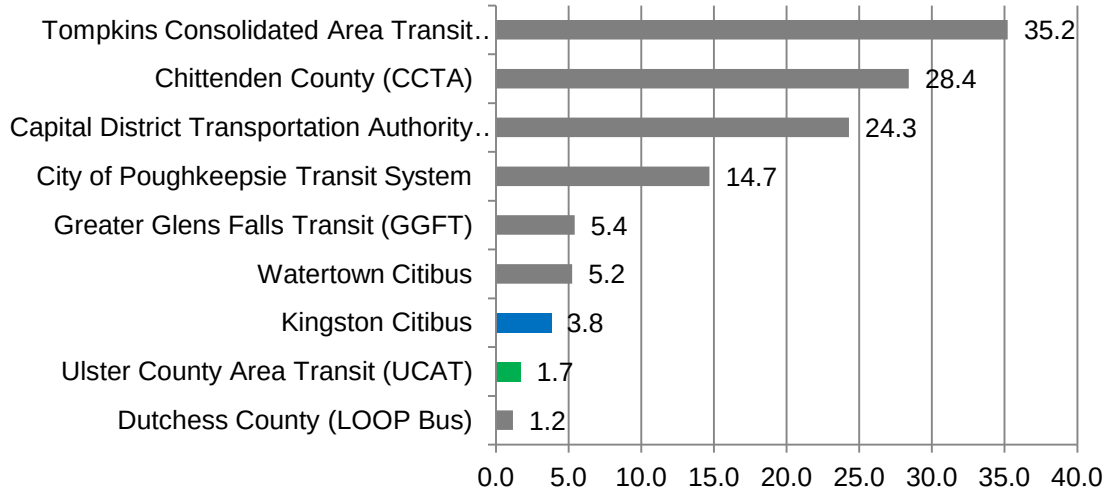


Figure A-4 Fixed Route Passenger Trips per Capita (2010)



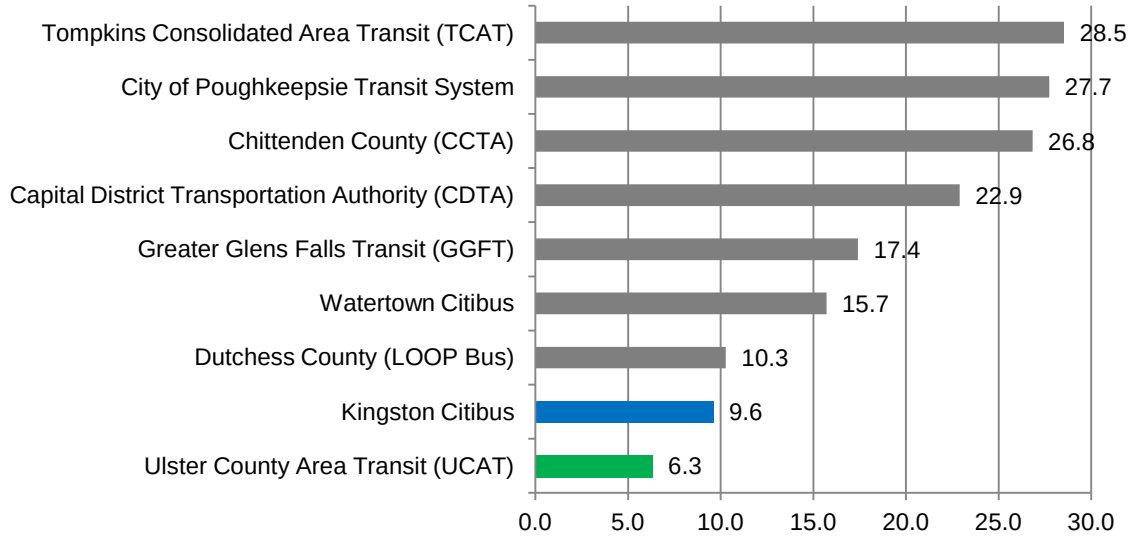
Fixed Route Revenue Hours per Capita / Passenger Trips per Capita. Citibus ranks in the middle of the pack for hours per capita, but ranks low for passengers per capita, meaning more service is being provided to the public than is actually being used. UCAT's hours per capita are

low, but its passengers per capita is also low among the peers. Thus, it is expending a comparable level of resources to ridership.

Service Productivity

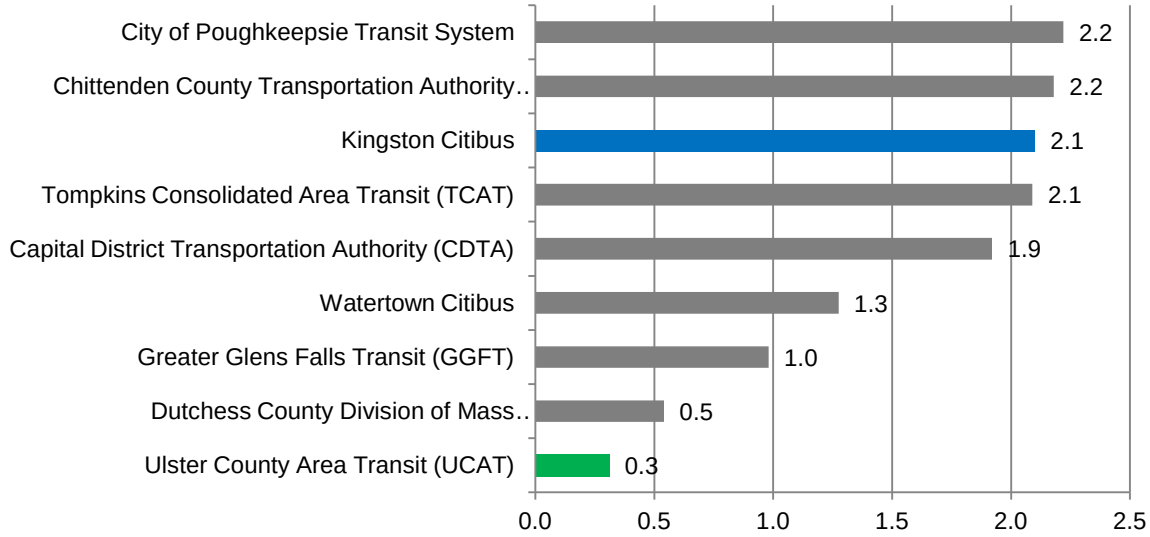
Service productivity illustrates how much ridership is being generated relative to the amount of service available. Service productivity is often expressed in terms of passengers per revenue hour (Figure A-5) and passengers per revenue mile (Figure A-6).

Figure A-5 Fixed Route Passengers per Revenue Hour (2010)



Fixed Route Passengers per Revenue Hour. Figure A-5 shows that UCAT ranks lowest on this metric, due to the county's rural nature and the long distances (and hence time) it takes to connect people to destinations. The Dutchess County system showed a somewhat similar low number of passengers per revenue hour, and this system, like UCAT, covers a large rural county. Citibus ranks second lowest and carries less than 10 passengers per revenue hour. Its closest peer, Watertown Citibus, operates 54% more hours than Kingston Citibus, and carries more than 15 passengers per hour (63% more than Kingston Citibus).

Figure A-6 Fixed Route Passengers per Revenue Mile (2010)



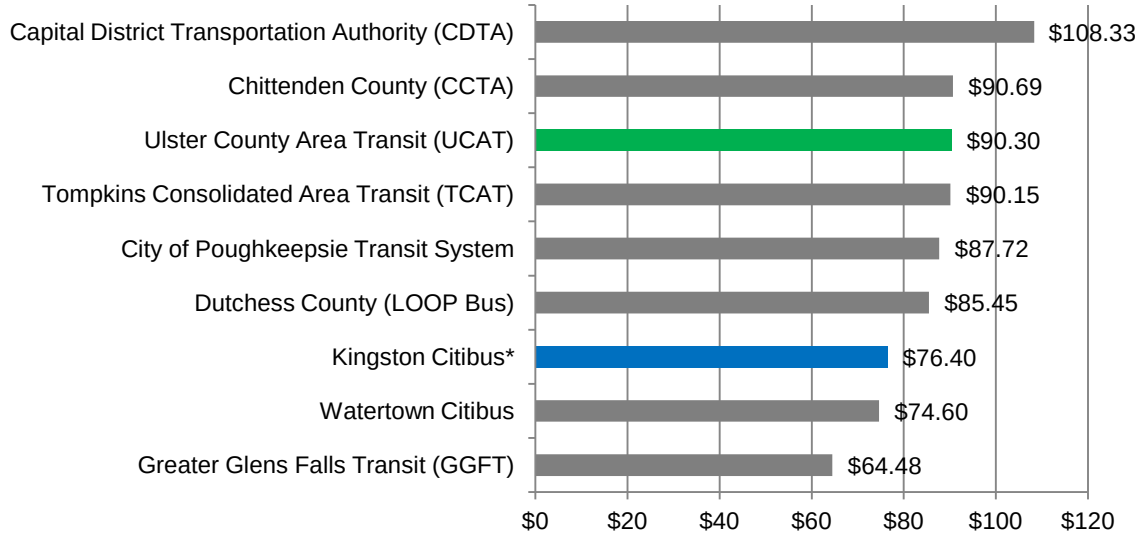
Fixed Route Passengers per Revenue Mile. Similar to passengers per hour, the county-wide rural system of UCAT and Dutchess County carry a low number of passengers per mile. Both Ulster and Dutchess Counties are the only peer system who cover a more than 1,000 square mile service area. Citibus does well on this metric, as the service area is just 9 square miles.

Cost Efficiency

Cost efficiency is a measure of the cost to achieve a particular result – in the case of transit operations, a particular level of service or level of ridership. Cost efficiency can be shown in terms of operating cost per revenue hour (Figure A-7), operating cost per revenue mile (Figure A-8), and operating cost per passenger (Figure A-9).

Fixed Route Operating Cost per Revenue Hour. As shown below, UCAT's operating costs are akin to county systems like Tompkins and Chittenden Counties. However, given the much higher ridership in the peer counties as well as the much lower number of hours provided by UCAT in comparison to the other two counties, costs are high for the service provided. Numerous elements can contribute to high operating costs, from union requirements to staff size. Kingston Citibus' costs to operate are fairly standard for a small urban system.

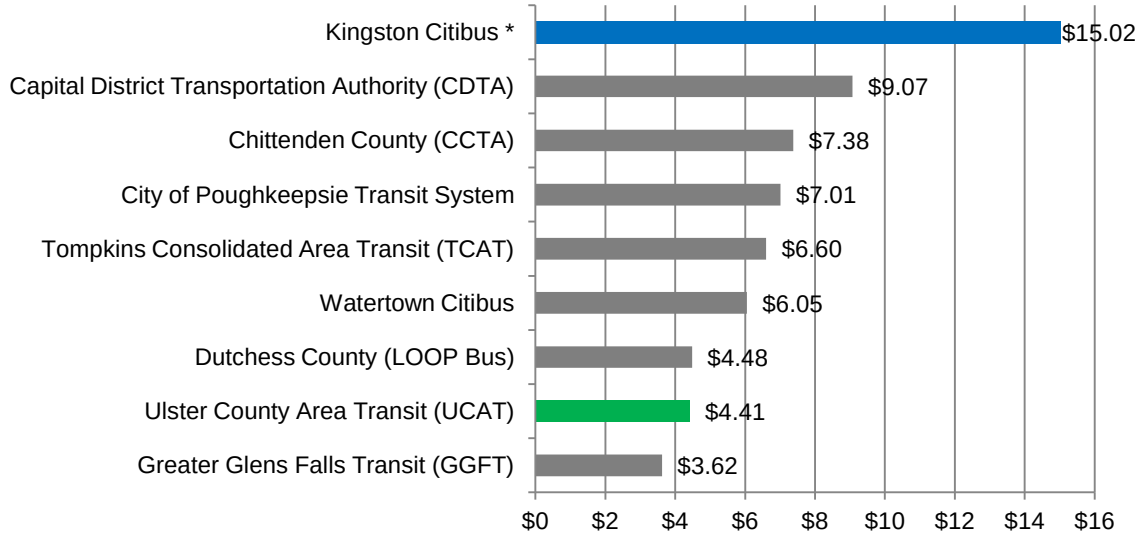
Figure A-7 Fixed Route Operating Cost per Revenue Hour (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Fixed Route Operating Cost per Revenue Mile. Although Kingston and Watertown Citibus are similarly sized systems, Kingston Citibus runs far less miles, thus although their operating cost per hour is similar, based upon their mileage Kingston Citibus' costs are very high. UCAT runs a fairly efficient service according to miles.

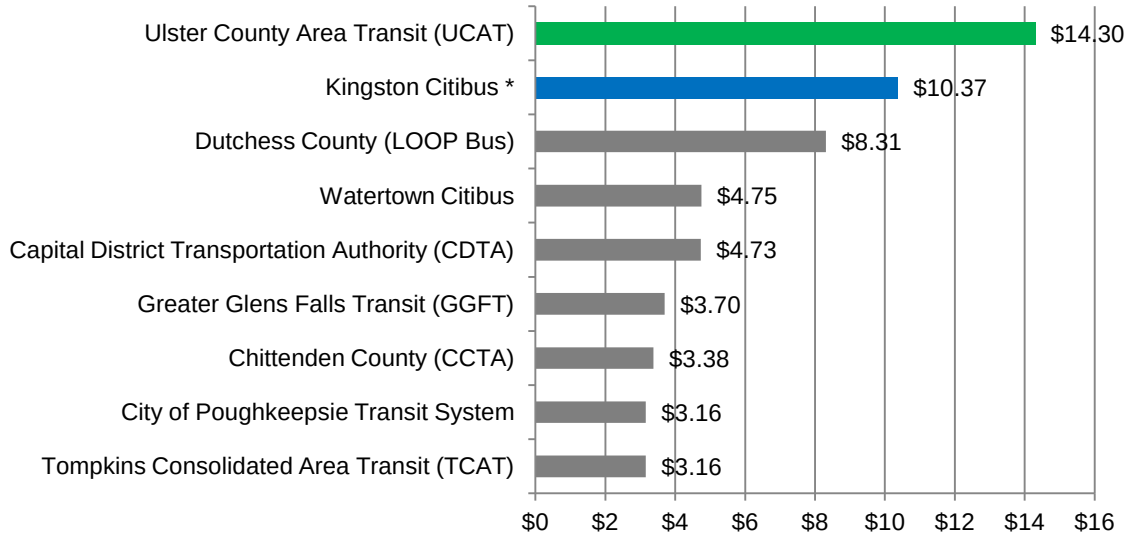
Figure A-8 Fixed Route Operating Cost per Revenue Mile (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Fixed Route Operating Cost per Passenger Trip. In general, fixed-route service cost per passenger trip should be around $5 at the high end. As shown below, UCAT and Citibus cost per passenger is very high. Even taking into account the rural nature of the county, UCAT's return on investment is low. The high cost per passenger trip on Citibus shows that, while service per hour is being operated in a fairly cost-effective manner, the system is yielding little ridership.

