KFH GROUP, INC.

Shore Transit Routing Study

Final Report

July 2012

Under Subcontract to:
Cambridge Systematics.

Prepared for the:

Maryland Department of Transportation,
Shore Transit/Tri-County Council of the Lower Eastern Shore,
and
Salisbury-Wicomico Metropolitan Planning Organization

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Prepared in cooperation with the United States Department of Transportation, Federal Highway Administration and Federal Transit Administration.

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SHORE TRANSIT ROUTING STUDY

BACKGROUND

Shore Transit, a division of the Tri-County Council for the Lower Eastern Shore of Maryland, provides community transportation services in Somerset, Wicomico, and Worcester Counties. The following general public and program-specific services are offered:

- Fixed-route public transit service and Americans with Disabilities Act (ADA) complementary paratransit in the small urbanized area of Wicomico County, encompassing Salisbury, Delmar, and Fruitland. This service is operated using Federal Transit Administration (FTA) Section 5307 and the Department of Human Resources (DHR) funding.

- Regional public fixed routes serving the rural areas of Somerset, Wicomico, and Worcester Counties. These routes are operated using FTA Section 5311 and Job Access and Reverse Commute (JARC) funding as well as funding from DHR. There routes focus on providing access to the region's employment hubs.

- General public demand-response service in all three counties, as well as the Statewide Specialized Transportation Assistance Program (SSTAP) service in Wicomico and Worcester Counties. This service is funded through FTA's Section 5311 program.

- Non-emergency medical transportation for Medicaid participants through each of the three County Health Departments.

This study focuses on the general public fixed-route services operating in the Salisbury area. There are three primary concerns to be addressed in this routing study:

- The primary transfer and layover location for Shore Transit routes is moving from downtown Salisbury (Calvert Street) to a center about five miles to the east, co-located with the administrative offices of the Tri-County Council,

near the intersection of U.S. 50 and Walston Switch Drive. When completed, the facility will have a new maintenance garage, as well as public amenities such as a cafeteria and vending machines. Intercity bus services will also use this facility and no longer serve the downtown Calvert Street location. The location of this center is shown in Figure 1.

- The funds available to help subsidize public transit service in the region have been reduced.

- There have been many service changes made in the past year in reaction to the reduced funding levels. The full effect of these service changes needs to be analyzed.

Shore Transit has participated in two route planning studies in the past few years, including the 2008 "***Shore Transit Service Improvement Study***,"[1] which focused on controlling expenses, managing demand, and recovering costs for the Medicaid trips. Shore Transit also participated in the "***Shore Transit Routing Analysis***,"[2] study, the purpose of which was to evaluate "existing performance and proposed transit service operations to include routing, efficiency, cost-effectiveness, service needs, and ADA compliance for local and commuter bus routes in Salisbury and surrounding areas in conjunction with the planned relocation of the new transfer facility near the intersection of US 50 and Walston Switch Drive…" This study recommended two new routes, several schedule adjustments, and provided a general recommendation with regard to adjusting the routes from Calvert Street to the new transfer location.

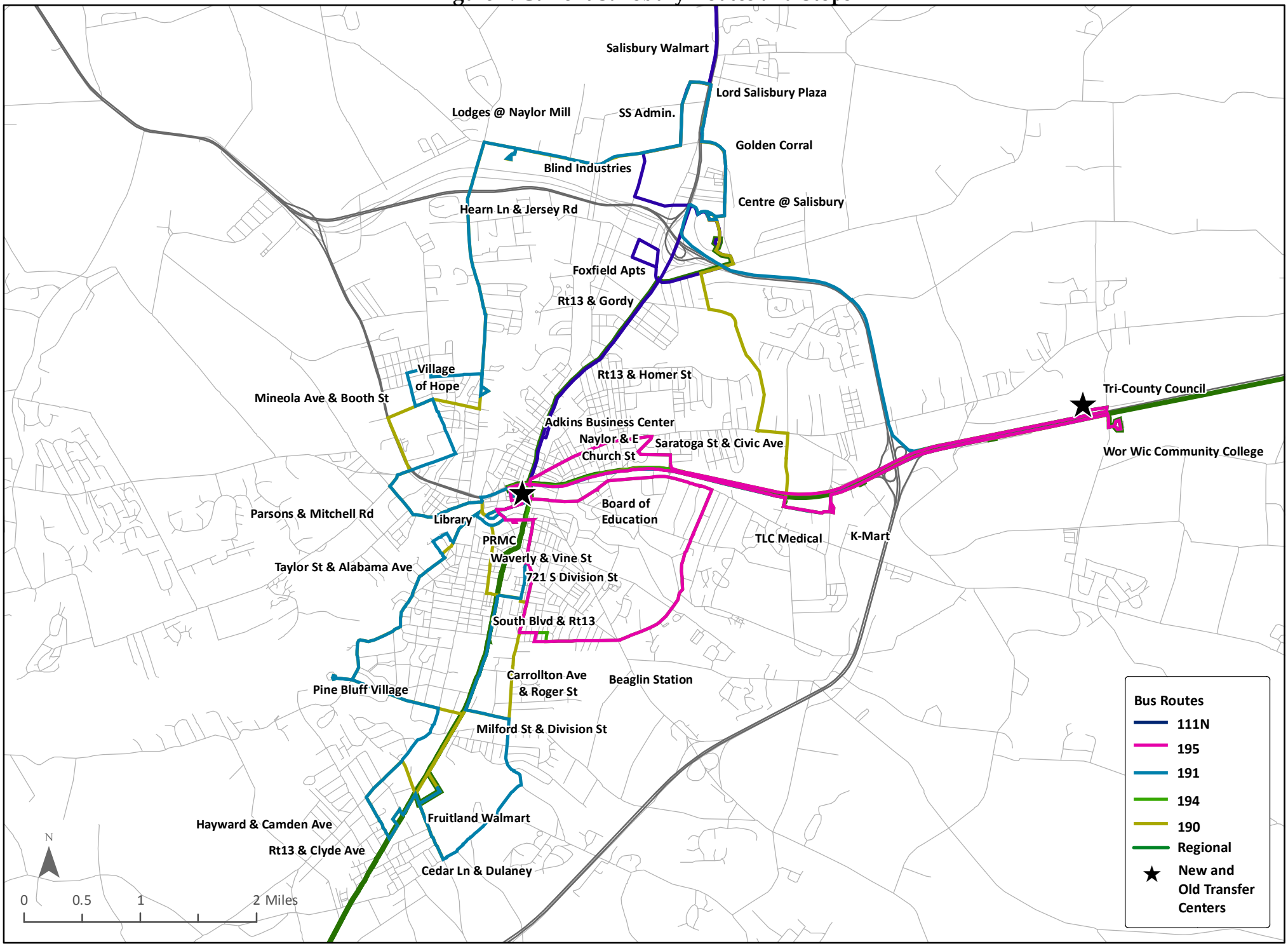
This current ***Shore Transit Routing Study*** provides a review of current fixed-route services and offers recommendations to address productivity, service needs, and specific routing suggestions with regard to the re-location of the transit center. A Title VI review for the proposed changes also is included.

REVIEW OF CURRENT FIXED-ROUTE SERVICES

This section provides an analysis of existing fixed-route transportation services in Somerset, Wicomico, and Worcester Counties. It should be noted that there may be some discrepancies with regard to the ridership data, as the routes were changed twice, including changes in the route names, from the data collection period (July 2011, September 2011, November 2011, and February 2012) to the current route network.

[1] Shore Transit Service Improvement Study, October 2008, KFH Group, under subcontract to Cambridge Systematics, for Shore Transit, the Maryland Department of Transportation, and the Maryland Transit Administration.
[2] Shore Transit Routing Analysis, Tri-County Area, January 2012, Sabra, Wang & Associates, for the Tri-County Council.

Figure 1: Current Salisbury Routes and Stops



Performance Evaluation

The Shore Transit fixed routes first were measured against a set of service standards, using the standards set by the Maryland Transit Administration (MTA) for the following performance measures:

- Passenger trips per revenue hour,
- Passenger trips per revenue mile,
- Operating cost per revenue hour,
- Operating cost per revenue mile, and
- Operating cost per passenger trip.

These performance standards, presented in Table 1, were updated to reflect inflation to 2011.

Table 1: MTA Performance Standards

SMALL URBAN FIXED ROUTE	Successful	Acceptable	Needs Review
Operating Cost per Hour	< $54	$54-$60	> $60
Operating Cost per Mile	< $3.00	$3.00-$4.15	> $4.15
Operating Cost per Passenger Trip	< $4.75	$4.75-$7.15	> $7.15
Local Operating Revenue Ratio	> 50%	40% -50%	< 40%
Farebox Recovery Ratio	> 25%	20-25%	< 20%
Passenger Trips per Mile	> 0.75	0.65-0.75	< 0.65
Passenger Trips per Hour	> 12	8 - 12	< 8

DEMAND RESPONSE / RURAL FIXED ROUTE	Successful	Acceptable	Needs Review
Operating Cost per Hour	< $36	$36-$48	> $48
Operating Cost per Mile	< $1.80	$1.80-$3.00	> $3.00
Operating Cost per Passenger Trip	< $10.75	$10.75-$15.50	> $15.50
Local Operating Revenue Ratio	> 40%	30% - 40%	< 30%
Farebox Recovery Ratio	> 15%	7%-15%	< 7%
Passenger Trips per Mile	> 0.25	0.15-0.25	< 0.15
Passenger Trips per Hour	> 4	2.5 - 4	< 2.5

Estimated Shore Transit fixed-route operating characteristics and performance data for FY11/12 are provided in Table 2. These data were compiled from the FY12 budget and four months worth of operating data (July 2011, Sept. 2011, Nov. 2011, and Feb. 2012). The study team recognizes that there may be some discrepancies with the route level data since, as noted above, the routes were changed twice during this time period, including changing route numbers. However, while the findings with regard to individual routes presented below may not be precise, the overall analysis shows a clear need to increase ridership on routes in the Salisbury area.

Table 3 provides a snapshot of Shore Transit's fixed route performance, using the MTA performance standards in Table 1. As these data show, the local routes and the regional routes perform similarly with regard to passenger trips per revenue hour, but fall into different categories with regard to the MTA performance standards. The regional routes perform much better than the Salisbury local routes according to these performance standards because the regional routes are categorized as "rural." The rural classification considers that the population density is much lower than in small urban areas and many more hours and miles are needed to connect land uses.

Table 3
Shore Transit Performance Indicators

Salisbury Local Routes	**Value**	**MTA Performance**
Small Urban Category		
Passenger Trips/Revenue Hour	6	Needs Review
Passenger Trips/Revenue Mile	0.33	Needs Review
Operating Cost/Revenue Mile	$3.77	Acceptable
Operating Cost/Passenger Trip	$11.44	Needs Review
Operating Cost/Revenue Hour	$68.95	Needs Review
Regional Routes	Value	MTA Performance
Rural Fixed Route Category		
Passenger Trips/Revenue Hour	6	Successful
Passenger Trips/Revenue Mile	0.24	Acceptable
Operating Cost/Revenue Mile	$2.62	Acceptable
Operating Cost/Passenger Trip	$11.48	Successful
Operating Cost/Revenue Hour	$68.95	Needs Review

Table 2: Shore Transit Route Characteristics and Performance Data - 2011/2012

Route	Service span	Estimated Annual Passenger Trips	Estimated Annual Revenue Hours	Estimated Annual Revenue Miles	Estimated Annual Operating Costs	Number of Vehicles	Passenger trips/hour	MPH	Cost per Rev Mile	Cost Per Pass Trip
Salisbury Local:										
Route 190/191- Northwest & South Salisbury	Mon-Fri: 6:30 a.m.-6:25 p.m. Sat: 9:40 a.m. -6:25 p.m.	24,687	3,492	61,285	$ 240,804	1	7.07	17.5	$ 3.93	$ 9.75
Route 194/195 - Central & East Salisbury	Mon-Fri: 6:30 a.m.-6:32 p.m. Sat: 9:30 a.m. -5:33 p.m.	17,442	3,500	66,500	$ 241,325	1	4.98	19.0	$ 3.63	$ 13.84
	Subtotal, Local Salisbury Routes	42,129	6,992	127,785	$ 482,129	2	6.02	18.3	$ 3.77	$ 11.44
Regional Routes:										
Route 111N- Salisbury- Delmar	Mon-Sat: 6:30 a.m. -10:25 p.m.	40,977	4,625	70,088	$ 318,908	1	8.86	15.2	$ 4.55	$ 7.78
Route 111S- Salisbury- P.A.- UMES	Mon-Sat: 4:30 a.m. -11:28 p.m.	33,399	5,890	133,383	$ 406,116	2 early a.m., 1 other times of the day	5.67	22.6	$ 3.04	$ 12.16
Route 431- Salisbury-OC-Pocomoke	Daily: 5:30 a.m. - 1:19 a.m.	68,364	12,411	360,639	$ 855,751	3 early a.m., 2 mid-day, 3 evening	5.51	29.1	$ 2.37	$ 12.52
Route 451 - Salisbury-Pocomoke-OC	Daily: 4:30 a.m. - 1:17 a.m.	71,181	12,281	360,639	$ 846,790	3 early a.m., 2 mid-day, 1 evening	5.80	29.4	$ 2.35	$ 11.90
Route 701 N - Salisbury-Crisfield-P.A.	Mon-Fri: 4:30 a.m. - 10:18 p.m. Sat: 9:09 a.m. - 10:18 p.m.	19,308	3,293	78,894	$ 227,057	1	5.86	24.0	$ 2.88	$ 11.76
Route 701 S- P.A.- Crisfield	Mon-Fri: 6:06 a.m.-8:55 p.m. Sat: 10:06 a.m.-8:55 p.m.	9,932	1,669	54,189	$ 115,057	1	5.95	32.5	$ 2.12	$ 11.58
Route 703- Salisbury-Crisfield	Sunday: 8:00 a.m. -11:46 p.m.	1,242	519	12,792	$ 35,818	1	2.39	24.6	$ 2.80	$ 28.84
	Subtotal, Regional Routes	244,403	40,689	1,070,624	$ 2,805,496		6.01	26.3	$ 2.62	$ 11.48
	TOTAL SHORE TRANSIT	286,532	47,681	1,198,409	$ 3,287,625		6.01	25.1	$ 2.74	$ 11.47

Notes:

Based on Shore Transit data from July 2011, Sept. 2011, Nov. 2011, and Feb. 2012.
The routes changed during this time so there may some data discrepancies.
Cost per hour is calculated to be $68.95.