Figure A-9 Fixed Route Operating Cost per Passenger Trip (2010)



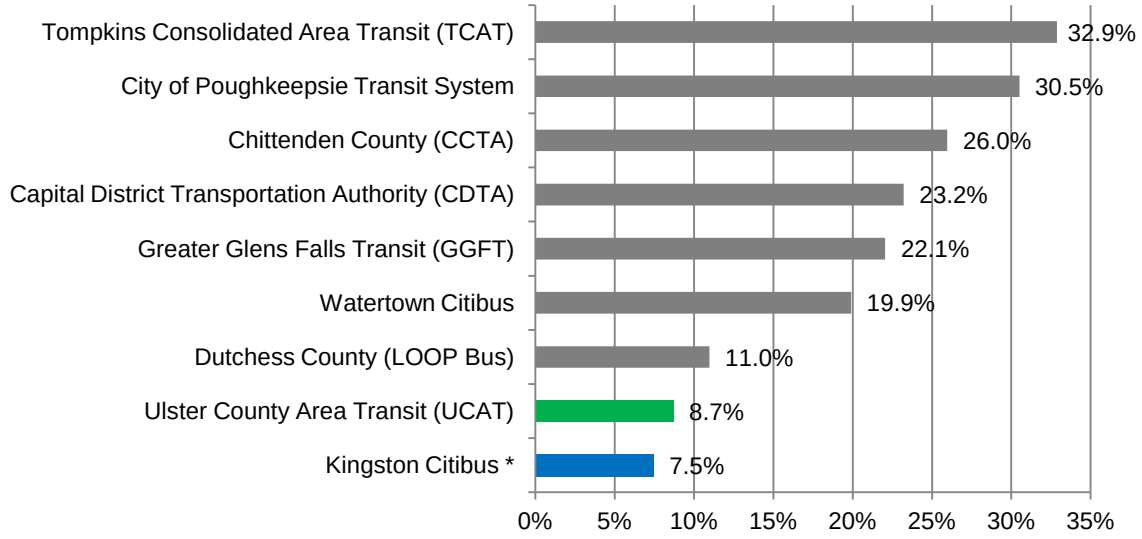
* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Farebox Recovery

Farebox recovery (10) is the ratio of fare revenue to total operating costs. A general rule of thumb for a small to medium transit operation is to maintain a recovery rate of 10-15% (e.g., fares cover 10-15% of operating costs). The fare per passenger (Figure A-11) is another measure of efficiency, as it normalizes the fares collected by the number of people riding the system.

Total Fixed Route Farebox Recovery. Both UCAT and Citibus recover a low percent of operating cost through fares. UCAT's fares are quite low when considering the miles of service provided. Kingston to Pine Hill measures 36 miles and a one-way fare covers five zones and costs $2, which is fairly low in comparison to peers. Dutchess County's base fare is $1.75 for one-way trips. In Tompkins County, fares were recently raised to $2.50 for trips originating in rural areas and destined for Ithaca. Citibus farebox is low but that is due to low ridership rather than low fares - base fare is $1.25 and the service area is small.

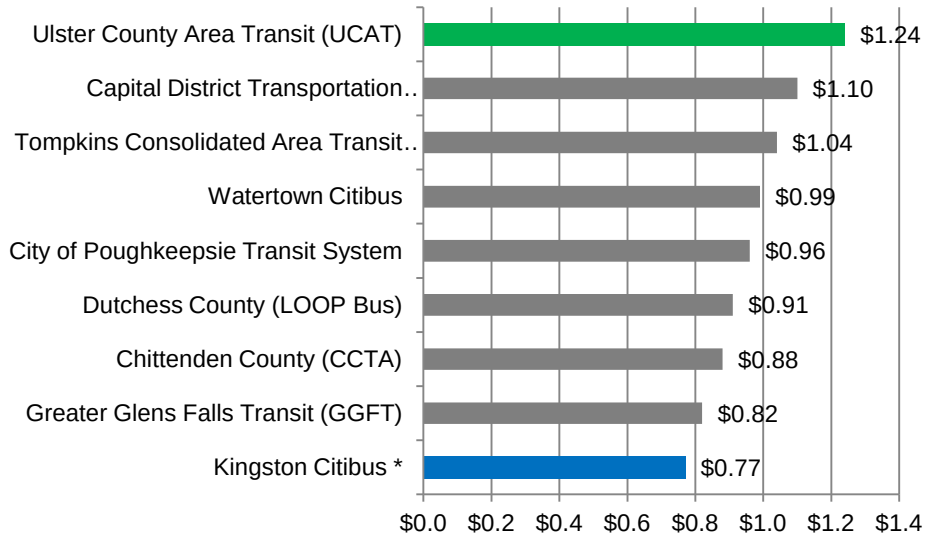
Figure A-10 Fixed Route Total Farebox Recovery (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Fixed Route Fare per Passenger. UCAT fare per passenger is $1.24, indicating that most patrons are traveling over at least two zones (base fare is $1, and additional zones are 25 cents).

Figure A-11 Fixed Route Fare per Passenger (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Demand-Responsive Service Analysis

The following section applies service productivity metrics to demand-responsive service. In general, demand-responsive service often makes up a small portion of ridership but can be costly because of the higher number of miles per trip and lower ridership per vehicle.

Service Availability / Market Penetration

As with fixed-route service, service availability for demand-responsive service is expressed in terms of revenue hours per capita (Figure A-12), and market penetration is measured in terms of passenger trips per capita (Figure A-13).

Demand-Responsive Revenue Hours per Capita & Passengers per Capita. While UCAT's passengers per hour and mile are fairly low, UCAT also does not provide a high level of demand-response service. For example, UCAT provides just under 7,000 annual hours of demand-responsive service compared to over 16,000 in Dutchess County. Given that passengers per capita is also quite low, this might exhibit a low need for demand-response service in the county. Citibus ranks in the middle of the peers for both hours and passengers per capita.

Figure A-12 Demand-Responsive Revenue Hours per Capita (2010)

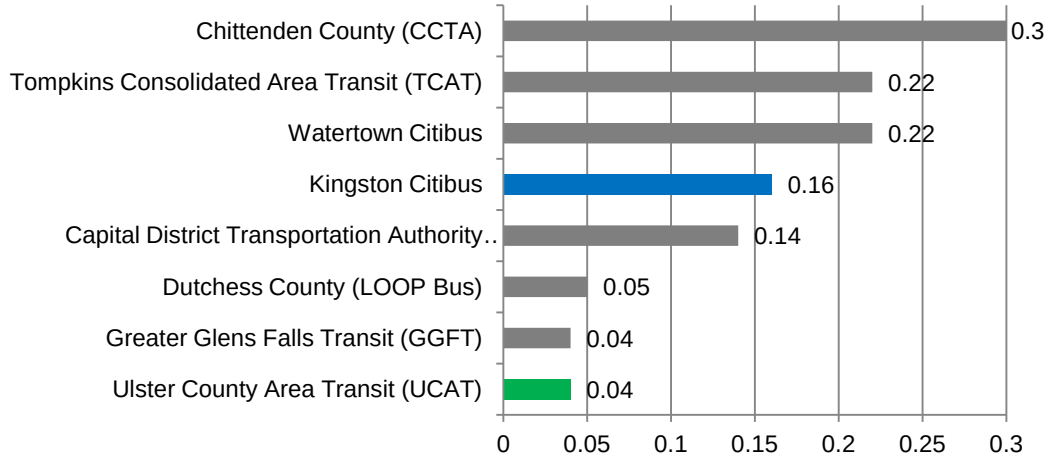
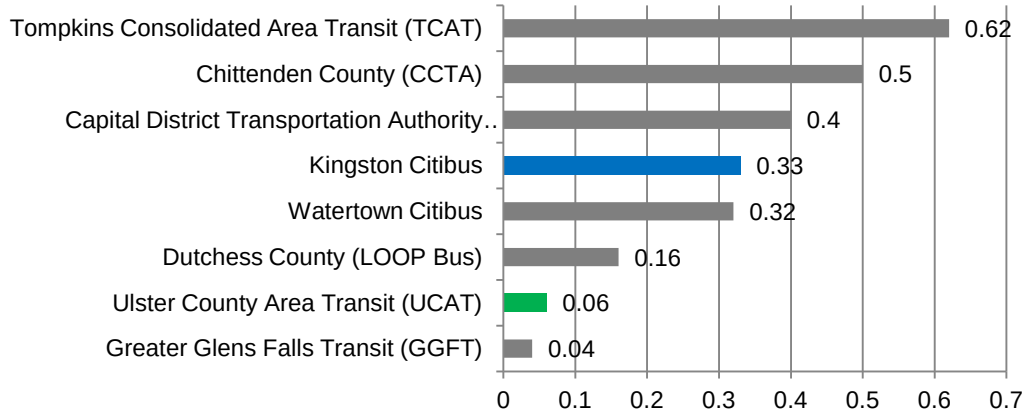


Figure A-13 Demand-Responsive Passengers per Capita (2010)

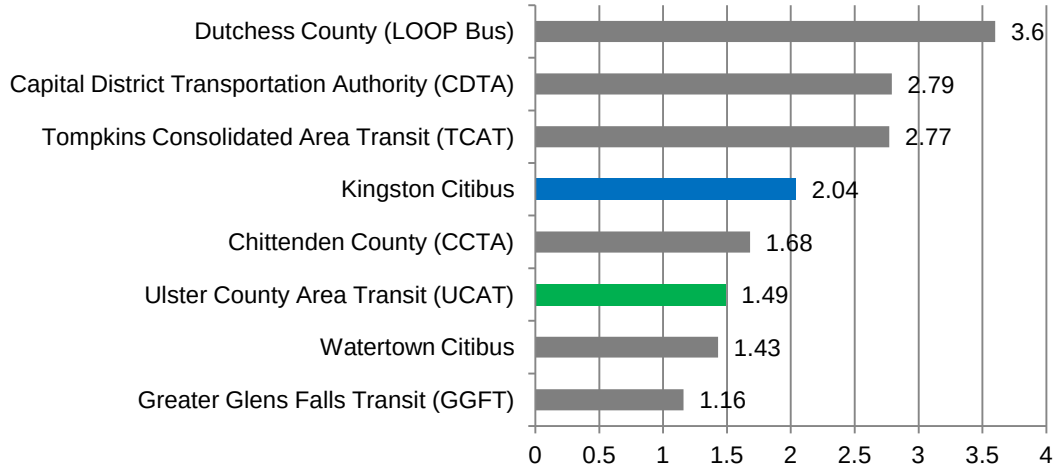


Service Productivity

A lower service productivity is expected for demand-responsive service compared to fixed-route service, but the methods of measuring productivity are the same: passengers per revenue hour (Figure A-14) and passengers per revenue mile (Figure A-15).

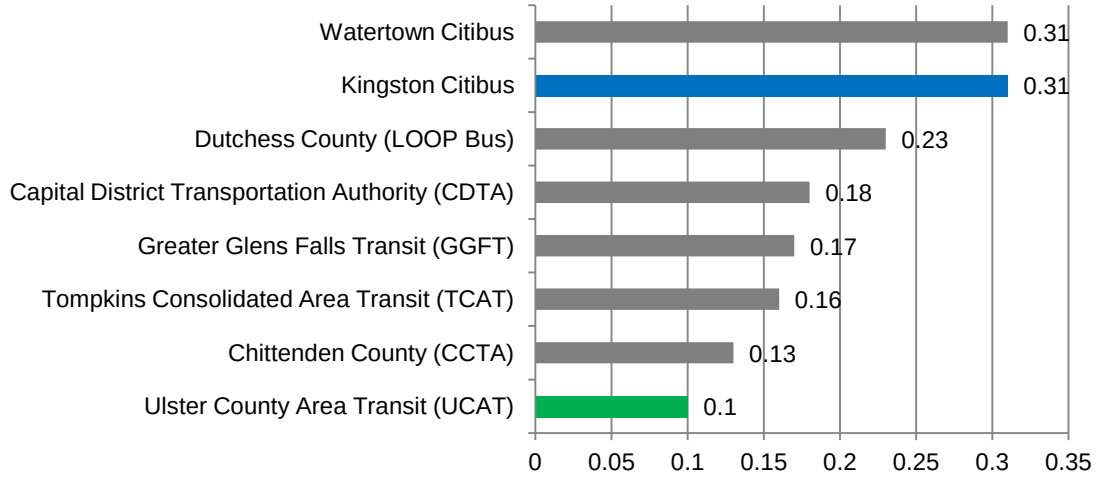
Demand-Responsive Passengers per Revenue Hour. As a rule of thumb, demand-response service averages 2 passengers per revenue hour. Citibus meets this threshold, while UCAT is just below at 1.5.

Figure A-14 Demand-Responsive Passengers per Revenue Hour (2010)



Demand-Responsive Passengers per Revenue Mile. The results of this metric are indicative of the different service areas of UCAT and Citibus. The large UCAT service area makes for low productivity in this characteristic. In addition UCAT has defined their paratransit service area as within 1.5 miles of a fixed route, whereas the ADA mandates only a ¾ mile service area from a fixed route.

Figure A-15 Demand-Responsive Passengers per Revenue Mile (2010)



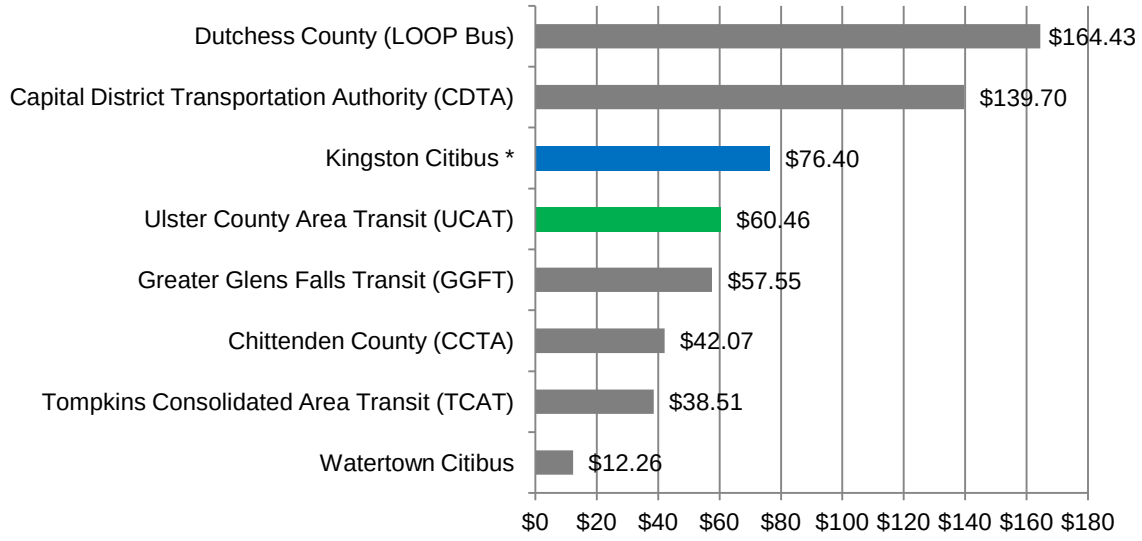
Cost Efficiency

Demand-responsive service typically costs less to operate than fixed-route as it consists of a smaller operation overall; however, the cost per passenger trip is quite high since typically just one or two people are on each vehicle and distances to destinations may be long.

Demand-Responsive Operating Cost per Revenue Hour. Demand-responsive cost per revenue hour for UCAT falls in the medium range of $60.46, compared to $90.30 for fixed-route.

Costs are quite low in the case of Watertown Citibus as the city contracts to an ambulette company for its ADA-complementary paratransit. This contract includes handling all calls and booking trips as well. Since the ambulette company already had dispatching and vehicle infrastructure in place, Watertown pays a very low operating cost for its demand-response service.

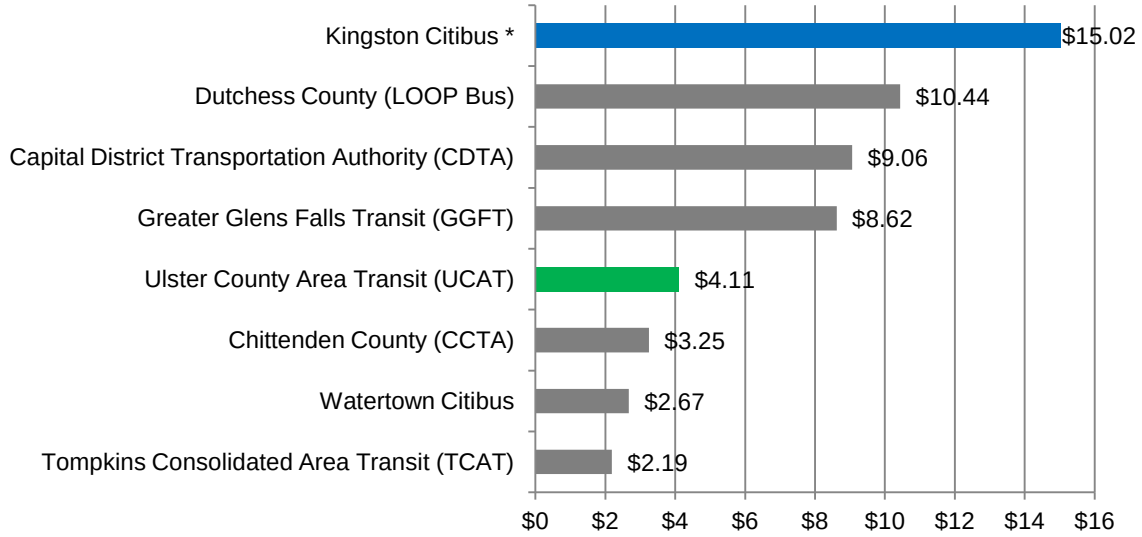
Figure A-16 Demand-Responsive Operating Cost per Revenue Hour (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Demand-Responsive Operating Cost per Revenue Mile. Operating costs for Kingston Citibus are not broken out by fixed-route and demand responsive costs, so the cost shown for Citibus in Figure A-17 represents the system-wide cost per revenue hour. Never-the-less, based on its service area, it is likely that Kingston Citibus runs fewer miles than the other peers, resulting in a high cost per revenue mile. UCAT, on the other hand, covers long distances and has an operating cost per revenue mile in the middle of the pack.

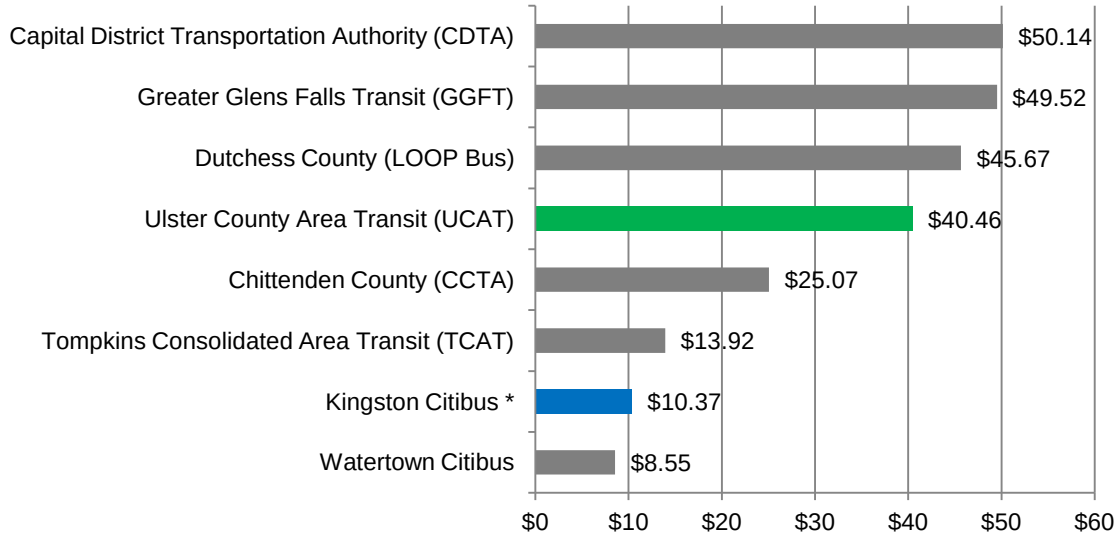
Figure A-17 Demand-Responsive Operating Cost per Revenue Mile (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Demand-Responsive Operating Cost per Passenger Trip. While cost per fixed-route passenger trip is typically around the $5 range, for demand-response, costs typically hover more in the $25 range. Given that UCAT provides county-wide service, its demand-responsive service area thus becomes quite large and that is reflected in the costs.

Figure A-18 Demand-Responsive Operating Cost per Passenger Trip (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

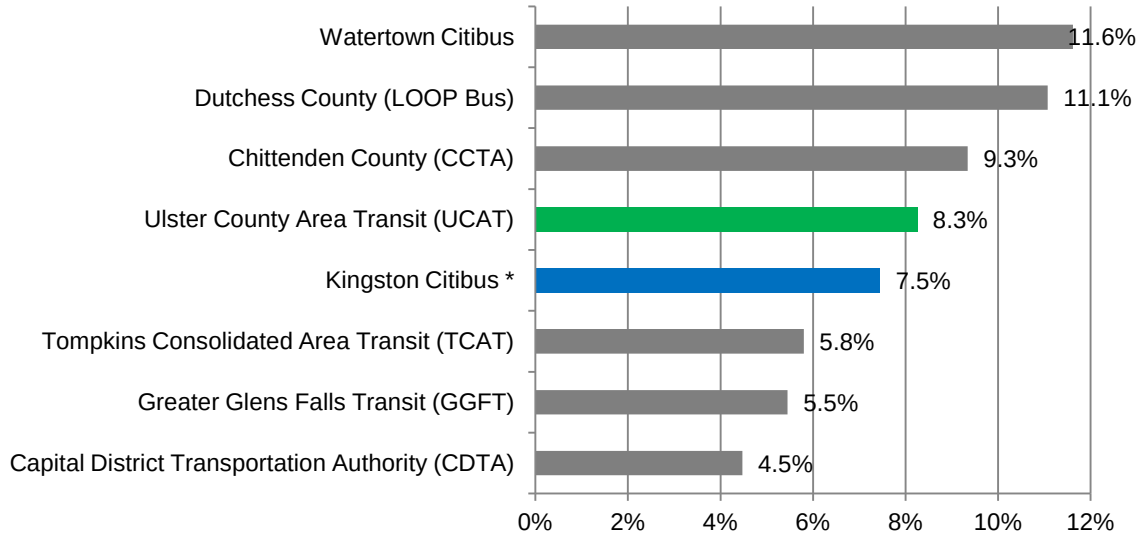
Farebox Recovery

Fares for ADA demand-responsive service are no more than twice the fixed-route fare as mandated by law. However, fares may be higher for demand-responsive service provided beyond the ADA requirement of ¾ of a mile from a fixed-route.

Demand-Responsive Total Farebox Recovery and Fare per Passenger. For a demand-responsive system, UCAT has a good farebox recovery ratio. UCAT allows for ADA pick-up requests of up to 1.5 miles from a fixed-route. This is beyond the ¾ mile buffer mandated by ADA. The UCAT fare for service within the standard ADA zone is double the equivalent fixed-route fare, but passengers requesting service in the expanded zone of up to 1.5 miles from a fixed route are charged an additional dollar. As a result, UCAT riders pay the second highest fare for service among the group of peers. Thus, it appears that the wider deviation catchment policy may help UCAT reap revenues for its demand-responsive service.

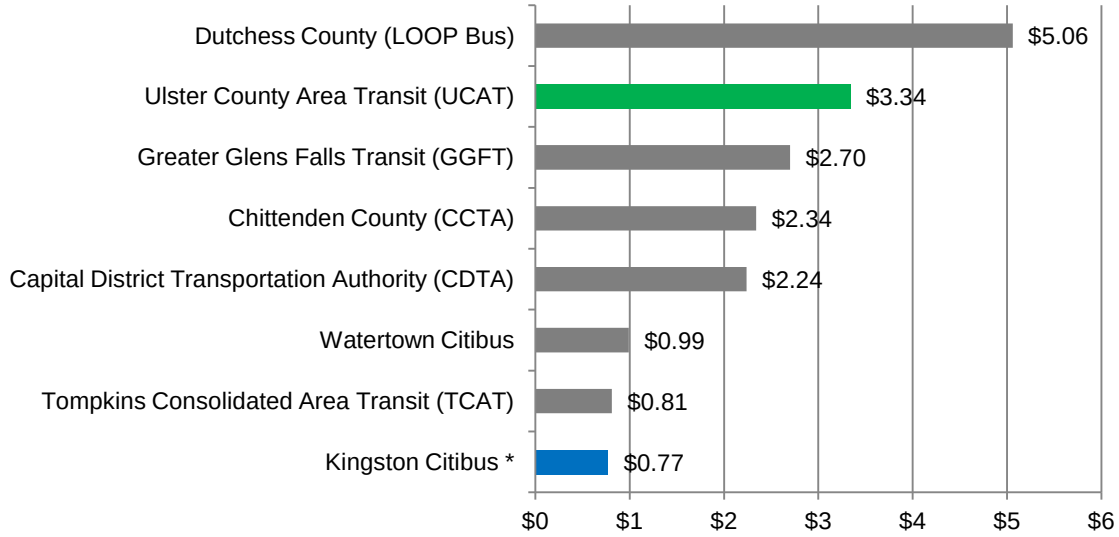
Again, as Citibus does not break out costs by fixed-route and demand-responsive service, the Citibus fare per passenger trip shown in Figure A-20 is reflective of the system-wide

Figure A-19 Demand-Responsive Total Farebox Recovery (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Figure A-20 Demand-Responsive Fare per Passenger Trip (2010)



* Operating costs per fixed-route and demand-response were not available. This represents system-wide metrics.

Key Findings

UCAT's fixed-route service has low passengers per hour and mile, although this may be partially due to extensive interlining, resulting in undercounted ridership. Besides a re-examination of the agencies policies regarding passenger counting, one potential solution would be to make portions of low-ridership routes on-demand only, thus reducing hours and miles but still serving customers who need the service. Another solution might be to make certain towns on-demand, similar to the rural route service, and increase level of service in the higher-ridership routes. More service in areas with latent demand typically results in higher ridership, as it gives people more options for travel times. Specific areas of low and high ridership on each route will be discussed in the route profiles in the following chapter.

UCAT's operating costs for fixed route service are $1 million higher than Dutchess County's, yet ridership is 100,000 less passengers per year. The specific reasons for this disparity are not fully known and may require further analysis. Nonetheless, UCAT should consider raising its base fare, which would improve farebox recovery and account for the long trip lengths passengers are making.

UCAT's demand-responsive service carries the lowest number of passengers per mile. Many paratransit systems create trip priorities for booking or other policies that encourage grouping of trips. For example, the dispatcher may ask a caller to switch an appointment to a different day so two neighbors can be carried together. These policies can also help bring down UCAT's very high operating cost per trip. The service does have fairly productive operating costs per hour and mile. In some systems, such as Dutchess County and CDTA, demand-response services are much more expensive to operate than fixed route. Understanding why UCAT's demand-response system is more cost-efficient than the fixed-route system may highlight policies and procedures that can reduce the fixed-route cost.

Citibus overall has low ridership considering the level of service it offers. Improvements such as clearer information, route changes, and service restructuring are addressed in Chapter 5 of the Ulster County Transit Development Plan, and have the potential to better serve the riding and non-riding public. Costs per hour are fairly productive but cost per trip is double what is should be, resulting from the very low ridership. Service is currently provided from around 6:30 AM until 7:00 PM, and the system provides extensive coverage in the city. Increasing revenue hours or miles is therefore not the primary solution to increasing ridership and lowering costs. Instead, Citibus needs to restructure current routes into more user-friendly and direct connection between places that attracts riders.

APPENDIX B

Surveys

Passenger Surveys

Overview

Understanding current transit riders' origins and destinations, customer satisfaction, and use of the bus routes is a key piece in creating recommendations for Ulster County. The study team created a passenger survey with input from the Steering Committee and distributed it on-board UCAT and Citibus vehicles from October 19-22, 2011. Considering the key role Trailways plays in serving Ulster County, the team also surveyed Trailways customers during the same period. Survey results, as discussed in the following section, provide valuable information on where the system is functioning well and where there are areas for improvement, which will inform the final recommendations of the study.

Methodology

For Citibus and UCAT routes, on-board surveyors or bus operators handed out surveys to passengers. Every trip on both Citibus and UCAT's schedule was surveyed. Since Trailways provides long-haul service through several counties, passengers were surveyed at the four main Trailways stations in Ulster County – Kingston, New Paltz, Rosendale Park & Ride, and New Paltz Park & Ride. These four stations were especially important as UCAT's Ulster-Poughkeepsie LINK service also serves these stops.

The survey focused on a handful of questions:

- Origin and destination, including address and location type (home, school, work, etc.)
- Mode of access to the bus stop
- Frequency of bus use
- Satisfaction with existing service
- Improvements passengers would like to see
- Ways passengers would like to receive information
- Age

Figure B-1 Surveyors at the Kingston Trailways Station

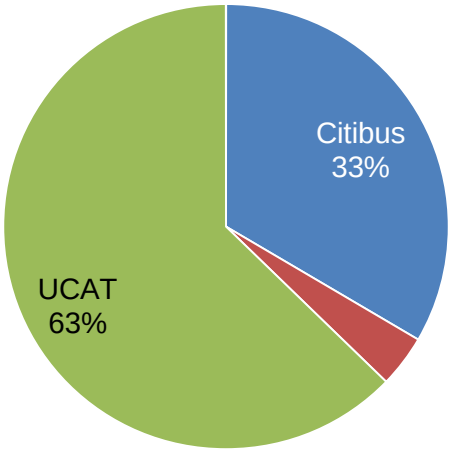
English and Spanish surveys were available at all locations. A copy of the English questionnaire is included as Appendix C.

In total, 1,114 surveys were completed, of which 605 were completed by Trailways customers, most of whom were destined for New York City. However, since this study is focused on Ulster County, only those respondents who were making intra-country trips on Trailways (20 responses) were included in this analysis. A total of 332 responses were collected from UCAT riders (representing 25% of average daily ridership) and 177 from Citibus (38% of average daily

ridership). The lower response rate for UCAT can be attributed to their higher over-all ridership and the survey distribution method. UCAT surveys were distributed by the bus operators, whose first priority is the safe operation of the vehicle and fare collection.

Figure B-2 below shows the breakdown of responses analyzed in this memo by provider.

Figure B-2 Survey Distribution by Provider

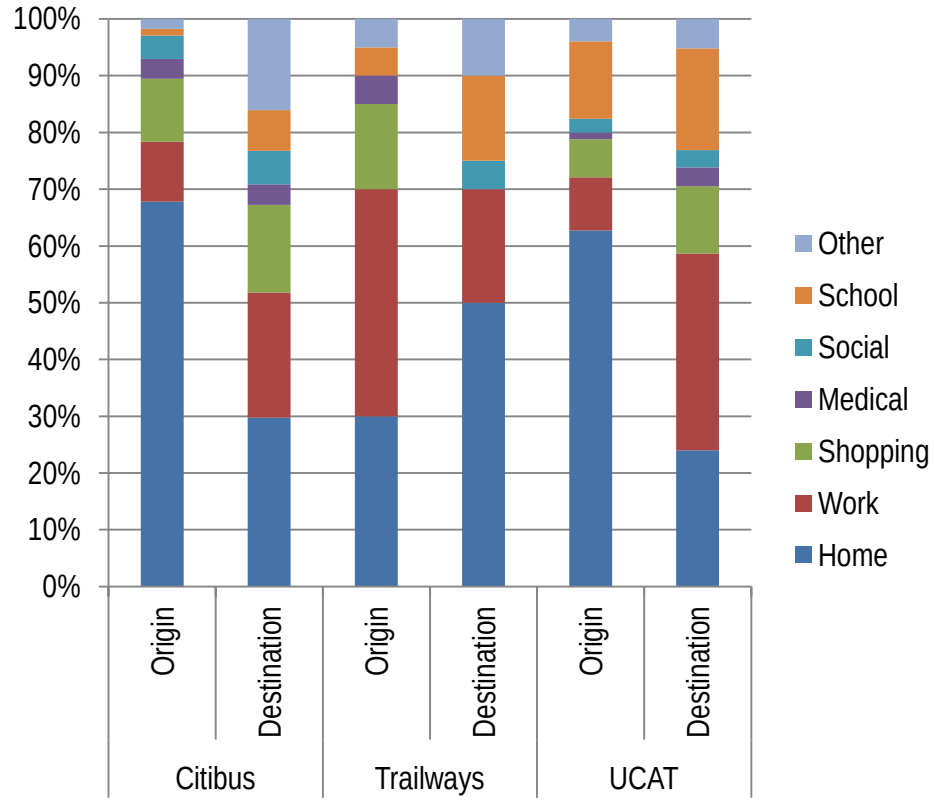


Trip Purpose

To understand what type of trip people make via transit, the survey asked people where they started their trip and where they are going. Responses were classified into seven categories: home, work, shopping, medical, social, school, or other (see Figure B-3).