The only measure for the local Salisbury routes that is considered "acceptable" according to the MTA Performance Standards is the operating cost per revenue mile, although the operating cost per hour is close to being acceptable. The fact that Shore Transit's cost per hour falls into the "needs review" category may be a temporary situation where vehicle hours reflect the recent service cuts (thus operating fewer hours) and the operating costs continue to include the higher fixed costs that now are spread out over fewer hours. As these fixed costs are reduced, the cost per hour may be reduced to the acceptable level of $60 per hour.

All of the measures that "need review" reflect the low ridership levels on the fixed routes in Salisbury (assuming the ridership data are accurate). Low ridership in Salisbury may be a result of the circuitous nature of many of the routes and attempts by Shore Transit to maintain service to all areas of the City, even as service miles and hours needed to be reduced to correspond to reductions in funding. Or it may be a temporary result of two service changes in the past year.

Given these data, it is important to focus on the Salisbury local routes to look for ways to improve performance, specifically looking at ways to make the routes more convenient and attract more riders. It should be noted that the trips per hour for local Salisbury services are higher than they were in 2008 (six trips per hour currently as compared to five trips per hour in 2008).

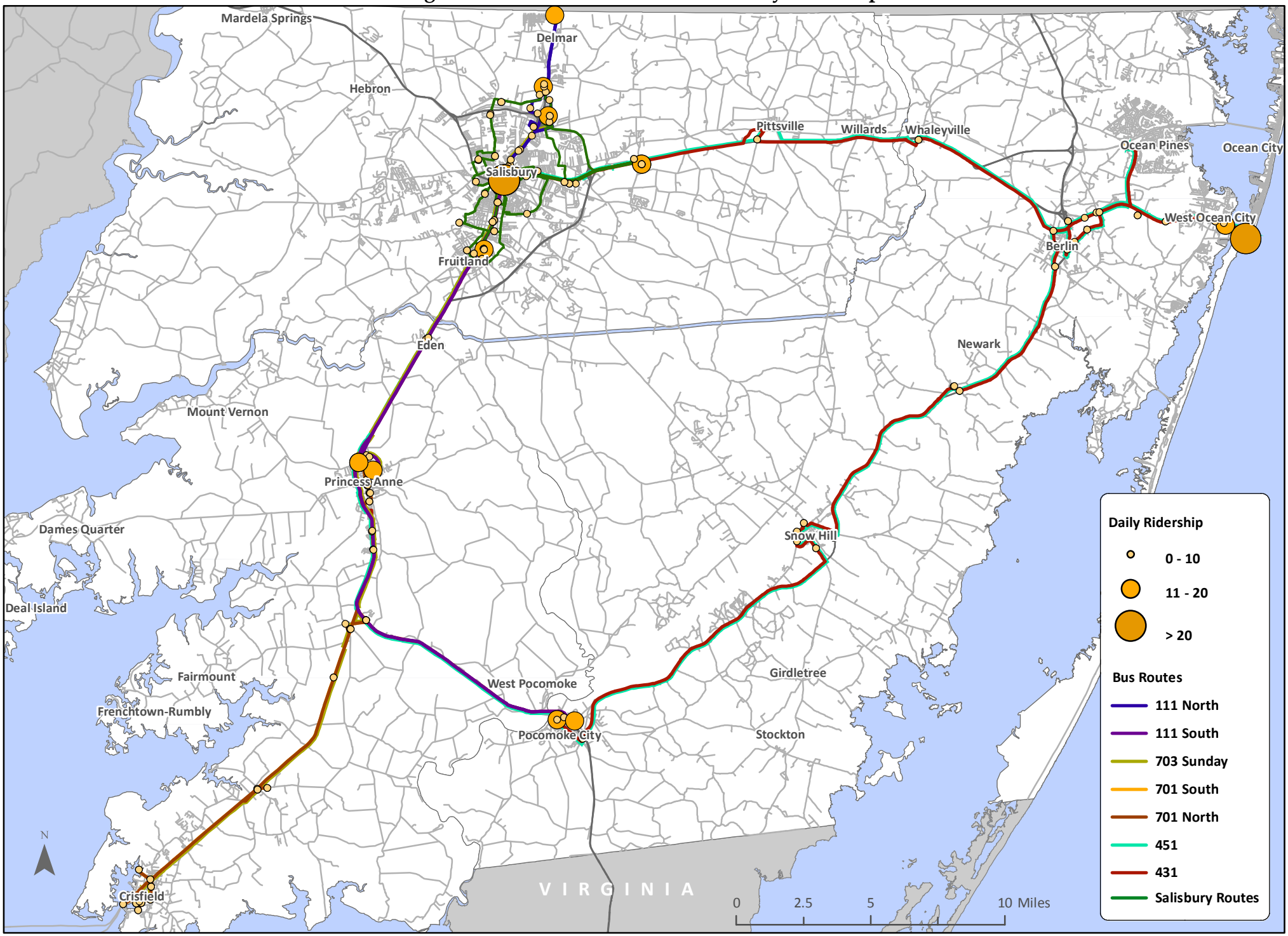
Of the two local Salisbury routes, the Route 190/191 (north/south route) is more productive, providing just over seven passenger trips per revenue hour. The Route 194/195 (central/east) is less productive, providing just fewer than five passenger trips per revenue hour.

As would be expected, the least productive route in the system is the regional Sunday route, the Route 703. This is the only regional route that falls into the category of "needs review."

Ridership by Route

Figure 2 provides a map of the entire route network, showing the ridership by stop data that were used for this analysis. These data show the highest ridership stops in the network are the downtown Salisbury stop (Calvert Street) and Ocean City stop. Both of these stops experience more than 20 boardings per day. Stops that experience between 11 and 20 boardings per day include West Ocean City, the Centre at Salisbury, the Salisbury Walmart, the Fruitland Walmart, Wor-Wic Community College, and the transfer stops in Princess Anne and Pocomoke City. The characteristics for each route are further described in the "Route Analysis" section below.

Figure 2: Shore Transit Routes and Daily Ridership



Service Availability

A key component of the review is determining where, when, and how often Shore Transit should provide service. This involves balancing the need to make services convenient for riders (providing enough service) with the need to make them efficient (only providing a level of service that is appropriate to population and land use characteristics). The study team considered the following elements in developing re-structured Shore Transit routes:

- **Coverage –** *Do the routes serve where people live?* Shore Transit routes currently provide adequate coverage of the region, particularly in key population centers like Salisbury. This study estimates that about 45% of the three county population is within a ½ mile of a Shore Transit route. The ½ mile route buffer also covers almost the entirety of Salisbury's city limits. Of the population residing within the Census block groups covering Salisbury and its immediate surroundings, approximately 77% are within a ½ mile of Shore Transit routes.

- **Trip Generators –** *Do the routes service where people need to go?* Shore Transit currently serves the vast majority of major trip generators in the region. These include key stops like the Salisbury Mall, University of Maryland Eastern Shore (UMES), Wor-Wic Community College, the Salisbury downtown, Walmart (Salisbury, Fruitland, and Pocomoke City), and the Ocean City and Princess Anne transfer points. Maintaining and enhancing service to destinations with the highest estimated daily ridership will be an important part of the route re-structuring process.

- **Route Spacing –** *Are the routes spaced appropriately?* Both population density and transit dependency influence route spacing. Generally, areas with a population density of over 2,000 persons per square mile warrant route spacing every ½ mile so that riders only have to walk ¼ mile to the nearest stop. Areas with densities over 1,000 warrant services spaced at least every one mile. Other areas may be candidates for paratransit or deviated fixed routes. Of the region's highest density areas (Salisbury, Fruitland, Princess Anne, Pocomoke City, and Ocean Pines), only some portions of the Ocean Pines residential area lack route spacing of a mile or less. Conversely, overlap exists in some the local route alignments within Salisbury and may warrant consolidation. Particular points of overlap include south of downtown between Route 13 and 12 and north of downtown surrounding the Mall and the Route 13 and 50 interchange.

- **Frequency/Span –** *Do the routes operate frequently enough and at the times people need to travel?* A standard small urban frequency goal for local routes is every

60 minutes, and the goal for the span is 5:00 a.m. to 10:00 p.m. Ideally, services should operate on Sundays in urban areas and as needed in rural areas. Currently Shore Transit meets the span goal (at least on the regional routes), but falls short on frequency. All routes operate Monday through Saturday, and Route 431 and Route 451 also operate on Sunday. Route 703 provides additional Sunday service. Although the local Salisbury routes operate from about 6:30 a.m. to 6:30 p.m., the regional routes begin between 4:30 a.m. and 6:30 a.m. and end between 10:30 p.m. and 1:00 a.m. This span goal should be tempered with actual ridership numbers, as many of the later evening runs currently have low ridership. In terms of frequency, the regional Route 111N and Route 111S operate on roughly hourly headways. Routes 431/451, 701N/701S, and 194/195 only provide hourly service when taken as pairs, and the alternating runs travel in opposite directions. Route 190/191 is the most infrequent, operating only every four hours (or every two hours in combination). Although the system of opposing pairs adds to frequency, it may also make the routes unnecessarily complex for new riders.

- **Directness –** *Are the routes direct enough? Is the bus ride time no more than twice the auto travel time?* Given the distances and destinations covered, Shore Transit's regional routes are fairly direct. However, routes within Salisbury (Route 190/191 and Route 194/195) are circuitous and include too many loops. Opportunities exist to streamline these routes, potentially reducing travel times and increasing convenience for riders.

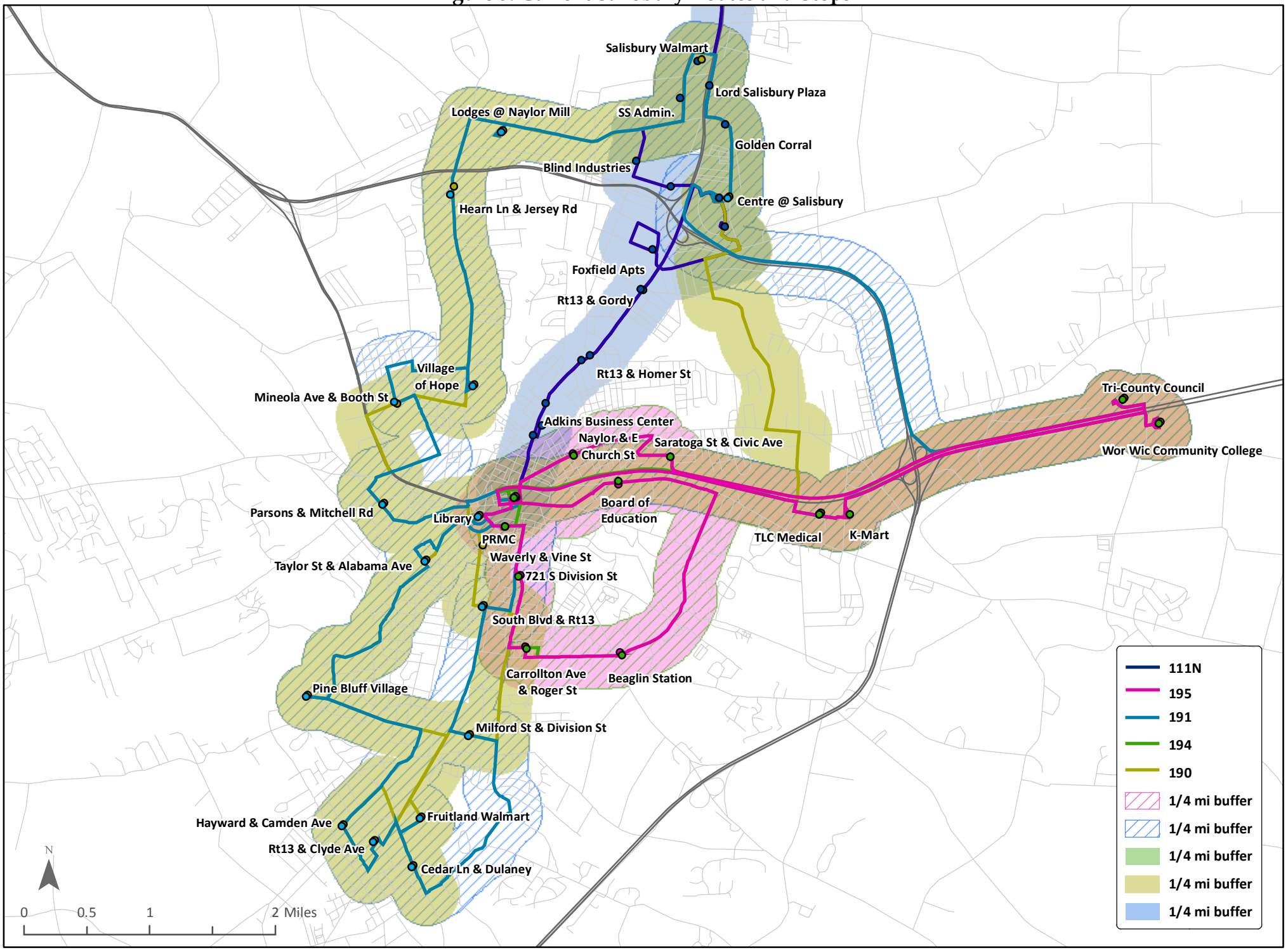
ROUTE BY ROUTE ANALYSIS – SALISBURY ROUTES

Shore Transit has reduced its local Salisbury service significantly over the past several years, from an estimated 26,205 annual revenue hours (2008) to about 7,000 annual revenue hours (2012). Ridership has dropped also, from over 131,500 annual passenger trips to just over 42,000 annual passenger trips. The annual operating costs were reduced from over $1.5 million to about $482,000.

There are now two paired routes that are categorized as "Salisbury Local," the Route 190/191 and the Route 194/195. Route 111N also provides a high level of service in Salisbury, but is categorized as a regional route. These routes and stops are shown in Figure 3.

For the analysis of ridership by stop, KFH Group collected four months of ridership data from Shore Transit for this analysis, but the routes and the route names have changed significantly from the data collection months (July 2011, September 2011, November 2011 and February 2012) to the present configuration. The data were matched to the current route network as closely as possible.

Figure 3: Current Salisbury Routes and Stops



Route 190/191 Northwest and South Salisbury

The Route 190/191 provides loop service, starting as the Route 190 at Calvert Street and then traveling clockwise on a loop serving Northwest Salisbury, then southeast to Wor-Wic Community College, the Tri-County Council and then back west to Calvert Street. The 190 then makes a counterclockwise loop through South Salisbury and Fruitland and then back to Calvert Street. At this point, the route changes its name to the 191 and generally reverses the pattern of the 190, heading east toward Wor-Wic Community College, then north to the Centre at Salisbury and the Salisbury Walmart, then west and back south to Calvert Street. Route 191 then completes a clockwise loop through South Salisbury to Calvert Street. This pattern is one complete cycle of the Route 190/191. There are three daily trips labeled Route 190 and three daily trips labeled Route 191. Taken together, this route provides two-hour headways. Service is provided Monday through Friday from 6:30 a.m. to 6:25 p.m. and on Saturdays from 9:40 a.m. to 6:25 p.m.

The route replaces the Shore Transit Routes 151 and 171, which replaced the Route 22 Blue and Pink. The Route Profile is shown in Figure 4.

Ridership by Stop

The data show that the Calvert Street stop in Salisbury at the transfer center exhibits the highest daily boardings, followed by the Walmart in Fruitland, and Taylor Street in Salisbury. The ridership by stop for this route is provided in Table 4.

Ridership by Time of Day

As displayed in Table 5, the most riders use the route between 4:30 p.m. (7.9 trips passenger trips) and 5:30 p.m., followed by 3:30 p.m. (7.3 passenger trips). The 6:30 a.m. hourly ridership was the next highest with 5.5 passenger trips. The data showed minimal ridership after 6:30 p.m., and the most recent schedule ends service at 6:25 p.m.

Route Issues and Opportunities

Route 190/191 route pairings are essentially two bi-directional loops, with an eastern extension to serve Wor-Wic Community College and the new transfer point. This route has undergone two significant changes in the past year, including two name changes. These changes have likely caused some confusion for riders. The route is also somewhat circuitous and it is difficult to figure out the travel pattern. The service is also offered only once every two hours (opposite direction), or once every four hours (same direction). At seven passenger trips per revenue hour, the productivity is just short of the "acceptable" category according to the MTA performance standards. Ridership on this route would likely improve if the route were streamlined to operate with the same pattern each run, and if service were to be provided more frequently. This route already serves the new transfer center at the Tri-County Council.

Figure 4: 190/191 Northwest & South Salisbury

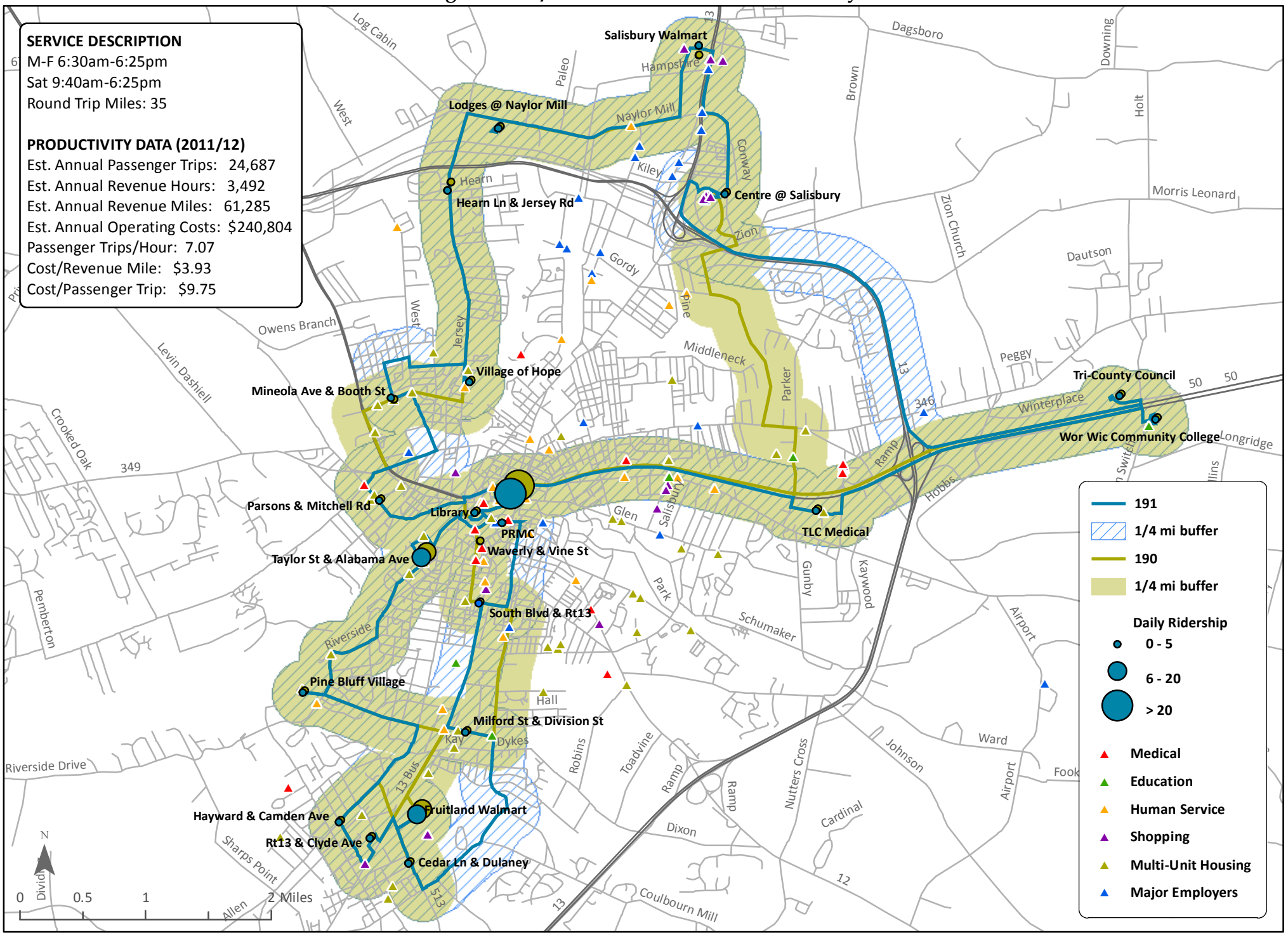


Table 4: Route 190/191 Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
190/191	S173	Calvert Street TOP - Salisbury	2,831	27.8
190/191	S159	Parsons Road (at Mitchell Road) Salisbury	145	1.4
190/191	S110	Booth Street - Salisbury	45	0.4
190/191	S180	Village of Hope (Main Entrance) Salisbury	95	0.9
190/191	S135	Hearn Road (at Jersey Road) Salisbury	67	0.7
190/191	S265	Lodges @ Naylor Mill - Salisbury	-	0.0
190/191	S282	Sam's Club	-	0.0
190/191	S116	Center @ Salisbury (Boscov's Entrance)	-	0.0
190/191	S277	Woodbrooke - TLC Medical Ctr	-	0.0
190/191	S193	Wor-Wic Community College - Salisbury	-	0.0
190/191	S291	Tri-County Council MPC	-	0.0
190/191	S190	Wicomico Library - Salisbury	241	2.4
190/191	S178	Taylor Street - Salisbury	647	6.3
190/191	S164	Pine Bluff Village - Salisbury	276	2.7
190/191	S283	Food Lion - Fruitland	-	0.0
190/191	S284	Hayward Ave. & Camden Ave.	-	0.0
190/191	S285	Cedar Ln. & Dulaney Ave.	-	0.0
190/191	S181	Walmart - Fruitland	670	6.6
190/191	S143	Milford Street Medical Center - Salisbury	223	2.2
190/191	S184	Waverly Drive - Salisbury	191	1.9
190/191	S182	Walmart - Salisbury	-	0.0
190/191	S288	Minelola Ave. & Booth St.	-	0.0
190/191	S168	PRMC - (Guerrieri Main Entrance) Salisbury	72	0.7
		Totals	**5,503**	**54**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011, and Feb. 2012.

The routes changed during this time so there may be some data discrepancies.

Table 5: Route 190/191 Ridership by Time of Day

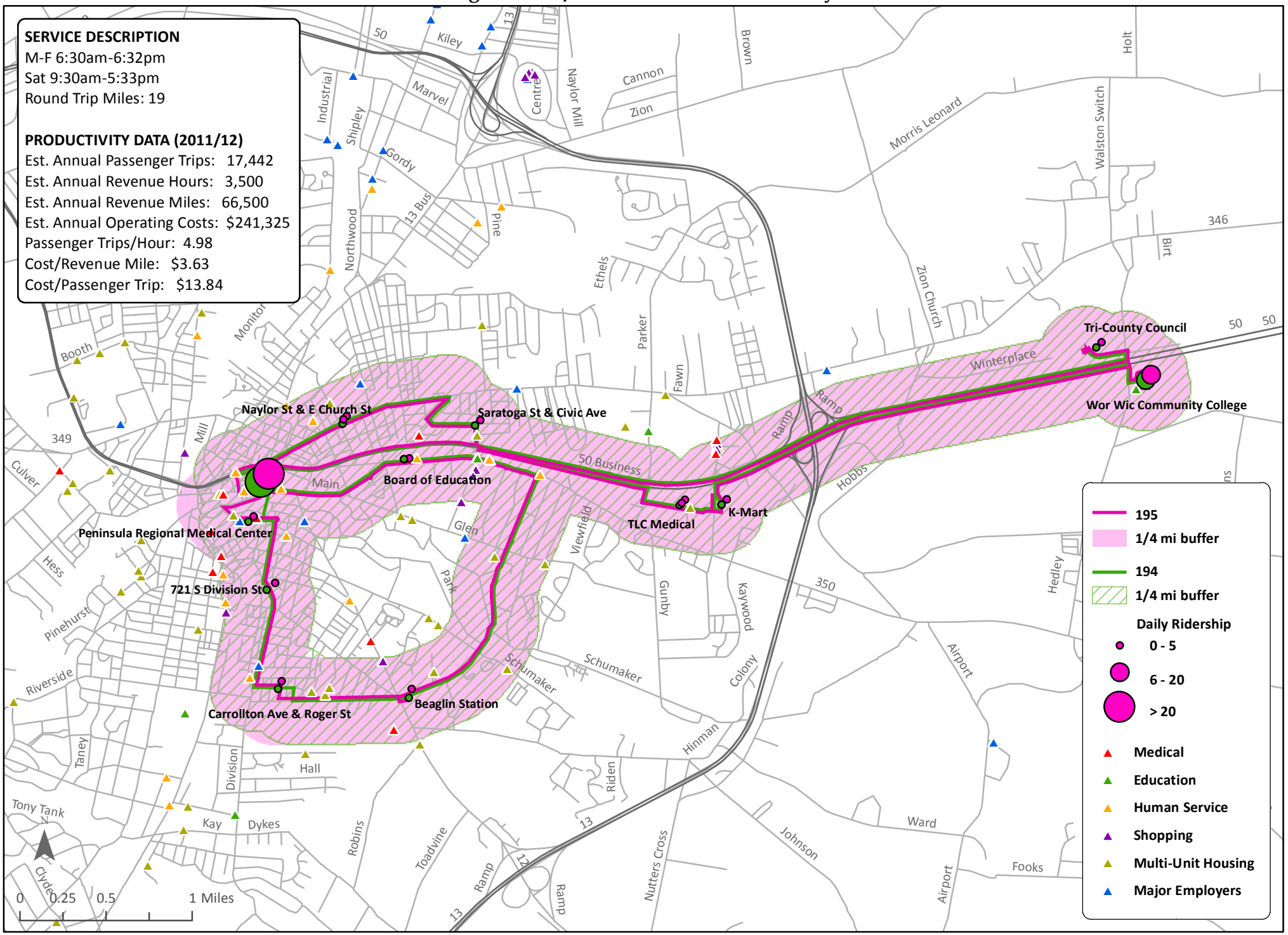
Time of Day	Average Daily Ridership
6:30 a.m.	5.5
7:30 a.m.	5.3
8:30 a.m.	4.1
9:30 a.m.	4.5
10:30 a.m.	4.3
11:30 a.m.	No data
12:30 p.m.	5.3
1:30 p.m.	5.4
2:30 p.m.	No data
3:30 p.m.	7.3
4:30 p.m.	7.9
5:30 p.m.	2.2
6:30 p.m.	1.3
Total	**53.1**
Avg. Per Hour	**4.8**

Route 194/195 Central and East Salisbury

Route 194/195 provides loop service, starting as Route 194 at Calvert Street and then travels counterclockwise on a loop serving Central and East Salisbury, then back west to Calvert Street. Route 194 then heads north to E. Church Street and Naylor, and then east on US 50, serving the TLC Medical Center, K-Mart, Wor-Wic, and the new transfer center. Route 194 then travels directly back west on US 50 to the Calvert Street transfer center. At this point, the route changes its name to Route 195 and generally reverses the pattern of Route 194, heading east to the Board of Education, then completing a clockwise loop through East and South Salisbury and Fruitland, then serving the hospital and back to Calvert Street. The route then travels east on US 50 and serves the TLC Medical Center, K-Mart, Wor-Wic, and the new transfer center. The 195 travels back into Salisbury via Saratoga/Civic Ave. and Naylor/East Church Street. This pattern is one complete cycle of the Route 194/195. There are six daily trips labeled Route 194 and six daily trips labeled Route 195. Taken together, this route provides hourly headways. Service is provided Monday through Friday from 6:30 a.m. to 6:30 p.m. and on Saturdays from 9:30 a.m. to 5:30 p.m.