The home to work trip is often one of the most common trips on transit. However, Citibus data shows that less than half the home-based trips are heading to work. Many respondents were out shopping or marked "other." Citibus also carries very few school trips. Trailways home and work trips make up the same percent (70) of both origins and destinations. On UCAT, trips originating at or destined for a school are nearly equal in number, which is unsurprising as the SUNY New Paltz service is a loop. UCAT serves a significant amount of work and shopping destinations.

Figure B-3 Origin and destination type by provider



Mode of Access

Most people riding UCAT and Citibus walk to the bus stop (see Figure B-4), a pattern consistent with most local bus services. The average walk times are 5.5 minutes and 11.6 minutes for Citibus and UCAT riders, respectively. In the case of Trailways, which provides regional service, people also walk to the bus stop, but transfer from other services, drive, or get dropped off as well.

Passengers can transfer between UCAT and Citibus at Kingston Plaza. For Citibus riders, 14 transfers were stated as between “Kingston” and “Kingston” – which likely means between Kingston and the Town of Ulster. For UCAT riders, the most common transfer was between the S and the U route, for those coming from Saugerties and heading to SUNY Ulster.

On Trailways, the average walk time from the person's origin to the bus stop is 11.5 minutes. In the case of the New Paltz Park & Ride, the walk percentage primarily represents people walking to their final destination in New York City. The New Paltz terminal, which is in the heart of downtown and has the smallest parking lot, has the highest walk percentage.

The high level of transfer activity on Trailways is primarily due to customers transferring to MTA bus or subway in New York City to get to their final destination. However, there are a fair number of transfers between Citibus and UCAT to Trailways as well, which is further explained in Figure B-5. During the survey fieldwork, a Trailways ticket agent stated that customers arriving in Kingston often ask how to access the city bus routes, presenting an opportunity to better link the Citibus and Trailways systems. The UCAT transfers to and from Trailways took place at either Kingston or New Paltz.

Figure B-4 Mode of Access To and From Bus Stops

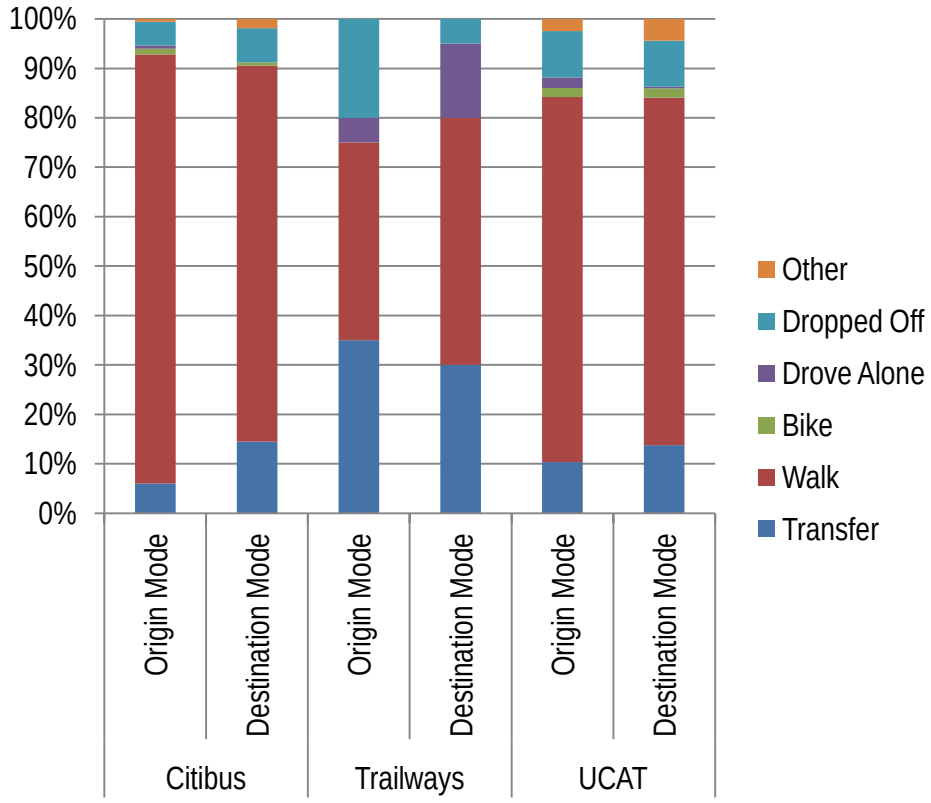


Figure B-5 below shows Trailways riders who said they transferred. Although the sample size of Trailways users within Ulster County is small, this figure shows the variety of ways people have cobbled together their transportation. For example, one person started their trip in Rosendale on UCAT. When that person was surveyed they were waiting at New Paltz for a Trailways bus. Since their final destination is the Hudson Valley Mall, they will get off Trailways in Kingston and take UCAT Route K to the mall.

Figure B-5 Responses of Trailways Customers Who Transfer to Another Transit Route

Began Trip In...	Transferred From	Completed survey while waiting At...	Destination	Mode to Destination
New Paltz	UCAT	New Paltz	SUNY Ulster	Pick-Up
Kingston	Citibus	Kingston	Port Ewen	Walk
Rosendale	UCAT	New Paltz	Hudson Valley Mall	UCAT
New Paltz	UCAT	Kingston	Mohonk Ave, New Paltz	Trailways
Kingston	UCAT	Kingston	Mt. Tremper	Walk
Kingston	Trailways	Kingston	New Paltz	Walk

Frequency

Citibus and UCAT riders are primarily frequent users, with 80% of UCAT and 75% of Citibus riders taking the systems 2-5 days per week (see Figure B-6). This is consistent with a system that serves a large number of commuters and/or serves a mostly transit dependent market. Those who take Trailways intra-county are also frequent users, with 75% taking the bus 2-5 days per week.

The survey intercepted a handful of first-time riders. Among first time UCAT riders, nearly half (10 respondents) were riding the New Paltz Loop. Given the time of the survey (mid-October), these first-timers may be SUNY New Paltz students who just started class in September. The one first-time Trailways user was traveling from Tillson to SUNY New Paltz.

Figure B-7 shows the breakdown of frequency of ridership by route for UCAT. For riders on the G, U, S, and H routes, 90-100 percent of respondents ride two or more days per week. This shows that although ridership on routes like G and H is quite low, the riders heavily depend on the service.

Figure B-6 Frequency of Use

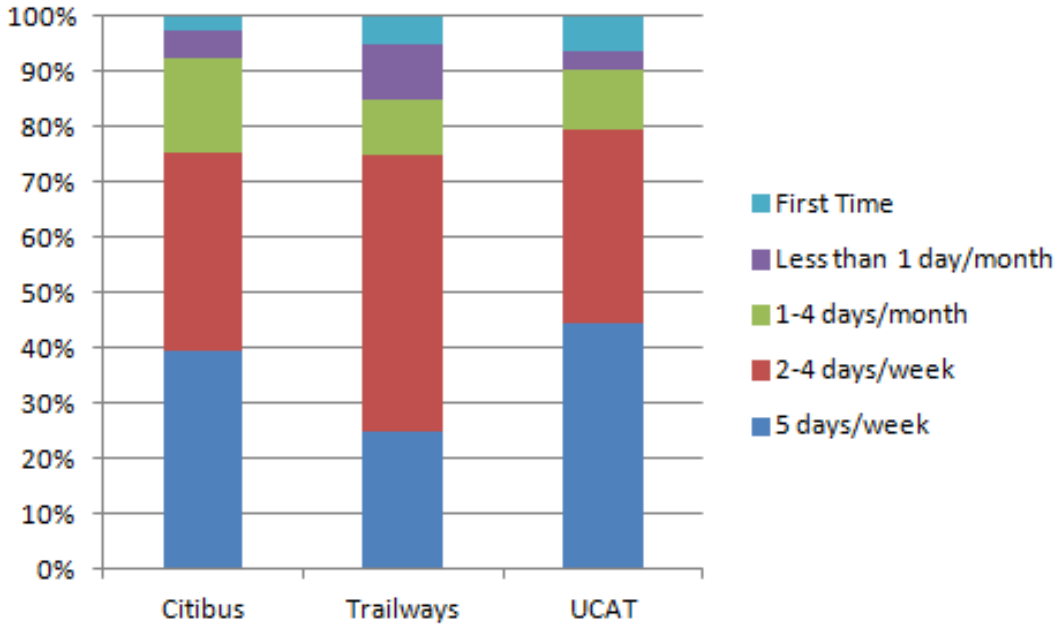
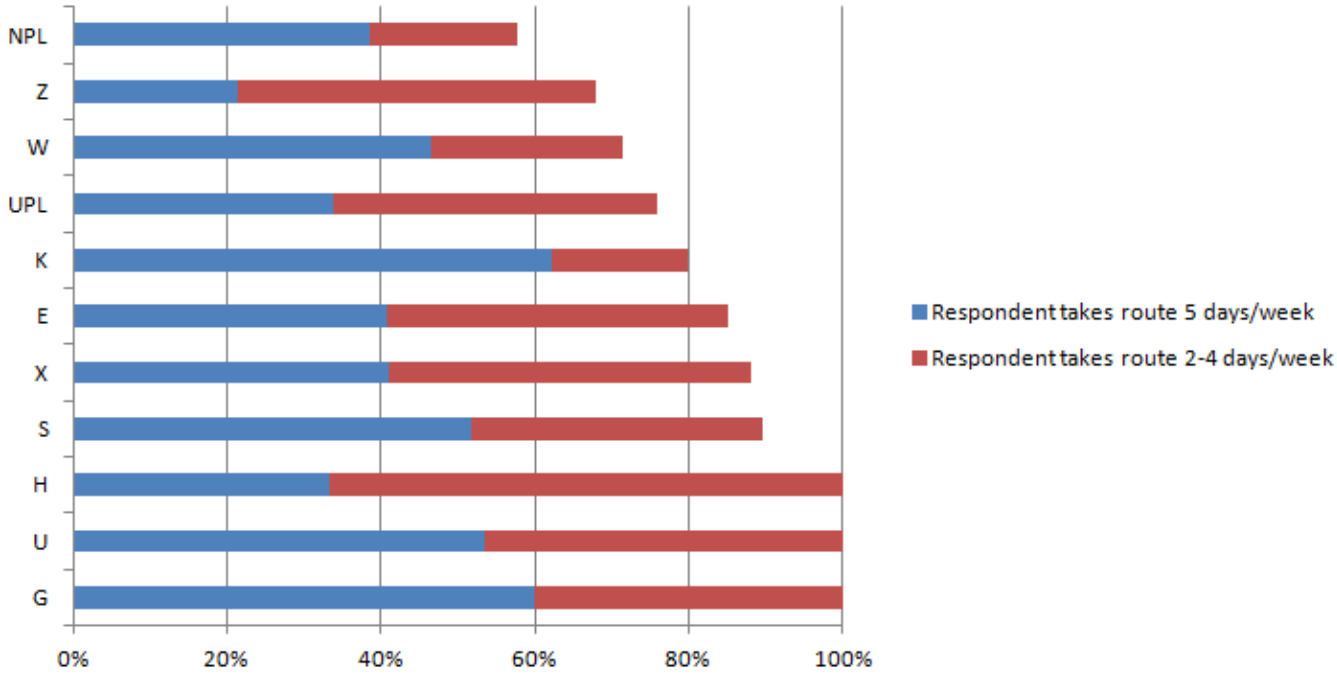


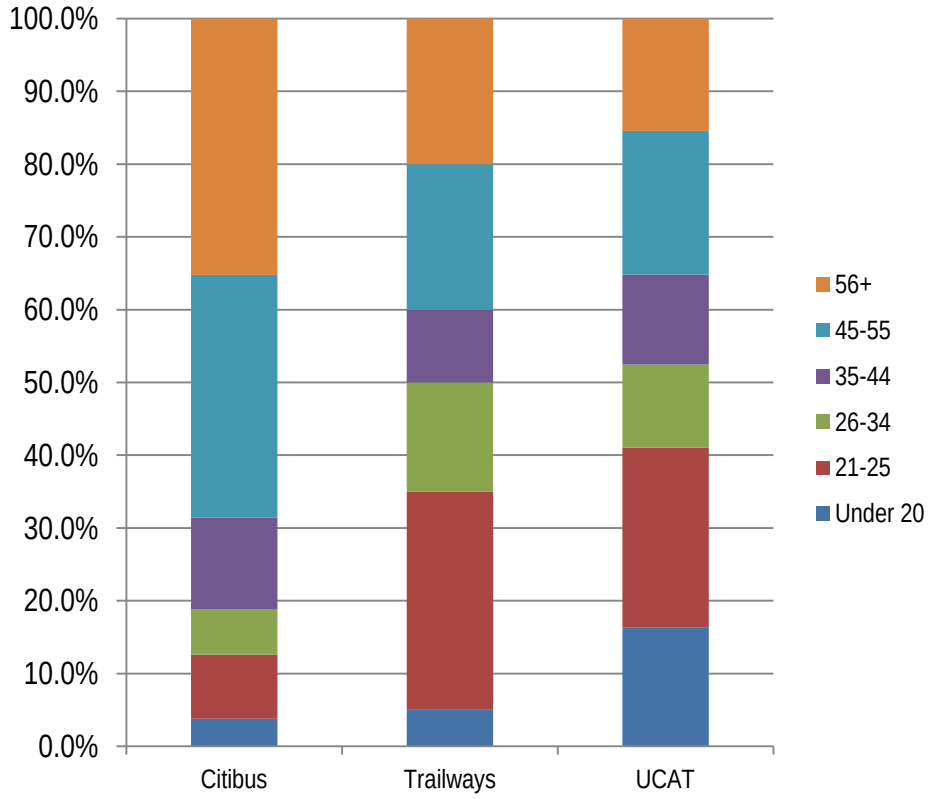
Figure B-7 UCAT Frequent Riders



Age

Citibus primarily serves an older market (see Figure B-8), while UCAT has a very young market, indicative of the large student population.