The route replaces the Shore Transit Routes 131 and 141, which replaced the Route 22 Green and Purple. The Route Profile is shown in Figure 5.

Figure 5: 194/195 Central & East Salisbury



Ridership by Stop

The data show that the Calvert Street stop in Salisbury at the transfer center exhibits the highest daily boardings, followed by Wor-Wic Community College. The ridership by stop for this route is provided in Table 6.

Table 6: Route 194/195 Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
194/195	S173	Calvert Street TOP - Salisbury	2531	24.8
194/195	S168	PRMC - (Guerrieri Main Entrance) Salisbury	72	0.7
194/195	S290	S. Division Street (at Carrolton Avenue) Salisbury	163	1.6
194/195	S115	Roger Street (at Carrollton Avenue) Salisbury	207	2.0
194	S108	Beaglin Station (on Camden Avenue) Salisbury	81	0.8
194/195	S171	Salisbury Nursing Home - Salisbury	147	1.4
	S277	Woodbrooke - TLC Medical Ctr	0	0.0
194/195	S175	K-Mart (at Tilghman Road) Salisbury	271	2.7
194/195	S193	Wor Wic Community College - Salisbury	1129	11.1
194/195	S179	Three Lower Counties (Main Entrance) Salisbury	69	0.7
		Totals	**4,670**	**46**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011. and Feb. 2012.
The routes changed during this time so there may be some data discrepancies.

Ridership by Time of Day

As displayed in Table 7, the most riders use the route between 1:30 p.m. (11 trips passenger trips) and 2:30 p.m., followed by 8:30 a.m. and 3:30 p.m. (both with 10.8 passenger trips). The data showed minimal ridership after 6:30 p.m., and the most recent schedule ends service at 6:25 p.m. It should be noted that the time of day data show higher ridership than the ridership by stop data, most likely due to some stops not being assigned correctly when translating the data from the previous iterations of the route.

Table 7: Route 194/195

Time of Day	Average Daily Ridership
6:30 a.m.	6.0
7:30 a.m.	9.7
8:30 a.m.	10.8
9:30 a.m.	6.7
10:30 a.m.	6.5
11:30 a.m.	no data
12:30 p.m.	9.6
1:30 p.m.	11.0
2:30 p.m.	no data
3:30 p.m.	10.8
4:30 p.m.	7.2
5:30 p.m.	5.0
6:30 p.m.	1.2
Total	**84.6**
Avg. Per Hour	**7.7**

Route Issues and Opportunities

Like Route 190/191, Route 194/195 route pairings are essentially two bi-directional loops, with an eastern extension to serve Wor-Wic Community College and the new transfer point. This route has also undergone significant changes in the past year that have likely caused some confusion for riders. The route also operates as a loop, which means the riders need to use a circuitous path of travel to get to their destination. Service is provided on hourly headways (opposite direction), and two-hour headways (same direction). Productivity on this route is significantly below the MTA performance standards for small urban fixed-route service, at just under five passenger trips per revenue hour. Ridership on this route would likely improve if the

route were streamlined to operate with the same pattern each run, and if service were to be provided more frequently.

ROUTE BY ROUTE ANALYSIS – REGIONAL ROUTES

Regional routes are those that either cross county lines or traverse a large service area. The majority of Shore Transit's fixed-route annual revenue hours are provided on the regional routes, with an estimated 85% of the 47,681 total annual revenue service hours devoted to the regional routes. Ridership on the regional routes is proportional to the level of service, comprising 85% of the total fixed route ridership. With a focus on providing mobility for people accessing work opportunities, the regional routes operate during a longer span of service than the Salisbury local routes, with service generally provided from between 4:30/5:30 a.m. to 10:25/11:25 p.m. and as late as 1:20 a.m.

Shore Transit offers the following regional routes:

- Route 111 N, providing primarily north-south service between Salisbury and Delmar;
- Route 111S, providing service between Salisbury, Princess Anne, and Pocomoke City;
- Route 701 N, providing north-south service between Crisfield, Princess Anne, and Salisbury;
- Route 701 S, providing north-south service between Princess Anne and Crisfield;
- Routes 431 and 451. These two routes offer a bi-directional loop that serve the major communities of the Lower Eastern Shore.
- Route 703. This route operates only on Sundays and provides north-south service from Crisfield to the Centre at Salisbury.

Each of these routes is discussed below.

Route 111N

Route 111N is a fairly linear north-south route that provides service from Calvert Street in Salisbury north along the Route 13 Corridor to Delmar and back. Route 111N is the most productive of the all of the Shore Transit routes, providing almost nine

passenger trips per revenue hour. With the exception of 8:30 a.m., hourly service is provided Monday through Saturday from 6:30 a.m. to 10:25 p.m. While this route is considered to be regional, it does provide a significant level of service in the Salisbury area. It also provides a timed connection with Route 111S, which provides linear service southward from Salisbury to Princess Anne and Pocomoke City.

The route replaced the Shore Transit Route 2. The Route Profile is shown in Figure 6.

Ridership by Stop

The data show that the Calvert Street stop in Salisbury at the transfer center exhibits the highest daily boardings (23), followed by the Centre at Salisbury (14), the Salisbury Walmart (12), and the Rite Aid in Delmar (11). The ridership by stop for this route is provided in Table 8.

Ridership by Time of Day

As displayed in Table 9, the most riders use the route on the 3:30 p.m. trip (just over 12 passenger trips), followed by the 1:30 p.m. run (10.6 passengers) and the 5:30 p.m. trip (10.6 passengers). The data showed minimal ridership after 10:30 p.m., and the most recent schedule ends service at 10:25 p.m.

Route 111N is the highest performing route in the system. Using MTA's rural category, the trips per revenue hour are considered to be successful. If compared against MTA's small urban category, the trips per hour are considered to be acceptable.

With the shift of the transfer center from Calvert Street to Tri-County Council, this route may need to be extended eastward to the new transfer center. If this were to be implemented, it will be important to ensure that there is still a timed connection in downtown with Route 111S.

Route 111S

Route 111S is a fairly linear north-south route that provides service from Calvert Street in Salisbury south along the Route 13 Corridor to Princess Anne, and then southeast to Pocomoke City. Pocomoke City is served only on the first two morning trips of the day. This route is not as productive as Route 111N, as it serves a more rural area and operates about 33% more revenue service hours. The productivity in terms of passenger trips per revenue hour is considered successful in the rural category at 5.7 passenger trips per revenue hour. Hourly service is generally provided Monday through Saturday from 4:30 a.m. to 11:30 p.m., with no 6:30 a.m. or 9:30 a.m. trips offered.

Figure 6: 111N Salisbury-Delmar

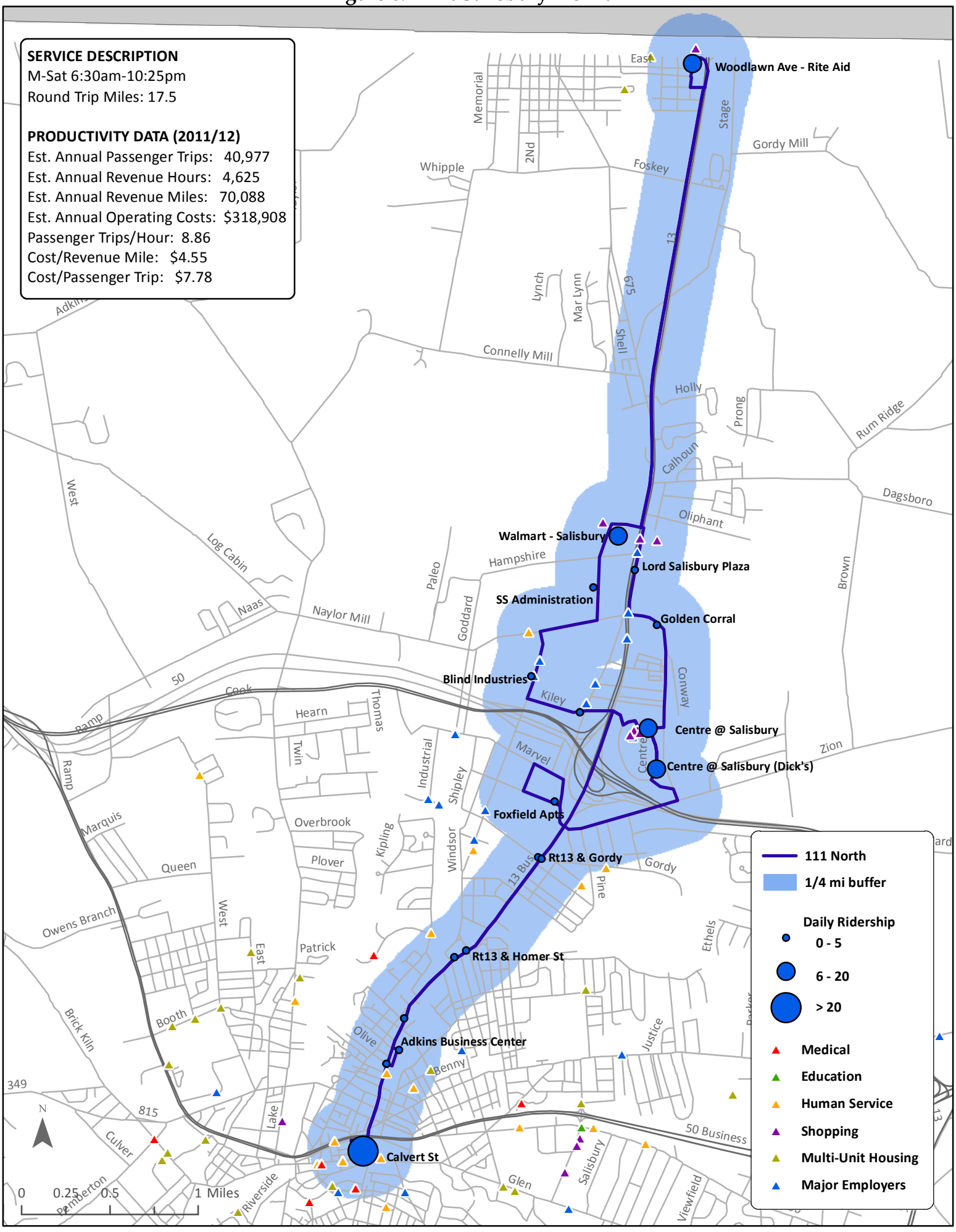


Table 8: Route 111N Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
111N	S173	Calvert Street TOP - Salisbury	2,349	23
111N	S102	E. S. Adkins Complex - behind Sub Runners	507	5
111N	S138	Homer Street (at N. Salisbury Boulevard) Salisbury	290	3
111N	S131	Gordy Road (at N. Salisbury Boulevard) Salisbury	263	3
111N	S116	Center @ Salisbury (Boscov's Entrance)	1,452	14
111N	S117	Center @ Salisbury (Dick's Sporting Good Entrance)	783	8
111N	S148	Golden Coral - Salisbury	259	3
111N	S141	Marshall's Inc. Lord Salisbury Plaza - Salisbury	173	2
111N	S192	Rite Aid (at Woodlawn Avenue) Delmar	1,133	11
111N	S182	Walmart - Salisbury	1,240	12
111N	S154	Social Security Administration - Salisbury	298	3
111N	S155	Blind Industries And Services of MD - Salisbury	222	2
111N	S274	Kiley Dr. & West Zion Rd.	205	2
111N	S134	Foxfield Apartments (at Harford Road) Salisbury	238	2
111N	S131	Gordy Road (at N. Salisbury Boulevard) Salisbury	263	3
111N	S125	Value Carpet One - Salisbury	239	2
111N	S146	Union Street (at N. Salisbury Boulevard) Salisbury	210	2
111N	S145	Friendly Food Store (at Olive Street) Salisbury	273	3
111N	S173	Calvert Street TOP - Salisbury	1,058	10
		Totals	**11,455**	**112**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011, and Feb.2012. The routes changed during this time so there may be some data discrepancies.

Table 9: Route 111N Ridership by Time of Day

Time of Day	Average Daily Ridership
6:30 a.m.	4.12
7:30 a.m.	7.27
8:30 a.m.	1.12
9:30 a.m.	8.19
10:30 a.m.	7.50
11:30 a.m.	5.42
12:30 p.m.	9.33
1:30 p.m.	10.57
2:30 p.m.	8.57
3:30 p.m.	12.12
4:30 p.m.	10.39
5:30 p.m.	10.55
6:30 p.m.	7.25
7:30 p.m.	6.34
8:30 p.m.	4.85
9:30 p.m.	3.20
10:30 p.m.	0.44
Total	**117.2**
Avg. Per Hour (1)	**6.9**

(1) Not revenue service hour; there is more than one vehicle on the route at times.

Route Issues and Opportunities

The route replaced the Shore Transit Route 2 South. The Route Profile is shown in Figure 7.

Ridership by Stop

The data show that the Calvert Street stop in Salisbury at the transfer center exhibits the highest daily boardings (30), followed closely by the Princess Anne Transfer Point (29), UMES (16), and the Walmart in Fruitland (14.7). The ridership by stop for this route is provided in Table 10.

Figure 7: 111S Salisbury-Princess Anne-UMES

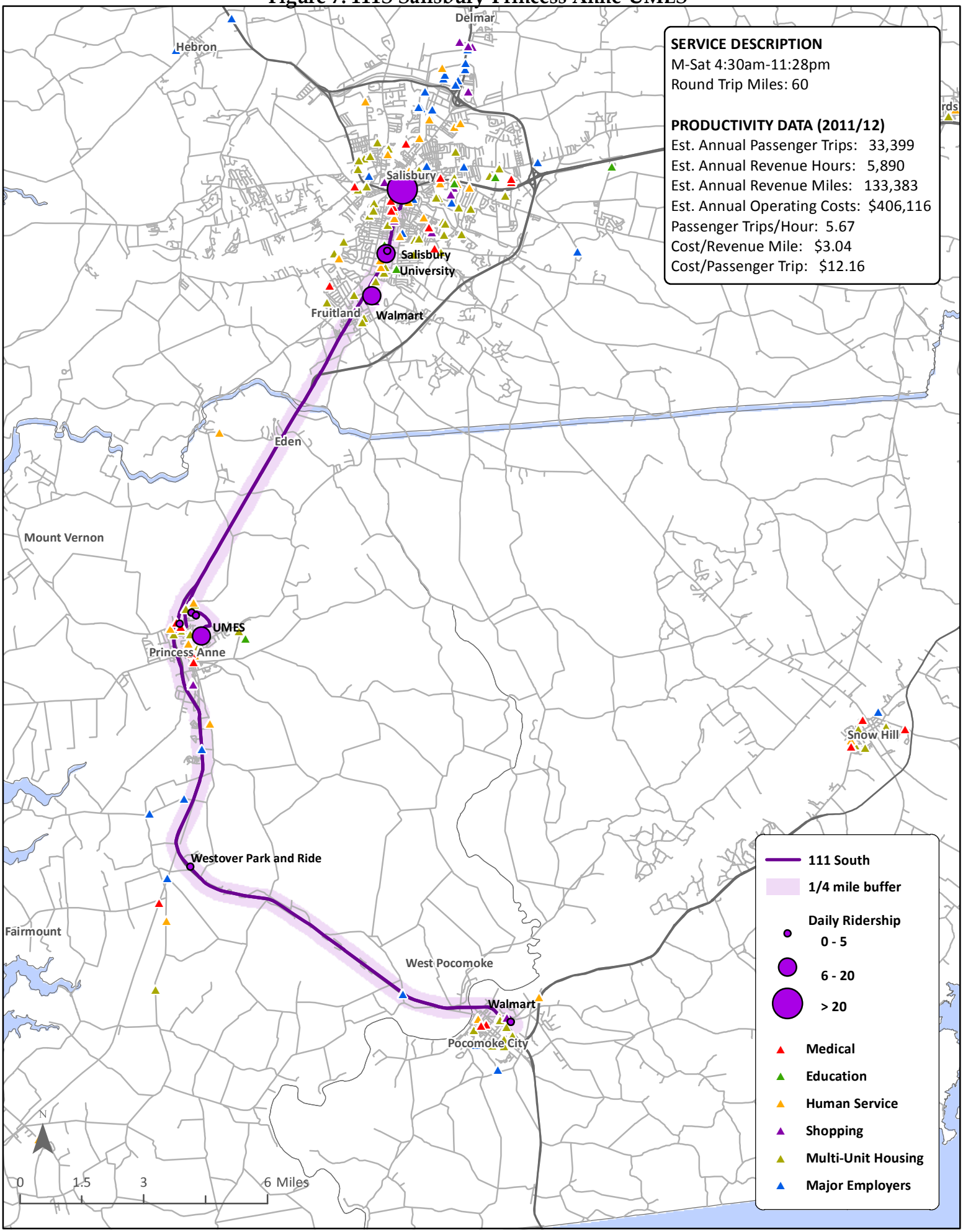


Table 10: Route 111S Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
111S	S173	Calvert Street TOP - Salisbury	3,077	30.2
111S	S174	SU (at Maggs Activity Center) Salisbury	795	7.8
111S	S181	Walmart - Fruitland	1,501	14.7
111S	S194	Ardens Run Apartments (at UMES Boulevard) Princess Anne	238	2.3
111S	S229	UMES (at the Student Services Center) Princess Anne	1,632	16.0
111S	S228	Talon Square Apartments (at UMES Boulevard) Princess Anne	248	2.4
111S	S215	Princess Anne TP - Princess Anne	2,969	29.1
111S	S232	Park & Ride (at N. Rt. 13) Westover	80	0.8
111S	S259	Walmart - Pocomoke City	329	3.2
111S	S107	Pat's Pizzeria - Salisbury	264	2.6
		Totals	**11,133**	**109**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011, and Feb. 2012.
The routes changed during this time so there may be some data discrepancies.

Ridership by Time of Day

As displayed in Table 11, the most riders use the route on the 1:30 p.m. trip (just under 11 passenger trips), followed by the 7:30 a.m. run (10.1 passengers) and the 2:30 p.m. trip (10 passengers). The data showed minimal ridership after the 8:30 p.m. run.

Route Issues and Opportunities

Route 111S provides important regional linkages between Salisbury and Princess Anne, including serving UMES. Given the length of the route and the need to keep the route well-timed to serve UMES, it is not recommended that this route be extended east to the new transfer center. It will be important to continue to provide a timed connection with Route 111N and the Salisbury local routes.

Table 11: Route 111S Ridership by Time of Day

Time of Day	Average Daily Ridership
4:30 a.m.	2.6
5:30 a.m.	7.0
6:30 a.m.	4.0
7:30 a.m.	10.1
8:30 a.m.	7.0
9:30 a.m.	no service
10:30 a.m.	7.1
11:30 a.m.	7.4
12:30 p.m.	7.8
1:30 p.m.	10.8
2:30 p.m.	10.0
3:30 p.m.	8.4
4:30 p.m.	5.1
5:30 p.m.	4.1
6:30 p.m.	no service
7:30 p.m.	2.9
8:30 p.m.	2.1
9:30 p.m.	1.0
10:30 p.m.	1.0
Total	**98.5**
Avg. Per Hour (1)	**5.8**

(1) Not revenue service hour; there is more than one vehicle on the route at times.

Route 701N

Route 701N has a primary focus of providing service in the Route 413 Corridor between Crisfield and Princess Anne, with an additional link to Salisbury at 4:30 a.m., 8:30 a.m., and 6:30 p.m. (southbound), and 1:18 p.m., 5:18 p.m., and 10:18 (northbound). It is a linear north-south route that provides service from Calvert Street in Salisbury south along the Route 13 Corridor to Princess Anne, and then south on Route 413 to Crisfield. This route works in tandem with Route 701S and Route 111S. The productivity in terms of passenger trips per revenue hour is considered successful in the rural category at 5.9 passenger trips per revenue hour. Monday through Friday, service is generally provided from 4:30 a.m. to 10:18 p.m., with headways that vary from one hour to three hours, depending upon the time of day. Saturday service operates from 9:09 a.m. to 10:18 p.m.

Route 701N was previously called Route 1 North. The Route Profile is shown in Figure 8.

Ridership by Stop

The data show that Somers Cove 2 in Crisfield exhibits the highest daily boardings (8.9), followed closely by the Salisbury transfer center (7.6), Somers Cove 3 (6.3), and Somers Cove 1 (5.6). The ridership by stop for this route is provided in Table 12.

Ridership by Time of Day

As displayed in Table 13, the most riders use the route on the 6:30 p.m. trip (over 9 passenger trips), followed by the 8:30 a.m. run (8.7 passengers) and the 9:30 a.m. trip (6 passengers). The 7:30 p.m. run had very few riders and the data showed minimal ridership after the 8:30 p.m. run.

Table 13: Route 701N Ridership by Time of Day

Time of Day	Average Daily Ridership
4:30 a.m.	3.26
5:30 a.m.	0.99
6:30 a.m.	5.28
7:30 a.m.	2.93
8:30 a.m.	8.67
9:30 a.m.	6.06
10:30 a.m.	4.23
11:30 a.m.	4.70
12:30 p.m.	2.48
1:30 p.m.	2.22
2:30 p.m.	1.03
3:30 p.m.	2.19
4:30 p.m.	1.81
5:30 p.m.	no service
6:30 p.m.	9.40
7:30 p.m.	0.36
8:30 p.m.	2.10
9:30 p.m.	0.76
Total	**58.5**
Avg. Per Hour (1)	**3.4**

(1) Not revenue service hour; the route is interlined with the Route 701S.

Figure 8: 701N Salisbury-Crisfield-Princess Anne

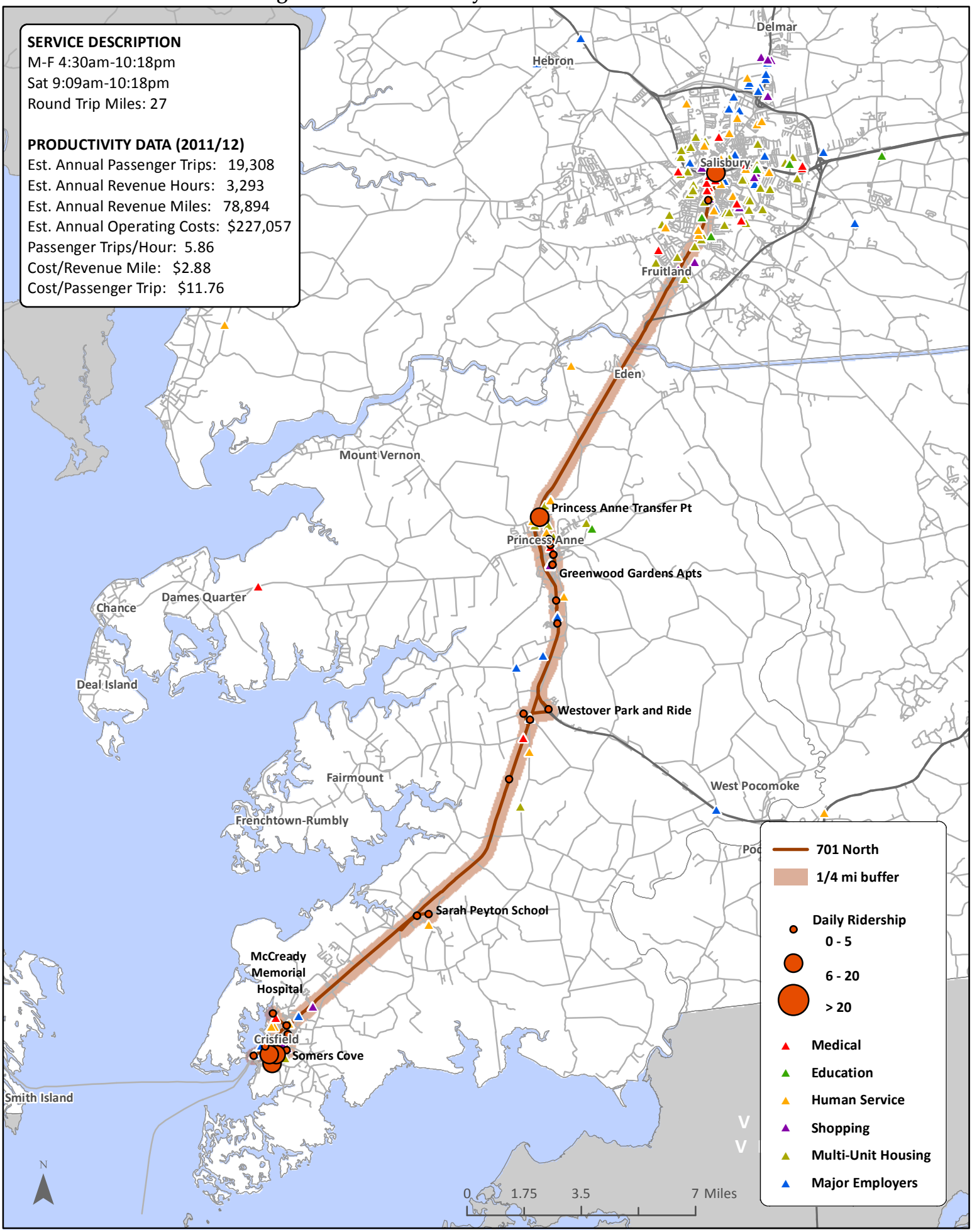


Table 12: Route 701N Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
701N	S173	Calvert Street TOP - Salisbury	776	7.6
701N	S153	North and South Salisbury Boulevard - Salisbury	58	0.6
701N	S215	Princess Anne TP - Princess Anne	522	5.1
701N	S204	McDonalds - Crisfield	288	2.8
701N	S203	McCready Hospital - Crisfield	66	0.6
701N	S202	Fresh Pride Supermarkets - Crisfield	420	4.1
701N	S221	Somers Cove 1 (at Wilson Center) Crisfield	575	5.6
701N	S222	Somers Cove 2 (at Charlotte & Gerald) Crisfield	909	8.9
701N	S198	Charlotte Avenue (at Cove Street) Crisfield	49	0.5
701N	S223	Somers Cove 3 (at Retirement Village) Crisfield	647	6.3
701N	S200	Cove Street (at Somerset Avenue) Crisfield	145	1.4
701N	S197	Crisfield High School - Crisfield	203	2.0
701N	S211	Marion Fire Department - Marion	409	4.0
701N	S212	Marion Sarah Peyton School - Marion	122	1.2
701N	S224	Somerset County Health Department - Westover	48	0.5
701N	S273	Sign Post Road	78	0.8
701N	S234	Dash In - Westover	52	0.5
701N	S232	Park & Ride (at N. Rt. 13) Westover	46	0.5
701N	S218	Wilson Landing - Princess Anne	131	1.3
701N	S217	Kings Creek Market- Princess Anne	33	0.3
701N	S207	Greenwood Gardens Apartments - Princess Anne	221	2.2
701N	S208	Hampden Avenue - Princess Anne	193	1.9
701N	S231	United States Post Office - Princess Anne	112	1.1
701N	S225	Somerset County Public Library - Princess Anne	49	0.5
701N	S220	Shamrock Gas/Stop N Shop - Princess Anne	62	0.6
701N	S215	Princess Anne TP - Princess Anne	522	5.1
		TOTALS	**6,736**	**66.0**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011, and Feb. 2012. The routes changed during this time so there may be some data discrepancies.