Figure B-8 Responses by Age by Provider



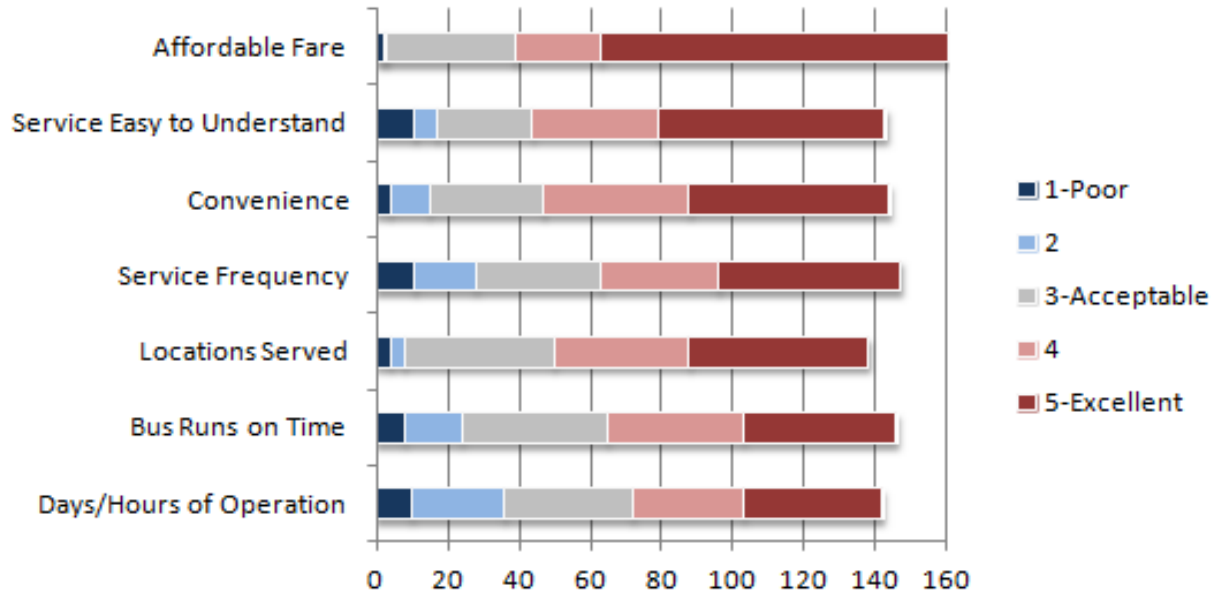
Customer Satisfaction & Improvements

Four questions asked riders to rank their experience with the existing service, including where the system needs improvements, and places they wish the bus would go:

Based on their responses, customers are generally pleased with the existing service (see Figures B-9 and B-10). For both services, passengers are most satisfied with the current fare and least satisfied with the days and hours of operation.

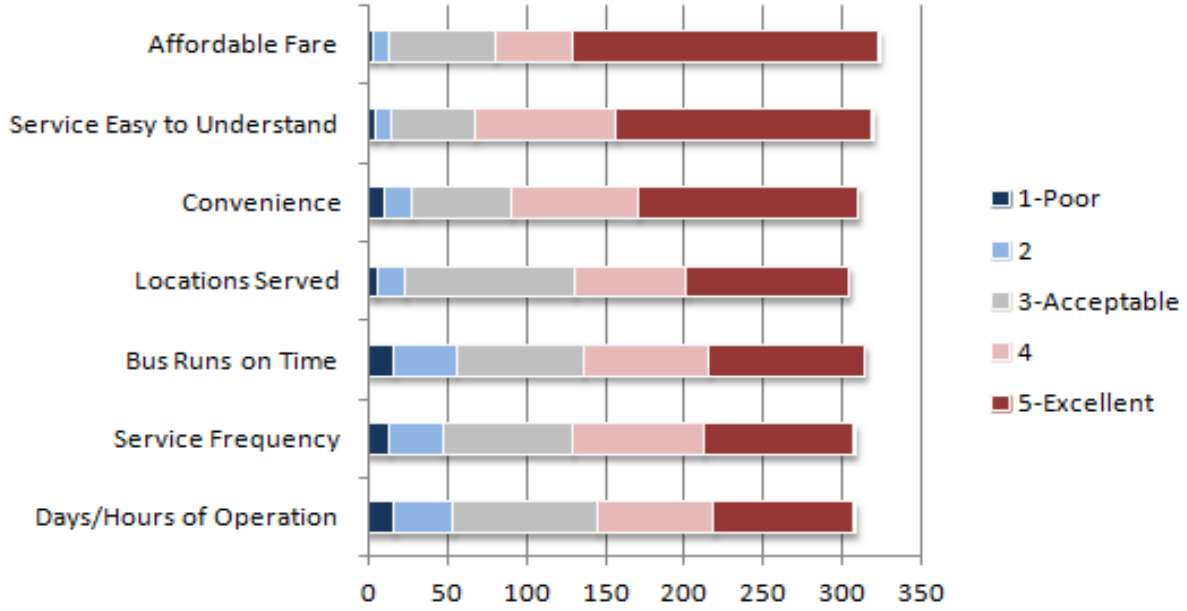
Question 1:
Tell us how you feel about UCAT/Citibus. Please circle the number that most closely reflects your experience. (1=Poor to 5=Excellent)

Figure B-9 Citibus Responses to Customer Satisfaction Question [1]



[1] Question was not asked to Trailways passengers.

Figure B-10 UCAT Responses to Customer Satisfaction Question[2]



When asked how service can be improved, Citibus and UCAT customers preferences fell in a similar order, with increasing the number of trips as the highest priority. Next to the "extend bus route" response, space was provided for people to write in where they wanted service. For Citibus riders, the most common place was the "Malls" – presumably Hudson Valley Mall (7 respondents). On UCAT, customers listed a wide range of places, including many places UCAT serves today. This likely indicates the need for better customer information. The most common response for UCAT riders was service on weekends (9 respondents).

[2] Question was not asked to Trailways passengers

Question 2:
What service changes would you like to see? Please circle the number that most closely reflects your priority. (1=Low to 5=High)

Figure B-11 Citibus Responses to Service Improvement Question[3]

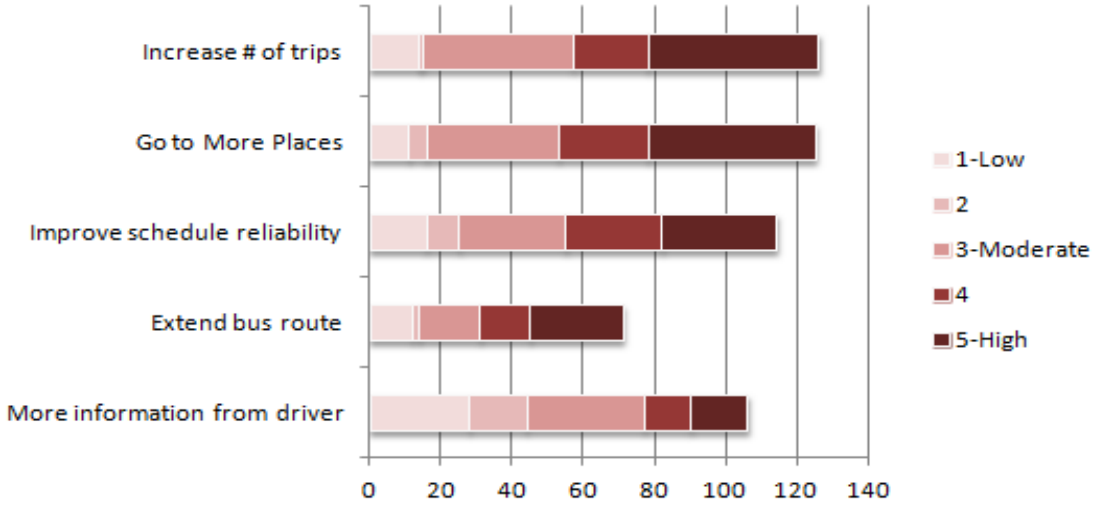
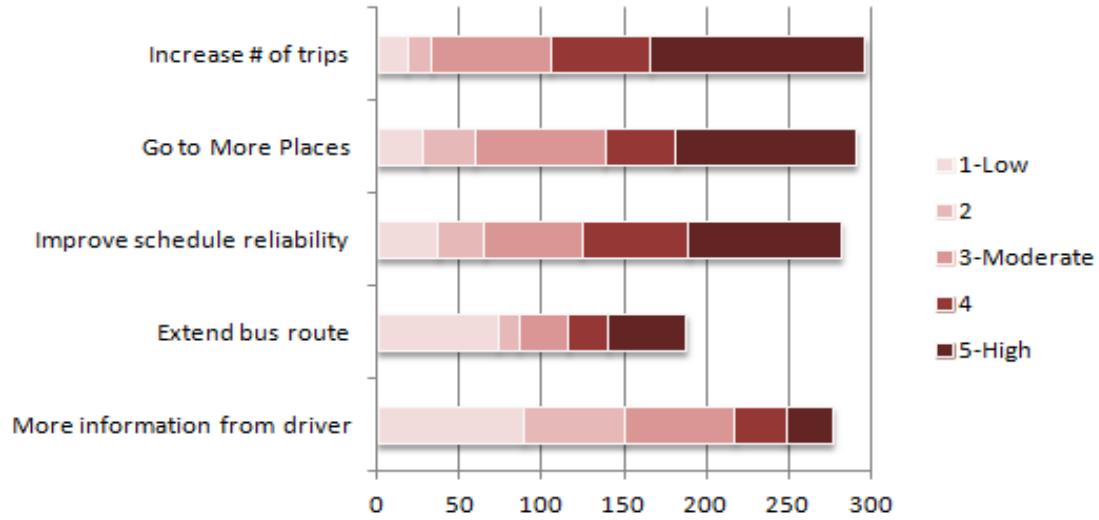


Figure B-12 UCAT Responses to Service Improvement Question[4]



Citibus and UCAT riders said they preferred existing methods for obtaining information (see Figures B-13 and B-14). This compares with Trailways customers who expressed more openness to online and cell phone-linked information and updates (see Figure B-15).

[3] Question was not asked to Trailways passengers

[4] Question was not asked to Trailways passengers

Question 3:
How would you like to receive information about UCAT/Citibus/Trailways? Please circle the number that most closely reflects your priority. (1=Low to 5=High)

Figure B-13 Citibus Responses to Information Source Question

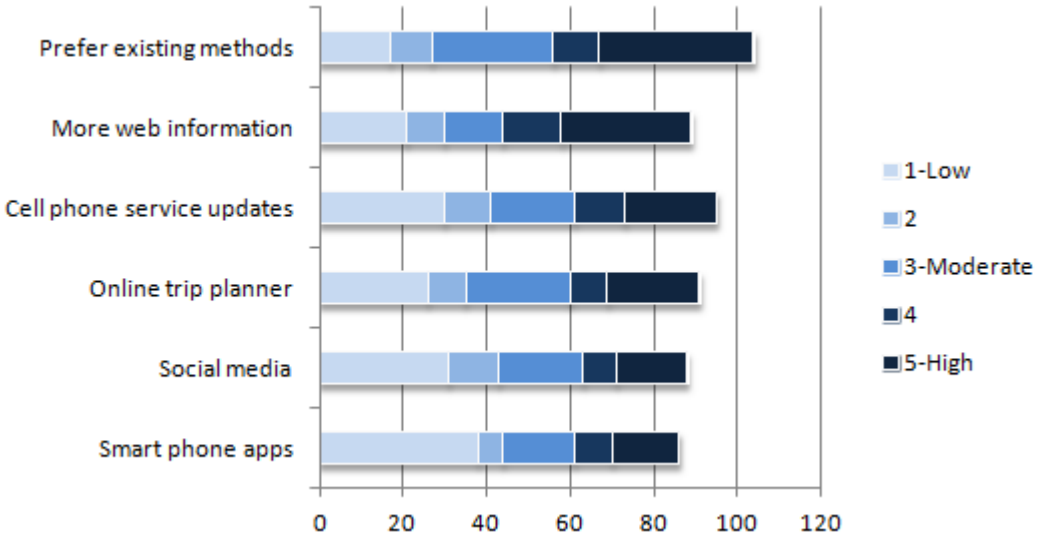


Figure B-14 UCAT Responses to Information Source Question

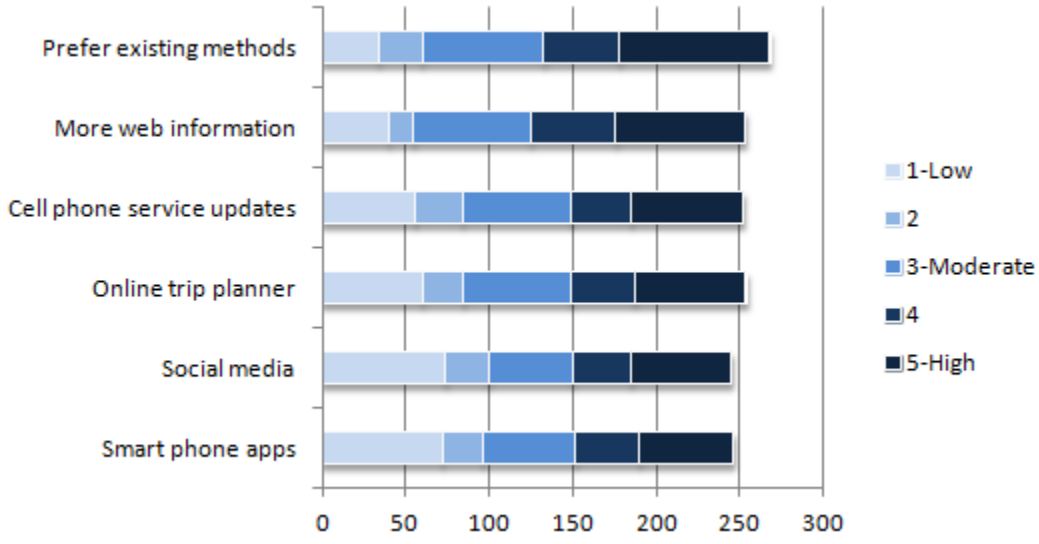
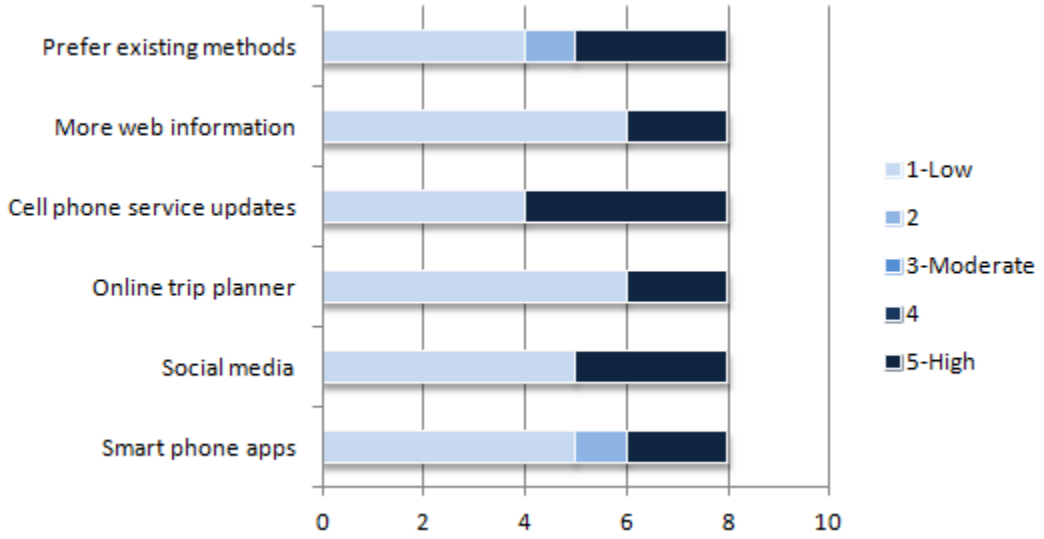


Figure B-15 Trailways Responses to Information Source Question



Question 4:
Are there any places that you wish the bus went to? (Open-ended response)

Responses to this open-ended question were similar to responses to the service changes question, with people requesting the Hudson Valley Mall and weekend service the most. On UCAT, customers requested the following locations (places requested by multiple respondents are shown first):

- Poughkeepsie Galleria (6 respondents)
- Newburgh (3 respondents – Newburgh is served by UCAT Route X)
- Kingston on weekends (presumably on Route K)
- More service between Ellenville and Stone Ridge
- Saugerties to SUNY Ulster
- Weekends on New Paltz Loop
- Dutchess Community College (many students come from New Paltz)
- Earlier UPL at Rosendale
- Downtown Kingston destinations like the YMCA and the Strand area – this shows that many UCAT riders do not know about, or prefer not to transfer to Citibus

Citibus responses clearly show that there is a lack of information about UCAT services. This was observed during fieldwork, as riders (most of whom are regulars) were often asking various drivers if their bus went to the mall, or to other places. To the passenger, the designation of Citibus for Kingston and UCAT for Ulster County is arbitrary when major destinations like the mall are viewed as part of the Kingston core. Places Citibus survey respondents wish to go are:

- Hudson Valley Mall or stores in the mall like Wal-Mart (18 responses)
- Places served by UCAT like New Paltz and Woodstock

Trailways respondents listed just three places:

- Pine Hill
- Woodstock
- Gardiner

Origins and Destinations

The rider survey asked people to list the cross streets and town of their origin and destination, and 62 percent of the surveys had both an origin and a destination that the study team could map using GIS. This study consolidates the origin and destination information into analysis zones to obtain a finer level of detail of travel patterns in the county. These analysis zones consist of Census Designated Places (CDPs), towns, and block groups (for the City of Kingston only). The Census defines CDPs and uses them to represent concentrations of population that are not necessarily coterminous with village or town boundaries. Within Kingston, where Citibus provides local service, block groups provide an even smaller geography to assess trips. Any trips going outside Ulster County were classified by county.

Figure B-16 shows the travel patterns for all survey respondents, including Trailways trips going outside the county, to show the overall travel patterns from Ulster County. The figure omits origin-destination pairs with less than six trips to ensure legibility.

The vast majority of people traveling to New York City were taking Trailways; seven respondents were taking UCAT's UPL.

Figure B-16 All Trips - Origins and Destinations

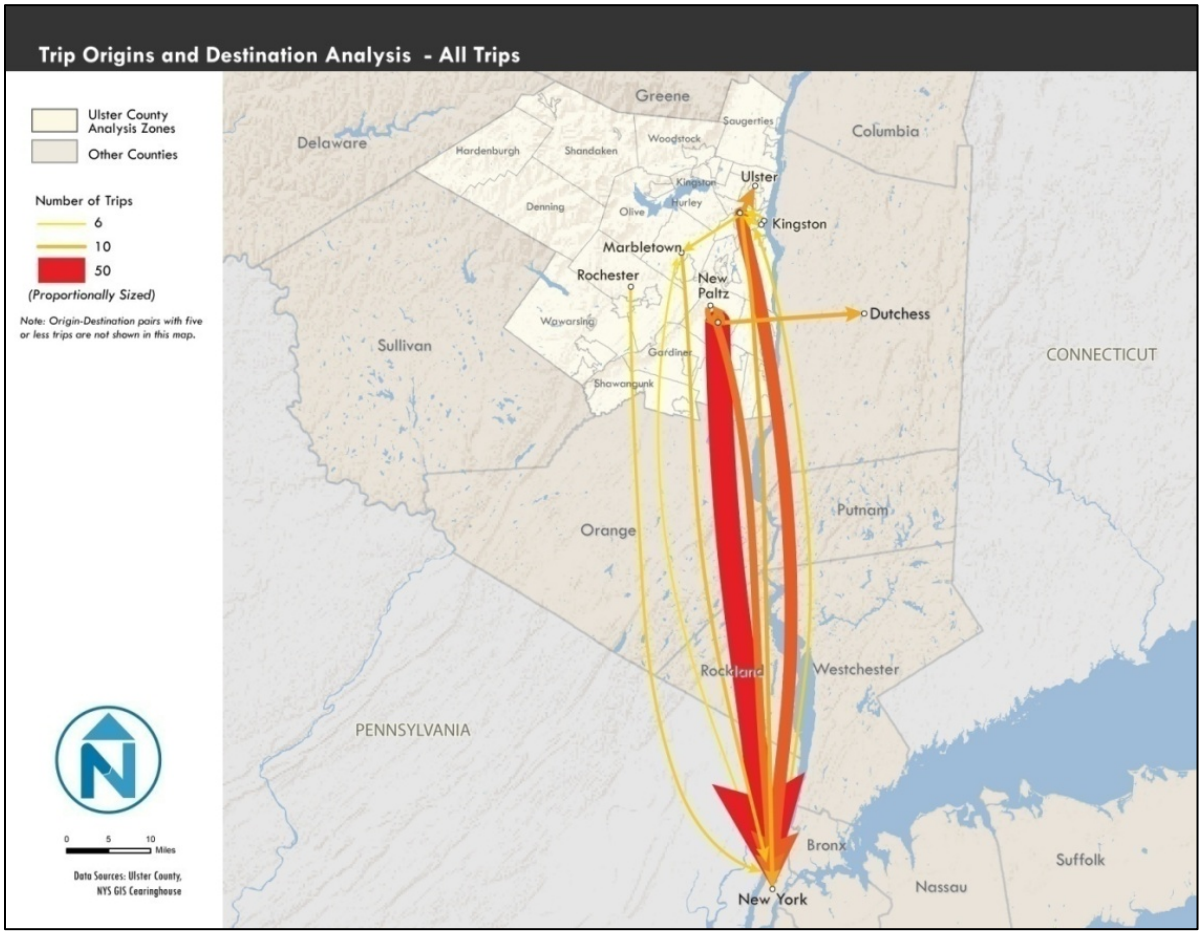
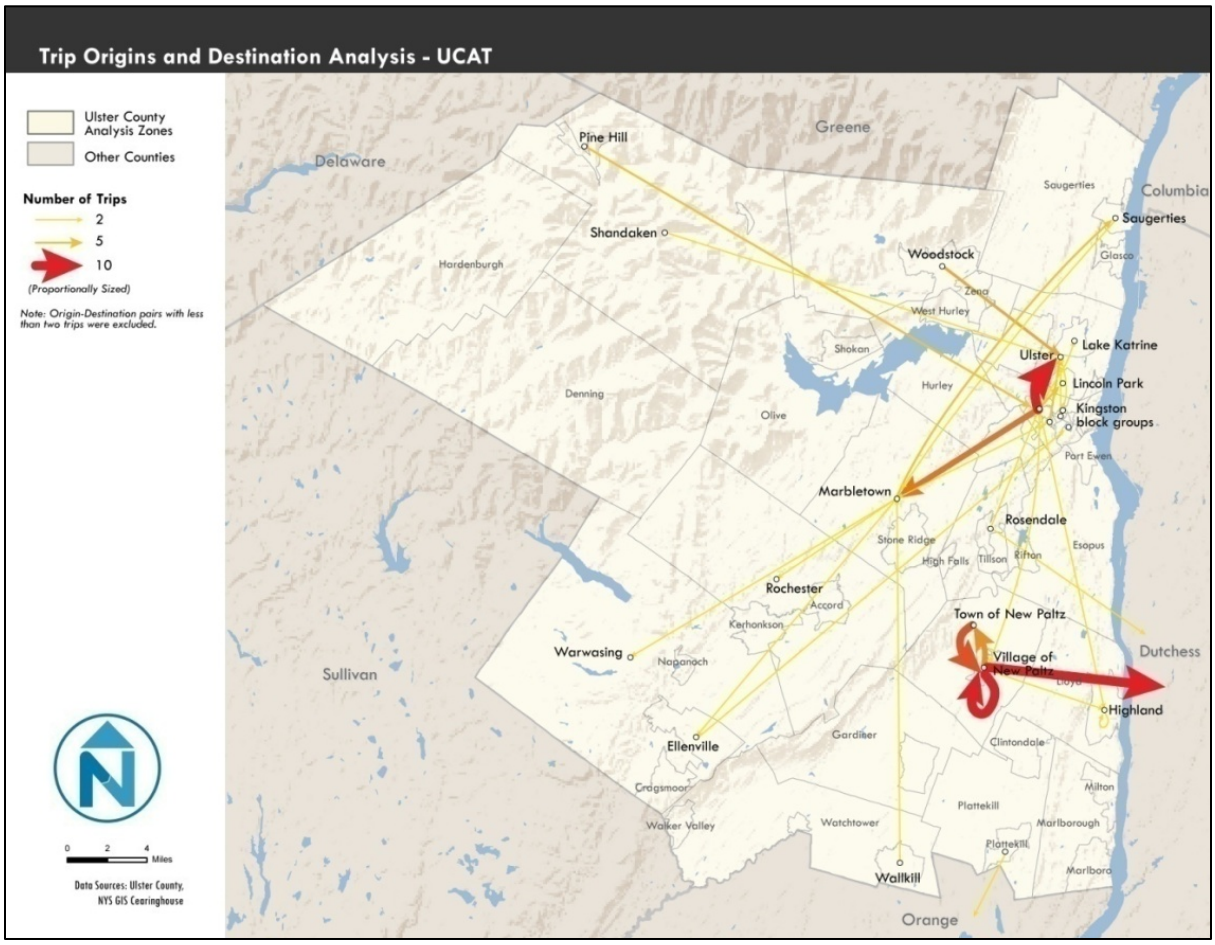


Figure B-17 focuses on UCAT customer origins and destinations. The trips between the Village of New Paltz and the Town of New Paltz were all taken on the New Paltz Loop, as a portion of the route that serves the Shop Rite and Stop & Shop on Henry Dubois Drive and Main Street is outside the village boundary. Travel between Kingston and Marbletown was on UCAT's U route. Nearly all of these trips were heading to SUNY Ulster, which is just outside the Stone Ridge CDP. Note that a portion of trips to SUNY Ulster are originating in Saugerties, meaning these passengers must transfer at Kingston Plaza from the S to the U.

Figure B-17 UCAT Origins and Destinations



The heaviest used link is between Kingston and the Town of Ulster; most of these trips are destined for Hudson Valley Mall. The Ulster-Poughkeepsie LINK serves high demand between New Paltz and Poughkeepsie, and a lower level of demand from Rosendale to Poughkeepsie. Some UPL passengers listed NYC as their final destination, but many simply listed a destination in Poughkeepsie. There is little travel between the county's two population centers, Kingston and New Paltz.

As shown in Figure B-18, Trailways intra-county trips are primarily between Kingston and New Paltz. One respondent said travel was to SUNY New Paltz; another person was heading to SUNY Ulster via a transfer from UCAT. Five people stated they transferred to or from UCAT, and one person transferred to Citibus.

Citibus origins and destinations in Figure B-19 reveal a clear corridor between the downtown neighborhood by the river and uptown. Most trips follow a northwest-southeast orientation.

Figure B-18 Trailways Origins and Destinations within Ulster County

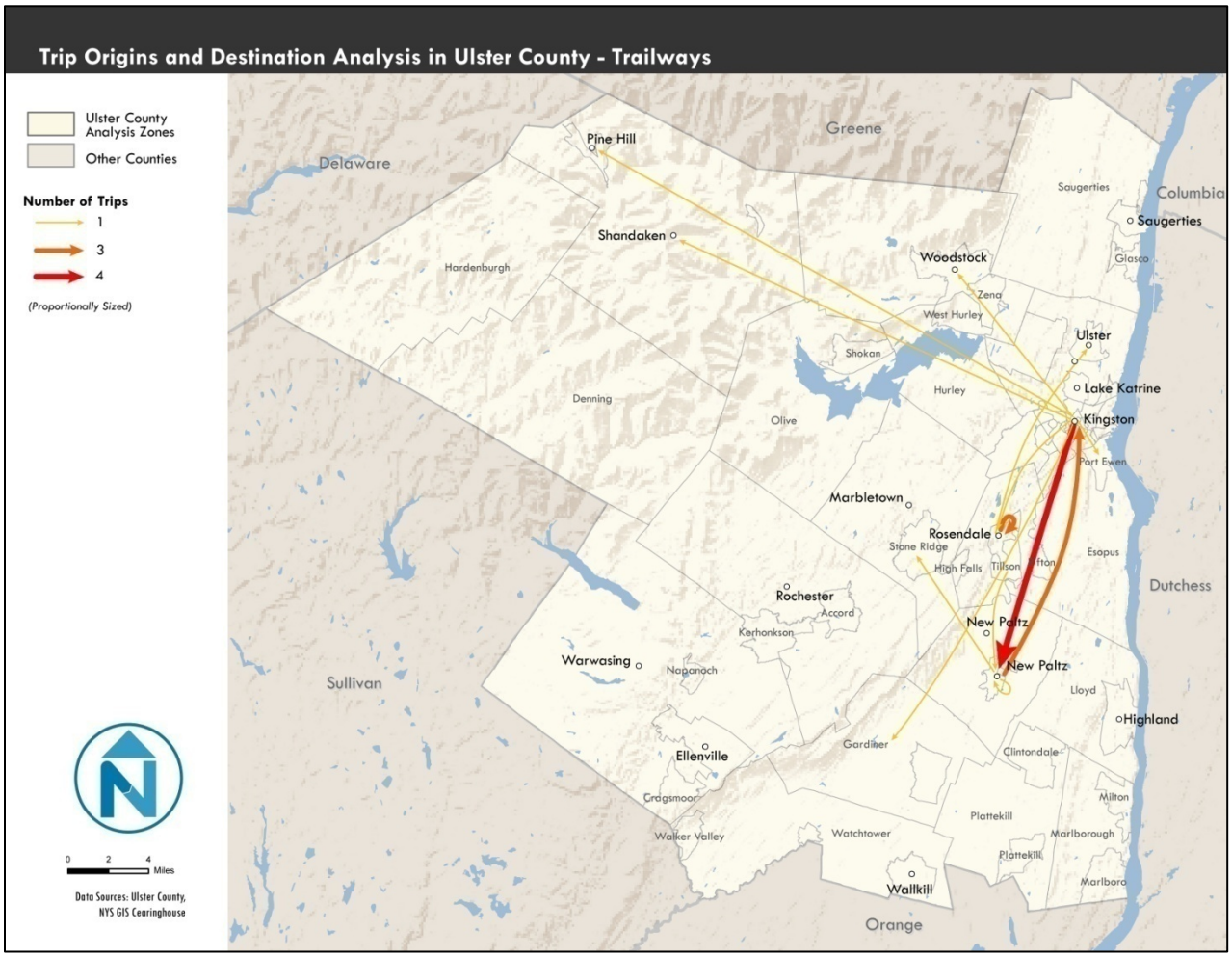
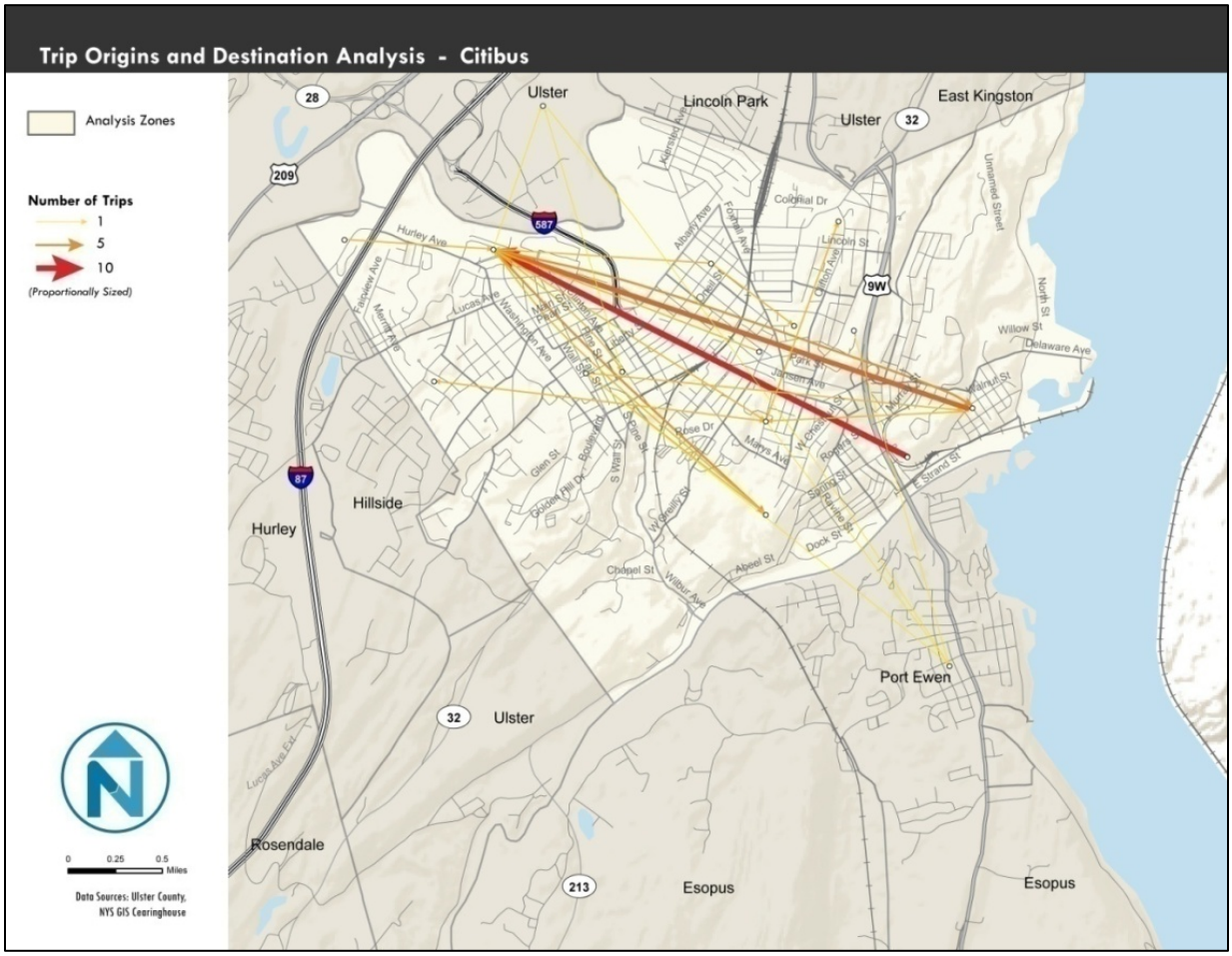