Route Issues and Opportunities

Given the length of the route and the need to consider both Route 701S schedule and Route 111S schedule, it is not recommended that this route travel east to the new transfer center at the Tri-County Council. It appears that for some trips the Route 701N is interlined with Route 701S, which makes schedule adjustments more complicated.

Route 701S

Route 701S has a primary focus of providing service in the Route 413 Corridor between Crisfield and Princess Anne. This route works in tandem with the Route 701N and the Route 111S. The productivity in terms of passenger trips per revenue hour is considered successful in the rural category at 5.9 passenger trips per revenue hour. The level of service provided on Route 701S is lower than the level of service provided on Route 701N (1,669 annual revenue hours on Route 701S, as compared to 3,293 annual revenue hours on Route 701N). Ridership is also considerably lower, estimated to be just under 10,000 trips annually. Monday through Friday, service is generally provided from 6:06 a.m. to 8:55 p.m., with headways that vary from one hour to five hours, depending upon the time of day. Saturday service operates from 10:06 a.m. to 8:55 p.m.

Route 701S was previously called Route 1 South. The Route Profile is shown in Figure 9.

Ridership by Stop

The data show that the Princess Anne transfer point exhibits the highest daily boardings (17.8), with no other stops generating more than 2.3 daily boardings. The ridership by stop for this route is provided in Table 14.

Ridership by Time of Day

As displayed in Table 15, the most riders use the route on the 12:30 p.m. trip (over 7.6 passenger trips), followed by the 2:30 p.m. run (just over 7 passengers) and the 10:30 a.m. trip (5.2 passengers). There is very little ridership on the early morning trips.

Figure 9: 701S Princess Anne-Crisfield

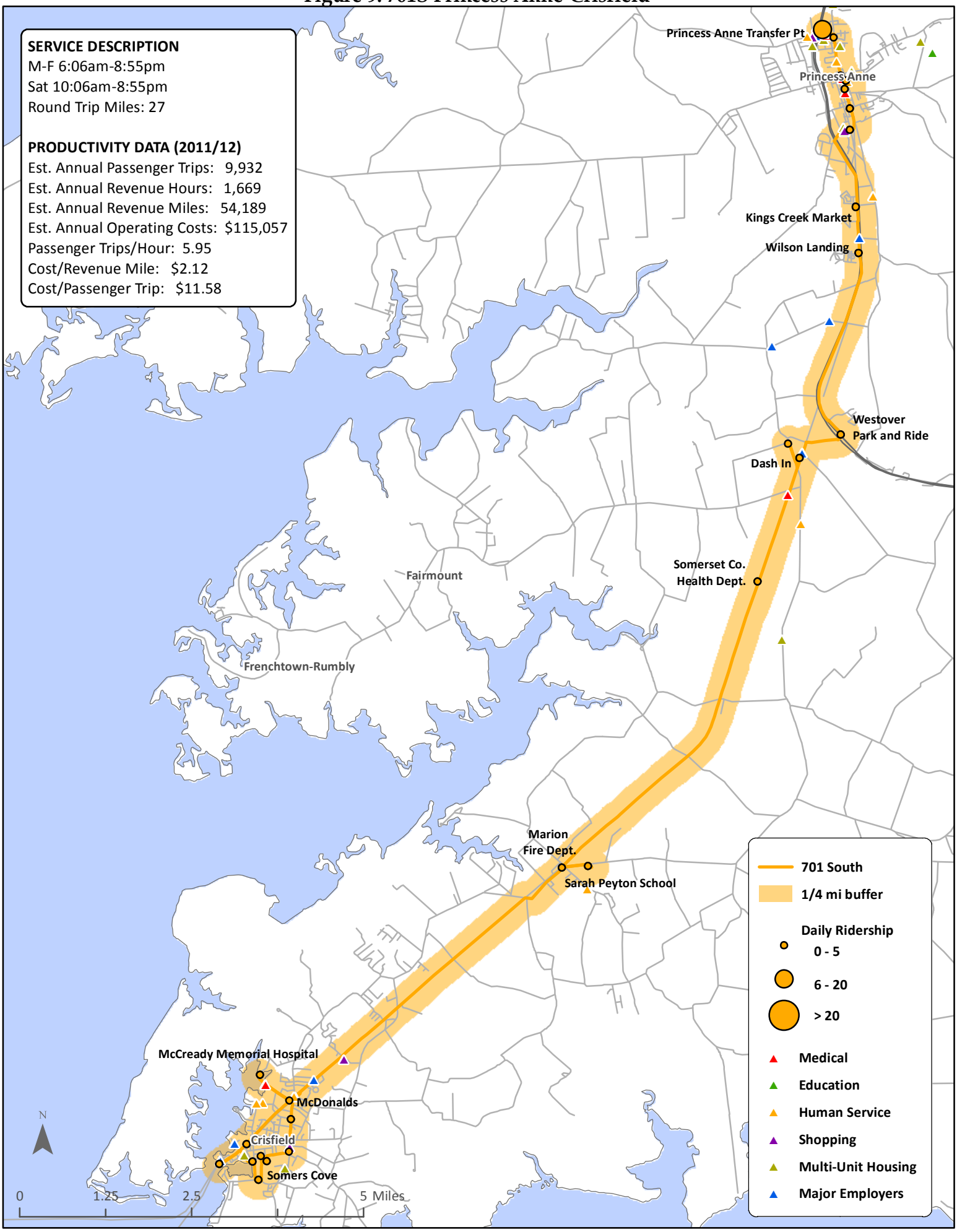


Table 14: Route 701S Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
701S	S215	Princess Anne TP - Princess Anne	1,814	17.8
701S	S226	Somerset County Public Library - Princess Anne	125	1.2
701S	S230	United States Post Office - Princess Anne	147	1.4
701S	S209	Hampden Avenue - Princess Anne	230	2.3
701S	S207	Greenwood Gardens Apartments - Princess Anne	127	1.2
701S	S216	Kings Creek Market- Princess Anne	12	0.1
701S	S219	Wilson Landing - Princess Anne	4	0.0
701S	S232	Park & Ride (at N. Rt. 13) Westover	51	0.5
701S	S233	Dash In - Westover	57	0.6
701S	S271	Sign Post Road	52	0.5
701S	S224	Somerset County Health Department - Westover	43	0.4
701S	S212	Marion Sarah Peyton School - Marion	9	0.1
701S	S210	Marion Fire Department - Marion	65	0.6
701S	S196	Crisfield High School - Crisfield	3	0.0
701S	S201	Cove Street (at Somerset Avenue) Crisfield	12	0.1
701S	S223	Somers Cove 3 (at Retirement Village) Crisfield	24	0.2
701S	S222	Somers Cove 2 (at Charlotte & Gerald) Crisfield	35	0.3
701S	S221	Somers Cove 1 (at Wilson Center) Crisfield	22	0.2
701S	S195	Crisfield Dock - Crisfield	5	0.0
701S	S227	Subway - Crisfield	7	0.1
701S	S203	McCready Hospital - Crisfield	1	0.0
		TOTALS	**2,845**	**27.9**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 011, and Feb. 2012. The routes changed during this time so there may be some data discrepancies.

Table 15: Route 701S Ridership by Time of Day

Time of Day	Average Daily Ridership
4:30 a.m.	no service
5:30 a.m.	0.90
6:30 a.m.	0.23
7:30 a.m.	no service
8:30 a.m.	2.94
9:30 a.m.	2.76
10:30 a.m.	5.24
11:30 a.m.	1.97
12:30 p.m.	7.62
1:30 p.m.	0.60
2:30 p.m.	7.16
3:30 p.m.	0.70
4:30 p.m.	no service
5:30 p.m.	no service
6:30 p.m.	no service
7:30 p.m.	3.61
8:30 p.m.	0.10
9:30 p.m.	no service
Total	**33.8**
Avg. Per Hour (1)	**2.8**

(1) Not revenue service hour; the route is interlined with Route 701N.

Route Issues and Opportunities

While there is very little ridership on the early morning trips, these trips are most likely needed to position the vehicle for Route 701N, which is the predominant travel direction in the morning. This route is not affected by the shift of the transfer center, as it does not travel to Salisbury.

Route 703- Sunday Only

Route 703 has a focus of providing mobility on Sundays, primarily for employment, between Crisfield and Salisbury (terminating at the Centre at Salisbury). The route operates from 8:00 a.m. to 11:46 p.m., though service is provided in three "shifts." The route offers trips from Crisfield north at 8:44 a.m. and again at 10:09 a.m. There is another trip north at 3:24 p.m., and two evening trips (8:24 p.m. and 10:39

p.m.). Three southbound trips from Salisbury are offered at 2:15 p.m., 7:15 p.m., and 9:40 p.m. It is a very long route at 82 miles round trip.

Route 703 was previously called Route 3. The Route Profile is shown in Figure 10.

Ridership by Stop

The data show that the Princess Anne transfer point exhibits the highest daily boardings (3.2), followed by Somers Cove 1 (Crisfield) (2.8), and UMES (2.4). The ridership by stop for this route is provided in Table 16.

Ridership by Time of Day

As displayed in Table 17, the most riders use the route between 10:00 a.m. and 11:00 a.m. (4.4 average daily riders), followed by the hour between 7:00 p.m. and 8:00 p.m. There was no ridership after 11:00 p.m., but that is logical as the bus is heading north back to Salisbury for the evening at this time.

Table 17: Route 703 Ridership by Time of Day

Time of Day	Average Daily Ridership
8:00 a.m.	3.12
9:00 a.m.	0.24
10:00 a.m.	4.41
11:00 a.m.	0.82
12:00 p.m.	no service
1:00 p.m.	no service
2:00 p.m.	2.94
3:00 p.m.	3.00
4:00 p.m.	0.29
5:00 p.m.	no service
6:00 p.m.	no service
7:00 p.m.	4.18
8:00 p.m.	1.76
9:00 p.m.	1.88
10:00 p.m.	1.71
11:00 p.m.	0.00
Total	**24.4**
Avg. Per Hour (1)	**2.0**

(1) Not revenue service hour, some data is for less than a full hour.

Figure 10: 703 Salisbury-Crisfield

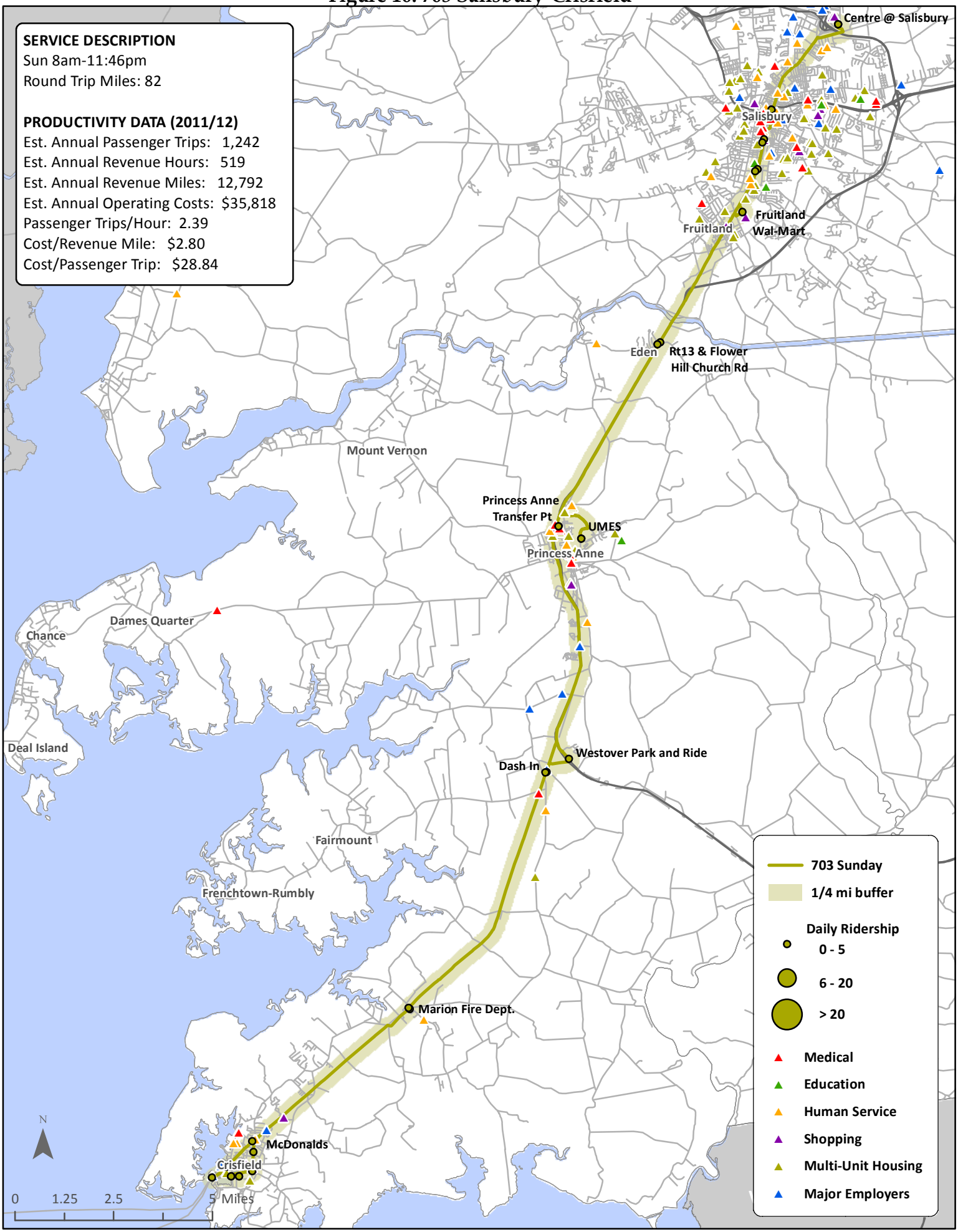


Table 16: Route 703 Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
703	S173	Calvert Street TOP - Salisbury	50	2.9
703	S215	Princess Anne TP - Princess Anne	55	3.2
703	S204	McDonalds - Crisfield	21	1.2
703	S202	Fresh Pride Supermarkets - Crisfield	16	0.9
703	S195	Crisfield Dock - Crisfield	5	0.3
703	S221	Somers Cove 1 (at Wilson Center) Crisfield	48	2.8
703	S223	Somers Cove 3 (at Retirement Village) Crisfield	37	2.2
703	S200	Cove Street (at Somerset Avenue) Crisfield	1	0.1
703	S197	Crisfield High School - Crisfield	9	0.5
703	S211	Marion Fire Department - Marion	24	1.4
703	S234	Dash In - Westover	7	0.4
703	S232	Park & Ride (at N. Rt. 13) Westover	16	0.9
703	S215	Princess Anne TP - Princess Anne	55	3.2
703	S229	UMES (at the Student Services Center) Princess Anne	41	2.4
703	S206	Flower Hill Church Road (at N. Rt. 13) Eden	0	0.0
703	S181	Walmart - Fruitland	15	0.9
703	S107	Pat's Pizzeria - Salisbury	9	0.5
703	S117	Center @ Salisbury (Dick's Sporting Good Entrance)	37	2.2
703	S153	North and South Salisbury Boulevard - Salisbury	14	0.8
703	S174	SU (at Maggs Activity Center) Salisbury	6	0.4
703	S205	Eden Allen Road (at S. Rt. 13) Eden	3	0.2
		TOTALS	**469**	**27.6**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011, and Feb. 2012. The routes changed during this time so there may be some data discrepancies.

Issues and Opportunities

This service is the least productive of all of the Shore Transit routes, providing 2.4 passenger trips per revenue hour; however, it is also a relatively inexpensive service to offer, with limited hours operating once per week (519 annual revenue service hours). This level of performance does fall into the "needs review" category according to MTA's rural performance standards. This route fills in several of the segments of the Routes 701 and 111 (those routes do not operate on Sundays) that are not covered by the Routes 431 and 451. In looking at alternatives for this route, it is unlikely that demand response service over such a large area could achieve 2.4 trips per hour. Another possible solution would be to develop a taxi voucher program for people to use a taxi to access Route 431/451, but setting up such a program for limited usage may not be cost effective.

Route 431

Shore Transit's Route 431 is the clockwise regional loop that provides daily service on the Lower Eastern Shore connecting Salisbury, Ocean City, Berlin, Snow Hill, Pocomoke City, Princess Anne, and Fruitland. The loop is very long at 111 miles. Service is provided from 5:30 a.m. to 1:19 a.m. Nine complete loops are operated each day, with headways of between one and four hours, depending upon the time of day, using between two and three buses for the route. Productivity on the route is good for such a long rural route, at 5.5 passenger trips per revenue hour. Ridership on this route is second only to Route 451, which provides the counterclockwise pair to this route. Annual ridership is estimated to be 68,364 passenger trips.

Route 431 was previously called Route 21. The Route Profile is shown in Figure 11.

Ridership by Stop

The data show that the Salisbury transfer point exhibits the highest daily boardings (58), followed by the Ocean City transfer point on Division Street (20.4), the West Ocean City transfer point (15.9), and the Princess Anne transfer point (15.4). The ridership by stop for this route is provided in Table 18.

Ridership by Time of Day

As displayed in Table 19, the most significant ridership peaks are in the morning, between 6:30 a.m. and 9:30 a.m.; mid-day (12:30 p.m. and 1:30 p.m.); and mid-afternoon (3:30 p.m. and 4:30 p.m.). The busiest hour is between 7:30 a.m. and 8:30 a.m. There is very little activity on the last two segments of the day, north from Pocomoke City at 12:30 a.m.

Figure 11: 431 Salisbury-Ocean City-Pocomoke

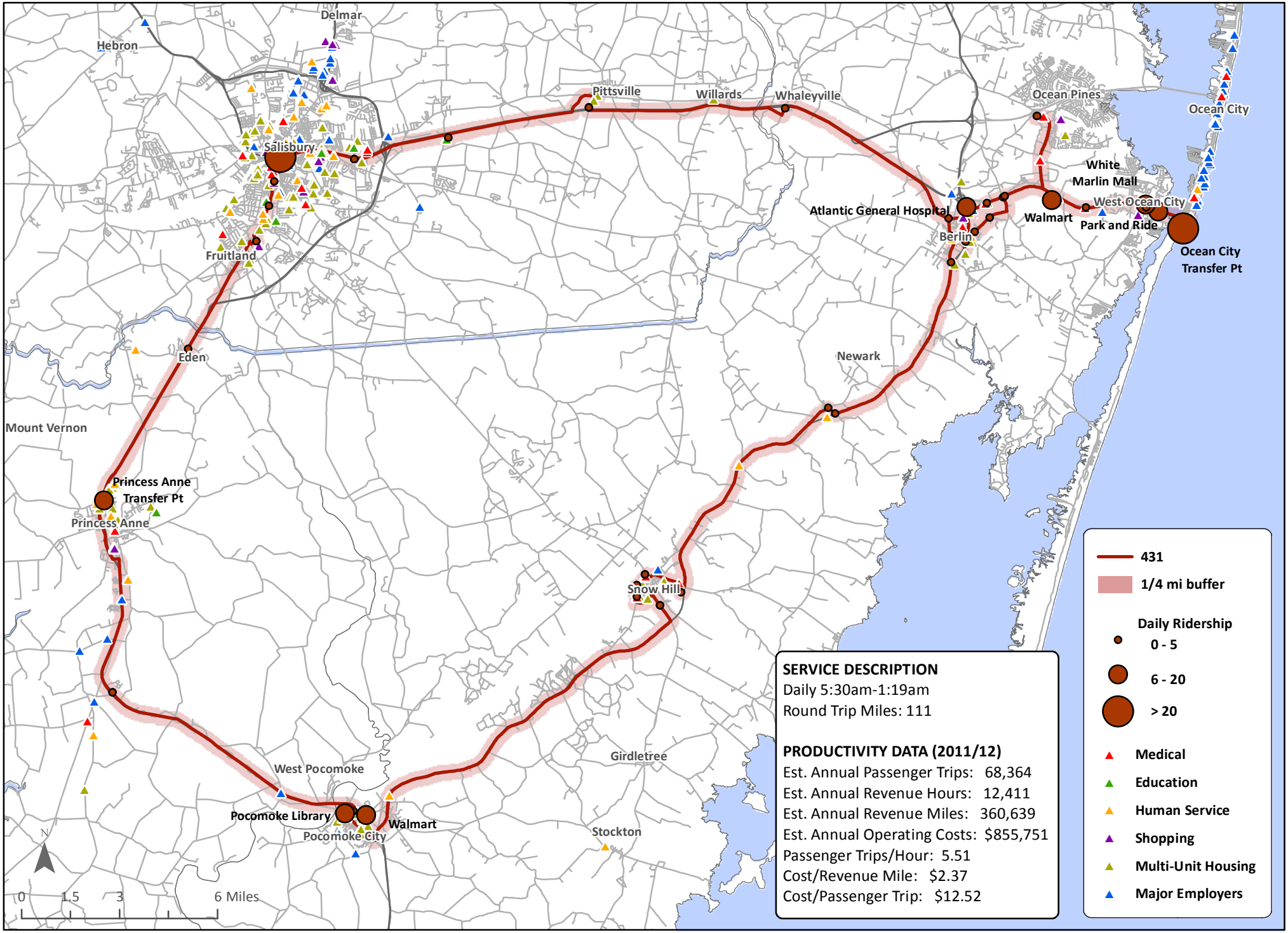


Table 18: Route 431 Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
431	S173	Calvert Street TOP - Salisbury	6,973	58.6
431	S162	Park & Ride (at Phillip Morris Drive) Salisbury	401	3.4
431	S193	Wor Wic Community College - Salisbury	500	4.2
431	S166	Rt. 50 W. (at Sixty Foot Road) Pittsville	226	1.9
431	S260	Fort Whaleyville Campground - Whaleyville	90	0.8
431	S245	N. Main Street (at Old Ocean City Boulevard) Berlin	105	0.9
431	S236	Atlantic General Hospital - Berlin	769	6.5
431	S239	Berlin Shopping Center - Berlin	31	0.3
431	S246	McDonalds - Berlin	132	1.1
431	S252	Ocean Pines Plaza - Ocean Pines	119	1.0
431	S247	Walmart - Berlin	629	5.3
431	S185	Wawa - Ocean City	21	0.2
431	S248	Comfort Inn - Ocean City	281	2.4
431	S262	Park & Ride (at the West Ocean City TP) Ocean City	1,890	15.9
431	S258	Ocean City TP (at South Division Street) Ocean City	2,431	20.4
431	S235	Applebee's - (at Rt. 50) Ocean City	178	1.5
431	S261	White Marlin Mall (at KFC) Ocean City	821	6.9
431	S263	Worcester Addiction Cooperative Services (WAC), Ocean City	73	0.6
431	S237	Flower Street (at Honeysuckle) Berlin	49	0.4
431	S243	Flower Street (at Maple Street) Berlin	68	0.6
431	S242	Decatur Street - Berlin	404	3.4
431	S244	Atlantic Health - Berlin	147	1.2
431	S241	Boomer's Restaurant - Berlin	141	1.2
431	S249	Old Langmaid Road (at S. Rt. 113) Newark	10	0.1
431	S256	Snow Hill Detention Center - Snow Hill	187	1.6
431	S257	Sturgis Park - Snow Hill	397	3.3
431	S267	Byrd Park (Snow Hill)	154	1.3
431	S266	Market St. (at Maple St.) Snow Hill	173	1.5
431	S264	MAC-Worcester County Commission on Aging Inc.- Snow Hill	311	2.6
431	S253	Hardees - Pocomoke City	67	0.6
431	S254	Pocomoke Library - Pocomoke City	761	6.4
431	S254	Pocomoke Plaza - Pocomoke City	322	2.7
431	S259	Walmart - Pocomoke City	1,493	12.5
431	S232	Park & Ride (at N. Rt. 13) Westover	263	2.2
431	S215	Princess Anne TP - Princess Anne	1,832	15.4
431	S181	Walmart - Fruitland	197	1.7
		Totals	**22,646**	**190**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011, and Feb. 2012. The routes changed during this time so there may be some data discrepancies.

Table 19: Route 431 Ridership by Time of Day

Time of Day	Average Daily Ridership
5:30 a.m.	5.34
6:30 a.m.	14.40
7:30 a.m.	23.42
8:30 a.m.	12.33
9:30 a.m.	9.33
10:30 a.m.	4.66
11:30 a.m.	7.13
12:30 p.m.	13.73
1:30 p.m.	11.48
2:30 p.m.	8.15
3:30 p.m.	12.65
4:30 p.m.	18.04
5:30 p.m.	8.92
6:30 p.m.	13.82
7:30 p.m.	2.03
8:30 p.m.	7.43
9:30 p.m.	10.10
10:30 p.m.	5.82
11:30 p.m.	2.32
12:30 a.m.	0.38
Total	**191.5**
Avg. Per Hour (1)	**9.6**

(1) Not revenue service hour; there is more than one vehicle on the route at times.

Route Issues and Opportunities

This route is the clockwise portion of the backbone of the regional transit system on the Lower Eastern Shore. It is important that this route add a stop at the new transfer center at the Tri-County Council so that Salisbury area residents can access job opportunities in Ocean City.

Route 451

Shore Transit's Route 451 is the counterclockwise regional loop that provides daily service on the Lower Eastern Shore connecting Salisbury, Fruitland, Princess

Anne, Pocomoke City, Snow Hill, Berlin, and Ocean City. The loop is very long at 111 miles. Service is provided from 4:30 a.m. to 1:17 a.m. Nine complete loops are operated each day, with headways of between one and three hours, depending upon the time of day, using between two and three buses for the route. Productivity on the route is a little higher than on the clockwise version, at 5.8 passenger trips per revenue hour. The annual estimated ridership of 71,000 passenger trips is the highest among the Shore Transit Routes.

Route 451 was previously called Route 11. The Route Profile is shown in Figure 12.

Ridership by Stop

The data show that the Salisbury transfer point exhibits the highest daily boardings (28.9), followed by the Ocean City transfer point on Division Street (23.4), the Pocomoke Library (17.6), the West Ocean City transfer point (14.2), and the Princess Anne transfer point (14.1). The ridership by stop for this route is provided in Table 20.

Ridership by Time of Day

As displayed in Table 21, the most significant ridership peak is in the morning, between 5:30 a.m. and 7:30 a.m., followed by 1:30 p.m., 3:30 p.m., 11:30 a.m., and 6:30 p.m. The busiest hour is between 6:30 a.m. and 7:30 a.m. There is very little activity on the last segment of the day, west from Berlin at 12:30 a.m.

Route Issues and Opportunities

This route is the counterclockwise part of the backbone of the regional system on the Lower Eastern Shore. It is important that this route add a stop at the new transfer center at the Tri-County Council.

Overall Observations

In reviewing the fixed routes for this route analysis, the following observations were made:

- Several of the non-productive route segments (at certain times of the day) appear to be needed to position vehicles and would otherwise be dead-head miles. Some examples include: the last run of the day from Berlin to Salisbury on Route 451; the last run of the day north from Pocomoke City to Salisbury on Route 431; and the early morning southbound trips on Route 701S.