Figure B-19 Citibus Origins and Destinations



General Public Surveys

Overview

A ten-question transit survey was compiled by the study team and reviewed by the Technical Advisory Committee (TAC). This survey was intended for widespread distribution to the stakeholders, at public meetings, online and at senior resident centers. The goal of the survey was to collect feedback on how well UCAT and/or Citibus are or are not meeting the needs of County residents. This survey differs from the on-board ridership survey, which focuses more on trip specific information for each rider, such as origin and destination.

Distribution

The general public survey was distributed to stakeholders as a printable pdf and as a link to an online version of the same survey (www.ulstertransit.info). Stakeholders were asked for their assistance in further distribution to their clients, customers and/or constituents. The survey was also distributed in a hardcopy format at the public meeting held on December 1, 2011, including both the afternoon kiosk information session at Hannaford Plaza and the evening meeting at George Washington Elementary School.

Collection

A total of 111 surveys were collected. 26 were collected via the online survey; 18 were collected at the public meeting and 67 were mailed in to the UCTC office.

The results of the survey are shown individually for each question, and include the number of responses received for each answer option, as well as its corresponding percentage. This is the percentage that each answer was selected based on the number of responses received for that individual question.

Not every question was answered on each survey. Therefore, the data also shows how many respondents answered each individual question and what percentage this was out of the 111 surveys received.

Summary of Responses

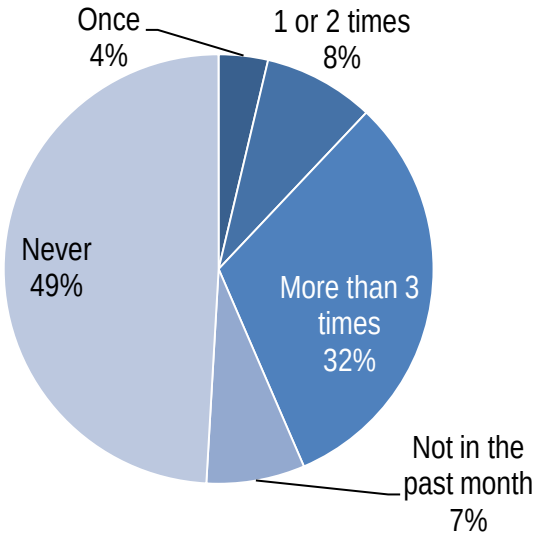
Nearly half of the general public survey participants have never used either UCAT or Citibus (Figure B-21). Of those who do use the services, the majority use transit very regularly. The diverse nature of this cohort may explain the high number of skipped questions among the respondents. Some survey takers may have decided that certain questions were not relevant to their situation.

Below is a summary of the responses to the general public survey:

Question 1:
How many times have you used UCAT or Citibus in the past month?

Figure B-20 Frequency of Use

Answers	Number of Responses	Percentage of Responses
Once	4	3.7%
1 or 2 times	9	8.3%
More than 3 times	34	31.5%
Not in the past month	8	7.4%
Never	53	49.1%
Answered Question	*108*	*97.3%*
Skipped Question	*3*	*2.7%*



The high frequency of transit use among the majority of survey participants who reported using UCAT or Citibus in the past month is consistent with the data collected through on-board surveys (discussed in Chapter 3). Transit use in Ulster County appears to be an all-or-nothing proposition, with very few occasional users.

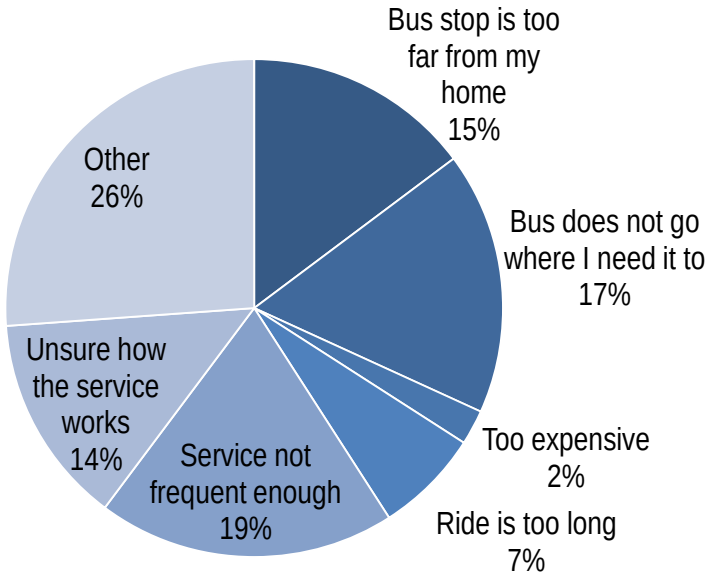
Question 2:
If you have never used UCAT or Citibus or have only used it a couple of times, what is your primary reason for not using these two services (check all that apply)?

Figure B-21 Reasons for Not Using Transit

Answers	Number of Responses	Percentage of Responses
Bus stop is too far from my home	13	14.8%
Bus does not go where I need it to	15	17.0%
Too expensive	2	2.3%
Ride is too long	6	6.8%
Service not frequent enough	17	19.3%
Unsure how the service works	12	13.6%
Other	23	26.1%
Answered Question	*60*	*54.1%*
Skipped Question	*51*	*45.9%*

Write-in comments included:

- Bus will not go back to the 5000 Bldg at Birchez Assoc. Housing.
- Citibus breaks too long.



The greatest reason for not using UCAT and/or Citibus was reported as 'Other'. Additional reasons reported include 'Bus stop is too far from my home,' 'Bus does not go where I need it to' and 'Service not frequent enough'. A significant number of respondents also claimed to be 'Unsure how the service works'. This indicates that better communication and education about UCAT/Citibus is needed.

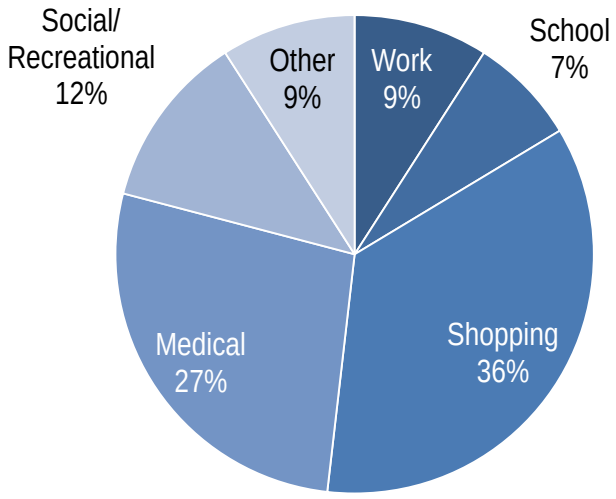
Question 3:
If you use UCAT or Citibus at least once a week, for what reasons do you use it (check all that apply)?

Figure B-22 Reasons for Transit Use

Answers	Number of Responses	Percentage of Responses
Work	10	9.1%
School	8	7.3%
Shopping	39	35.5%
Medical	30	27.3%
Social/Recreational	13	11.8%
Other	10	9.1%
Answered Question	*53*	*47.7%*
Skipped Question	*58*	*52.3%*

Write-in comments included:

- Post office, errands, etc.
- Everything.

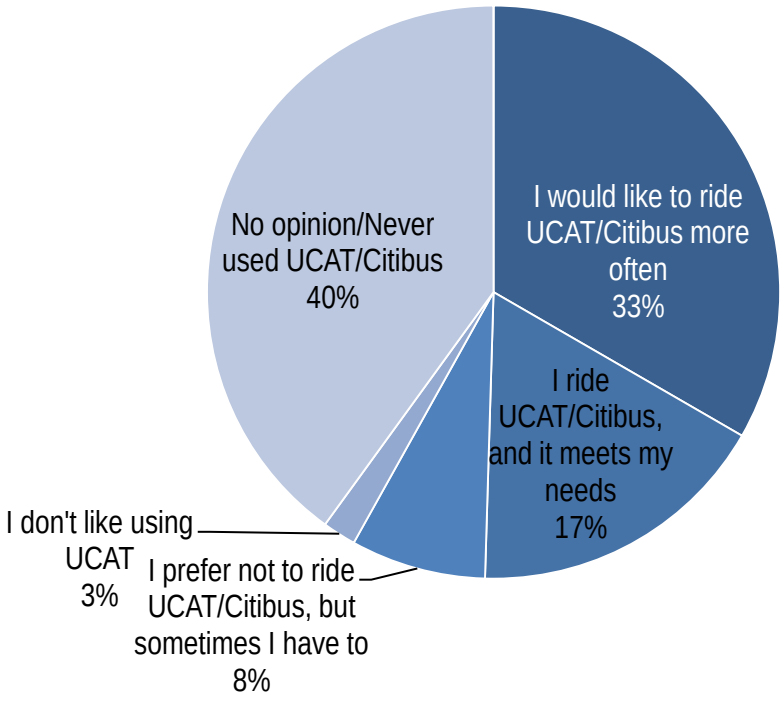


An overwhelming majority of respondents use UCAT and/or Citibus for shopping and/or medical needs. Other needs, including work, school, social and other share an even distribution of around ten (10) percent each based on the responses.

Question 4:
Which of the following best describes your feelings about UCAT and/or Citibus?

Figure B-23 Feelings About Transit Providers

Answers	Number of Responses	Percentage of Responses
I would like to ride UCAT/Citibus more often	35	33.3%
I ride UCAT/Citibus, and it meets my needs	18	17.1%
I prefer not to ride UCAT/Citibus, but sometimes I have to	8	7.6%
I don't like using UCAT/Citibus	2	1.9%
No opinion/Never used UCAT/Citibus	42	40.0%
Answered Question	*101*	*91.0%*
Skipped Question	*10*	*9.0%*



The majority of respondents either have no opinion because they have never used the services or claim that they would like to ride UCAT/Citibus more often – suggesting a high degree of good-will toward the transit providers. A large number reported that UCAT and/or Citibus currently meets their needs, while only a small percentage (3.0%) claimed that they do not like using UCAT and/or Citibus.

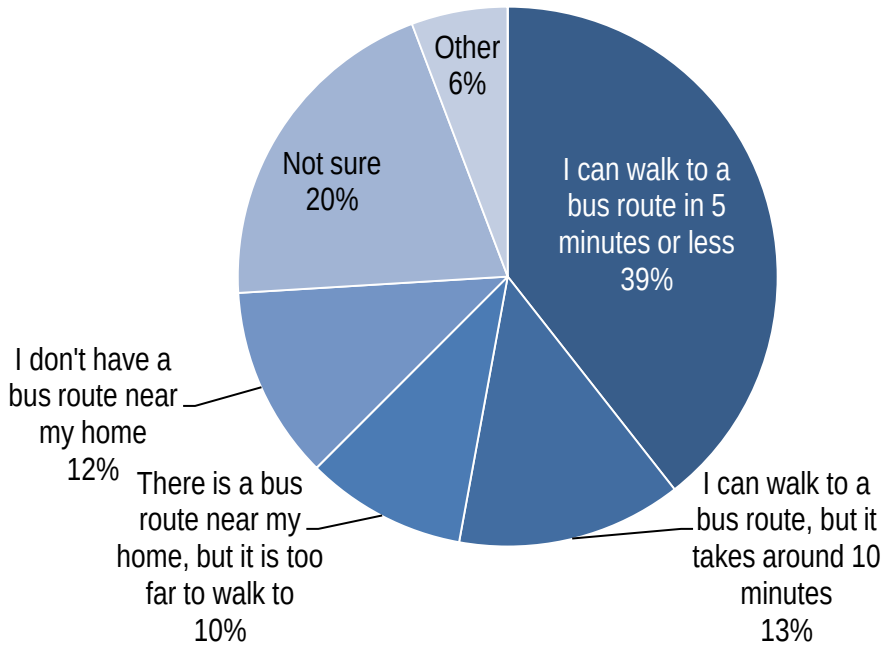
Question 5:
Which of the following best describes the location of the nearest bus service to your home?

Figure B-24 Distance to Access Transit

Answers	Number of Responses	Percentage of Responses
I can walk to a bus route in 5 minutes or less	41	39.4%
I can walk to a bus route, but it takes around 10 minutes	14	13.5%
There is a bus route near my home, but it is too far to walk to	10	9.6%
I don't have a bus route near my home	12	11.5%
Not sure	21	20.2%
Other	6	5.8%
Answered Question	*100*	*90.1%*
Skipped Question	*11*	*9.9%*

Write-in comments included:

- Have to drive to Stewart's and take bus from there.
- I ride my bike to the bus stop.



More than half of the respondents can walk to a bus route (either in five minutes or less or in around ten minutes). There are a number of respondents (10%) that claim that the nearest bus stop is too far to walk to.

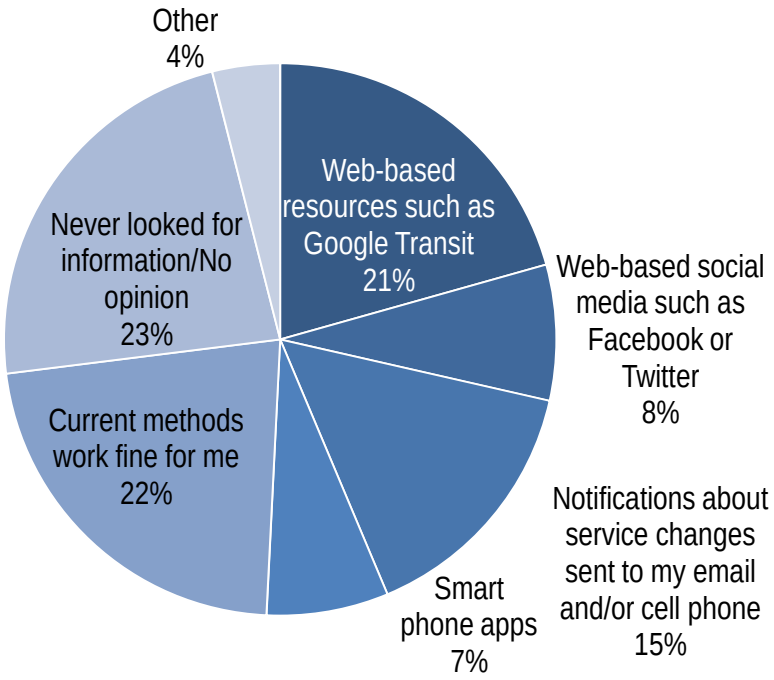
Question 6:
How would you like to receive information about public services, such as UCAT/Citibus (check all that apply)?

Figure B-25 Methods of Receiving Transit Information

Answers	Number of Responses	Percentage of Responses
Web-based resources such as Google Transit	26	20.6%
Web-based social media such as Facebook or Twitter	10	7.9%
Notifications about service changes sent to my email and/or cell phone	19	15.1%
Smart phone apps (i.e. ral-time information feeds)	9	7.1%
Current methods work fine for me	28	22.2%
Never looked for information/No opinion	29	23.0%
Other	5	4.0%
Answered Question	95	85.6%
Skipped Question	16	14.4%

Write-in comments included:

- Website with schedules.
- Phone at bus stop.
- Need written schedules/maps for each bus.



Responses to this question did not show an overwhelming majority of responses to any one answer. Rather, it seems as though information needs to be distributed across a wide variety of media, including both traditional approaches such as hardcopies of schedules and maps, as well as experimenting with newer electronic distribution methods.

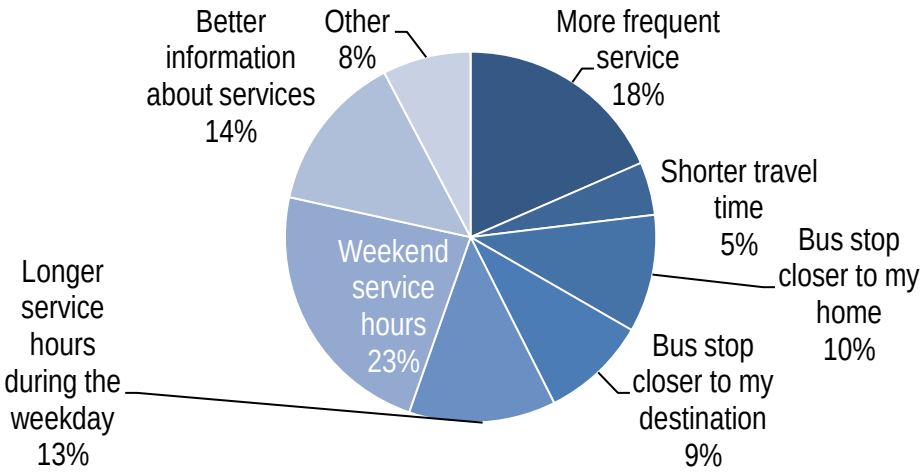
Question 7:
How might UCAT/Citibus change their service to better meet your needs and encourage you to ride the bus more often (check all that apply)?

Figure B-26 Service Improvement Suggestions

Answers	Number of Responses	Percentage of Responses
More frequent service	36	18.5%
Shorter travel time	9	4.6%
Bus stop closer to my home	20	10.3%
Bus stop closer to my destination	18	9.2%
Longer service hours during the weekday	25	12.8%
Weekend service hours	45	23.1%
Better information about services	27	13.8%
Other	15	7.7%
Answered Question	*85*	*76.6%*
Skipped Question	*26*	*23.4%*

Write-in comments included:

- Not having to wait 45 min in between transfers.
- UCAT and Citibus to agree on transfer times and connections.
- New shopping destinations.
- Buses run great.
- Need shelters and hardcopy schedules on buses.
- More transfers and buses that don't break down.
- Less complicated routes to Poughkeepsie and Newburgh
- No transportation between 9:00-10:00AM and 3:00-4:00PM



The majority of respondents selected a service improvement issue related to schedules such as 'More frequent service,' 'Longer service hours during the weekday,' or 'Weekend service.' This suggests that schedule adjustments may be more critical than routing adjustments as a key to increasing ridership.

Question 8:
Are there any specific destinations that you would like to see UCAT and/or Citibus go to? Please write in the name of the destination.

FigureB-27 Suggested Destinations

Written-In Responses	
More rural areas	Port Ewen to Kingston
Middletown, NY	Shopping at Aldi
Poughkeepsie, Galleria	Esopus, New York
More frequent access to Port Ewen BOCES and Ulster County Mental Health	230 Sawkill Road, Kingston
West Shokan, NY	1 Webster Ave, Poughkeepsie
Ellenville on weekends	Citibus should go to Town of Ulster
Probation Department on Broadway	YMCA and Kingston Library
28 A Route - West Shokan	CVS/Dunkin Donuts on Ulster Ave.
Route 209 Past Davenports Farm	Shoprite
More Kingston Parks	Ten Broeck Commons
Kingston to New Paltz	Wal-Mart without a transfer
Rail Trail Heads, Red Hook and Rhinebeck, farm stands on county and state roads.	New Paltz Family Medical
212 to Woodstock	Mall
West of New Paltz	From midtown between Burger King and Kingston High School to uptown
Coleman School and Bailey School	Fishkill
Ulster and Dutchess County Fairgrounds	Kingston to Margaretville
East Kingston	

Answers	Number of Responses	Percentage of Responses
Answered Question	36	32.4%
Skipped Question	75	67.6%

The majority of respondents chose not to answer this question, which again suggest that scheduling may be a far more pressing issue than routing for both providers.

Question 9:
Please use this area for any other comments or suggestions that you may have for UCAT/Citibus services.

Figure B-28 Open Comments

Written-In Responses	
Although I drive and have a vehicle so I don't use the bus, I work with young people and adults, many of whom have disabilities, who need better public bus transportation in order to obtain employment.	I understand that transportation to the mall is very difficult for youth, especially those who are employed at the mall. In general, I think that youth should be heavily considered when making decisions for changes in the UCAT/Citibus system.
There are no buses on the weekends, so I can't work outside of Ellenville due to weekend transportation issues.	More people should know bus routes, and the schedule should be printed in the newspaper.
I think the current service is very confusing. I also think UCAT and Citibus should combine efforts.	Spanish schedules.
The people on the bus could be friendlier.	Cleaner buses.
It is very difficult/impossible for anyone coming from Ellenville to get to Port Ewen BOCES for classes.	Special events buses.
Services to Ellenville are not offered on weekends - they should be.	Better linkages between events in Ulster and Dutchess Counties
I am a student at UCCC, and UCAT service is too limited. I work and I can't get to the campus for night classes. From Saugerties to the BRC the service is good. I can get to the BRC on time, but to get to the campus it is just impossible. Look at the itinerary. It takes me one hour to get to Hannaford Kingston, and then twenty minutes to get to the Campus. On top of it, I have to wait at Hannaford Kingston: 25 minutes after 7:20 am, one hour and 10 minutes if I want to take the bus that arrives at 11:50 because there is no bus from Saugerties to Hannaford Kingston Plaza at 10:30, 40 minutes if I want to get at UCCC by 1:20, in short, it is too complicated to get to school. Night classes are a nightmare.	Sunday for church service and Saturday for recreation.
	Schedules confusing for all routes.
	Cart needed to carry groceries and accommodations for walkers.
	Not having to wait on the corner of Stewart's on Albany Ave. for so long to come back to Birchez at Chambers 5000 Bldg.
	Saturday C-Bus only comes 2 to 3 times.
I don't ride the bus, but the route goes directly in front of my house often and never seems to have more than 2-3 people on it.	Ellenville needs more than just Kingston and needs more direct routes.
Should be free to use for students.	Have a phone number to call for updates and closing information.
I believe we should have one bus service, not two! If they were combined, there would be much better service.	Need a direct service to medical facilities for testing and visiting.
The buses seem quite large for the number of riders on them. It makes me wonder if there could be smaller buses covering more routes.	More direct route between Saugerties and UCCC.
	Need to have schedule printed in newspaper.

Answers	Number of Responses	Percentage of Responses
Answered Question	30	27.0%
Skipped Question	81	73.0%

The free response questions covered several issues, including a number of recurring themes:

- There is a desire for a single transit provider in the County
- Passenger information should be improved and more readily available
- Service to Ellenville is insufficient
- Residents of the county question the choice of vehicles used by the transit providers

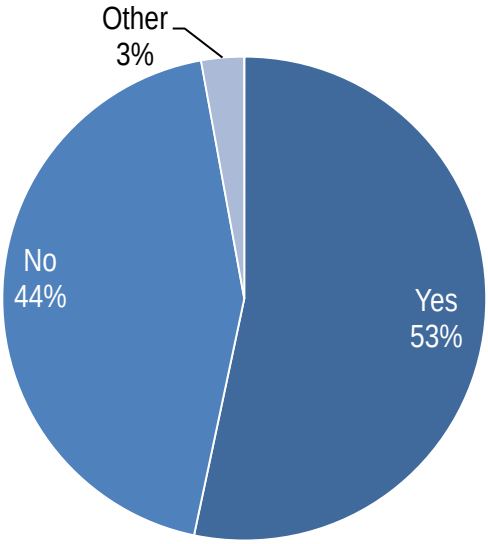
Question 10:
Do you currently have access to a personal automobile?

Figure B-29 Access to Automobile

Answers	Number of Responses	Percentage of Responses
Yes	56	53.3%
No	46	43.8%
Other	3	2.9%
Answered Question	*104*	*93.7%*
Skipped Question	*7*	*6.3%*

Write-in comments included:

- Ask friends for a ride



The respondents included an even mix, almost half-and-half, of automobile owners and non-automobile owners.

Public Meeting Comments

Overview

The study team held the first public meeting for the Ulster County Transit System Development and Coordination Plan on December 1st, 2011. The meeting consisted of an afternoon information session from 2:30 PM to 4:30 PM at the Hannaford at Kingston Plaza, 100 Plaza Road in Kingston, New York, and an evening meeting from 6:30 PM to 8:30 PM at George Washington Elementary School, 67 Wall Street in Kingston, New York.

The afternoon session attracted several dozen members of the general public, while the evening session was attended primarily by UCAT, Citibus, and Ulster County staff. Public comments from the afternoon session were recorded on surveys and are included in the responses discussed in Chapter 4.

The evening session started with a brief presentation of the study progress to date, and a discussion about two types of service design approaches: one that aims to maximize service coverage, but often has lower service frequency and one that focuses service in a few major corridors in order to maintain higher service frequency. This was followed by a series of questions presented by County staff and discussed by UCAT, Citibus, and project team staff. A full synopsis of this discussion is shown in Appendix D. Overall, there is a great deal of interest among the staffs of both transit systems in finding ways to provide the highest quality service possible to the greatest number of county residents. However, there appears to be very little consensus on the best path forward to achieve that objective. As this study progresses and service alternatives are developed, there will be greater opportunities for the transit agencies to coalesce around specific strategies.

APPENDIX C

Sample Citibus Operating Schedule

Figure C-1 Sample Citibus Operating Schedule

				B Southbound			B Northbound			A Northbound			A Southbound						
Block	Sign-In	Garage Pull Out	Headways	Start	End		Start	End	Headways	Start	End		Start	End	Garage Pull In	Sign-Out	Total Hours	Rev Hours	Block
1	5:52 AM	6:07 AM								6:22 AM	6:49 AM		6:50 AM	7:17 AM					1
2	5:32 AM	5:47 AM		6:02 AM	6:29 AM		6:30 AM	6:57 AM	0:40:00	7:02 AM	7:29 AM		7:30 AM	7:57 AM					2
3	6:12 AM	6:27 AM	0:40	6:42 AM	7:09 AM		7:10 AM	7:37 AM	0:40:00	7:42 AM	8:09 AM		8:10 AM	8:37 AM					3
1			0:40	7:22 AM	7:49 AM		7:50 AM	8:17 AM	0:40:00	8:22 AM	8:49 AM		8:50 AM	9:17 AM					1
2			0:40	8:02 AM	8:29 AM		8:30 AM	8:57 AM	1:05:00	9:27 AM	9:54 AM		9:55 AM	10:22 AM					2
3			0:40	8:42 AM	9:09 AM		9:10 AM	9:37 AM	0:40:00	10:07 AM	10:34 AM		10:35 AM	11:02 AM					3
1			0:40	9:22 AM	9:49 AM		9:50 AM	10:17 AM	0:40:00	10:47 AM	11:14 AM		11:15 AM	11:42 AM					1
2			1:05	10:27 AM	10:54 AM		10:55 AM	11:22 AM	0:40:00	11:27 AM	11:54 AM		11:55 AM	12:22 PM		12:32 PM	7:00	6:20	2
3			0:40	11:07 AM	11:34 AM		11:35 AM	12:02 PM	0:40:00	12:07 PM	12:34 PM		12:35 PM	1:02 PM		1:12 PM	7:00	6:20	3
1			0:40	11:47 AM	12:14 PM		12:15 PM	12:42 PM								12:52 PM	7:00	6:20	1
1	12:37 PM									12:47 PM	1:14 PM		1:15 PM	1:42 PM					1
2	12:17 PM			12:27 PM	12:54 PM		12:55 PM	1:22 PM	0:40:00	1:27 PM	1:54 PM		1:55 PM	2:22 PM					2
3	12:57 PM		0:40	1:07 PM	1:34 PM		1:35 PM	2:02 PM	0:40:00	2:07 PM	2:34 PM		2:35 PM	3:02 PM					3
1			0:40	1:47 PM	2:14 PM		2:15 PM	2:42 PM	0:40:00	2:47 PM	3:14 PM		3:15 PM	3:42 PM					1
2			0:40	2:27 PM	2:54 PM		2:55 PM	3:22 PM	1:05:00	3:52 PM	4:19 PM		4:20 PM	4:47 PM					2
3			0:40	3:07 PM	3:34 PM		3:35 PM	4:02 PM	0:40:00	4:32 PM	4:59 PM		5:00 PM	5:27 PM					3
1			0:40	3:47 PM	4:14 PM		4:15 PM	4:42 PM	0:40:00	5:12 PM	5:39 PM		5:40 PM	6:07 PM					1
2			1:05	4:52 PM	5:19 PM		5:20 PM	5:47 PM	0:40:00	5:52 PM	6:19 PM		6:20 PM	6:47 PM	7:02 PM	7:17 PM	7:00	6:20	2
3			0:40	5:32 PM	5:59 PM		6:00 PM	6:27 PM	0:40:00	6:32 PM	6:59 PM		7:00 PM	7:27 PM	7:42 PM	7:57 PM	7:00	6:20	3
1			0:40	6:12 PM	6:39 PM		6:40 PM	7:07 PM							7:22 PM	7:37 PM	7:00	6:20	1
																	42:00:00	38:00:00	