Figure 12: 451 Salisbury-Pocomoke-Ocean City

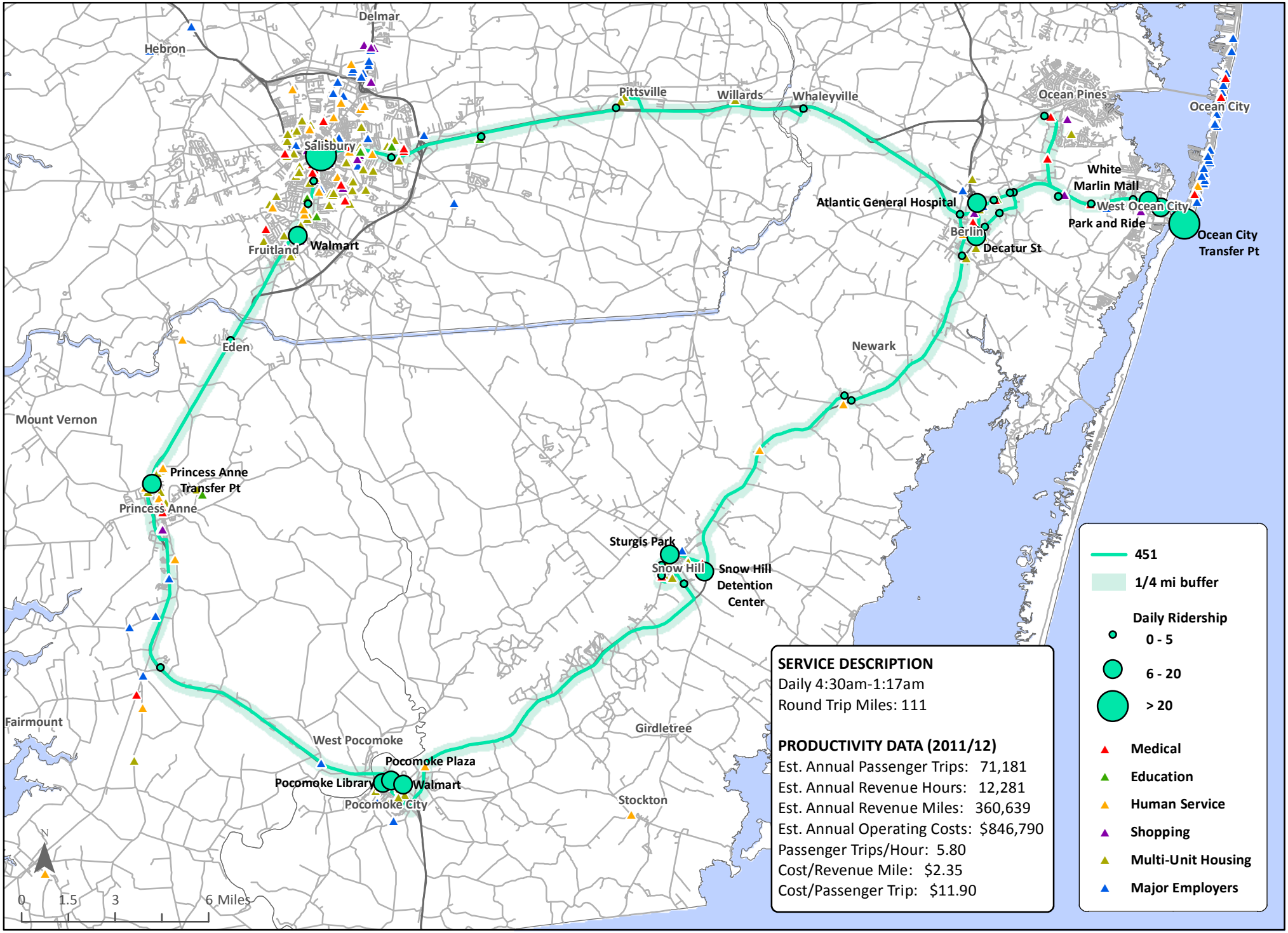


Table 20: Route 451 Ridership by Stop

Route	Stop ID	Description	4-Month Total	Average Daily
451	S173	Calvert Street TOP - Salisbury	3,442	28.9
451	S153	North and South Salisbury Boulevard - Salisbury	541	4.5
451	S174	SU (at Maggs Activity Center) Salisbury	428	3.6
451	S181	Walmart - Fruitland	857	7.2
451	S205	Eden Allen Road (at S. Rt. 13) Eden	87	0.7
451	S215	Princess Anne TP - Princess Anne	1,677	14.1
451	S232	Park & Ride (at N. Rt. 13) Westover	335	2.8
451	S259	Walmart - Pocomoke City	652	5.5
451	S255	Pocomoke Plaza - Pocomoke City	914	7.7
451	S254	Pocomoke Library - Pocomoke City	2,089	17.6
451	S253	Hardees - Pocomoke City	243	2.0
451	S264	MAC-Worcester County Commission on Aging Inc.- Snow Hill	500	4.2
451	S266	Market St. (at Maple St.) Snow Hill	321	2.7
451	S268	Byrd Park (Snow Hill)	273	2.3
451	S257	Sturgis Park - Snow Hill	680	5.7
451	S256	Snow Hill Detention Center - Snow Hill	911	7.7
451	S250	Old Newark Road (at Old Langmaid Road) Newark	98	0.8
451	S249	Old Langmaid Road (at S. Rt. 113) Newark	100	0.8
451	S241	Boomer's Restaurant - Berlin	161	1.4
451	S244	Atlantic Health - Berlin	165	1.4
451	S245	N. Main Street (at Old Ocean City Boulevard) Berlin	279	2.3
451	S236	Atlantic General Hospital - Berlin	1,122	9.4
451	S242	Decatur Street - Berlin	735	6.2
451	S243	Flower Street (at Maple Street) Berlin	135	1.1
451	S237	Flower Street (at Honeysuckle) Berlin	63	0.5
451	S246	McDonalds - Berlin	59	0.5
451	S247	Walmart - Berlin	346	2.9
451	S185	Wawa - Ocean City	60	0.5
451	S248	Comfort Inn - Ocean City	189	1.6
451	S262	Park & Ride (at the West Ocean City TP) Ocean City	1,693	14.2
451	S258	Ocean City TP (at South Division Street) Ocean City	2,779	23.4
451	S235	Applebee's - (at Rt. 50) Ocean City	205	1.7
451	S261	White Marlin Mall (at KFC) Ocean City	826	6.9
451	S263	Worcester Addiction Cooperative Services (WAC), Ocean City	64	0.5
451	S252	Ocean Pines Plaza - Ocean Pines	147	1.2
451	S240	Arby's - Berlin	26	0.2
451	S260	Fort Whaleyville Campground - Whaleyville	74	0.6
451	S166	Rt. 50 W. (at Sixty Foot Road) Pittsville	110	0.9
451	S193	Wor Wic Community College - Salisbury	318	2.7
451	S162	Park & Ride (at Phillip Morris Drive) Salisbury	15	0.1
		TOTALS	**23,719**	**199.3**

Notes: Data provided by Shore Transit for the months of July 2011, Sept. 2011, Nov. 2011, and Feb. 2012. The routes changed during this time so there may be some data discrepancies.

Table 21: Route 451 Ridership by Time of Day

Time of Day	Average Daily Ridership
4:30 a.m.	2.26
5:30 a.m.	10.45
6:30 a.m.	24.68
7:30 a.m.	16.71
8:30 a.m.	5.83
9:30 a.m.	9.71
10:30 a.m.	9.50
11:30 a.m.	15.48
12:30 p.m.	7.17
1:30 p.m.	18.25
2:30 p.m.	6.39
3:30 p.m.	20.61
4:30 p.m.	11.66
5:30 p.m.	2.92
6:30 p.m.	15.30
7:30 p.m.	4.04
8:30 p.m.	5.00
9:30 p.m.	6.29
10:30 p.m.	1.57
11:30 p.m.	5.55
12:30 a.m.	0.03
Total	**199.4**
Avg. Per Hour (1)	**9.5**

(1) Not revenue service hour; there is more than one vehicle on the route at times.

- There will still need to be some level of transfer activity in downtown Salisbury to accommodate the southbound regional routes and not further extend the route length for all of the regional routes.

- There is a need for stability within the system. Routes and route names have changed twice in the past year, which can be confusing for riders.

PROPOSED CHANGES

The first section of this report provides an in-depth route analysis of the Shore Transit fixed route network. These data and analysis show that there may be opportunities to improve frequency and rider convenience (to increase ridership), improve productivity, and also accommodate the shifted location of the transfer center. The goal of these proposed changes is to address these issues without incurring significant new operating expenses. The proposed changes are highlighted below.

Streamline the Salisbury Local Routes

Currently both of the Salisbury local routes are circuitous in nature and exhibit different travel patterns over the course of each run. While this provides good geographic coverage and offers bi-directional service, it is confusing for passengers and also provides infrequent headways. They each currently operate on two- to four-hour headways.

In analyzing these routes for a possible solution, the study team also looked at Route 111N, as it provides a significant level of service in Salisbury and could work in tandem with the two local Salisbury routes. The three routes together (Route 190/191, Route 194/195, and Route 111N) use three vehicles.

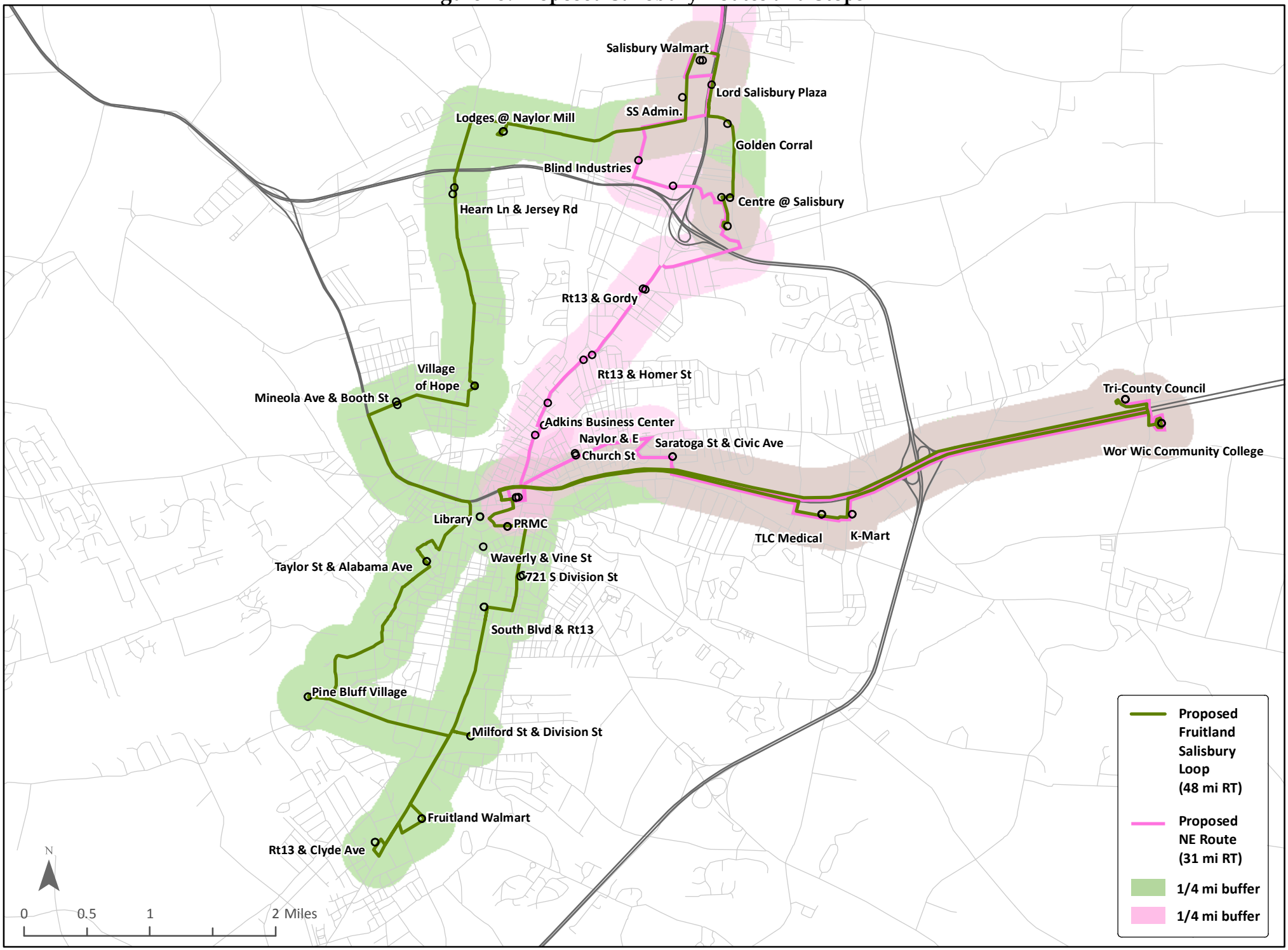
The proposal to streamline these routes involves combining Routes 190/191 and Routes 194/195, eliminating a few stops, and extending Route 111N to the new transfer center.

It is important to note that the proposal to streamline the routes is based on the data collected for the four sample months and that the current routes have been changed since these data were collected. To ensure that routing changes are based on accurate assumptions, it is recommended that Shore Transit analyze recent stop-by-stop data for the current route configuration prior to making final decisions regarding the streamlining the routes.

S***alisbury-Fruitland Local***

The new Salisbury-Fruitland local route (the combined route) would travel from the Tri-County Council transfer center to downtown Salisbury, then complete a short loop through South Salisbury and Fruitland, return to downtown, and then travel north to the route terminus at the Centre at Salisbury. The route would then follow the same path of travel for the return trip, offering a more linear, bi-directional pattern. A map of this configuration is shown in Figure 13.

Figure 13: Proposed Salisbury Routes and Stops



This route is 48 miles round trip. It is proposed that two vehicles be assigned to this route, allowing for 90-minute headways. This is an improvement over the two- to four-hour headways that are currently provided in Salisbury.

Using an operating speed of 17 miles per hour (a bit slower than the current Salisbury route average of 18.3), one bus would take about 2.8 hours (or 168 minutes) to complete the cycle. This would leave a 12-minute per cycle recovery time.

Route 111N- North/East

The second part of the proposed route re-structuring focuses on the Route 111N. The proposal is to extend Route 111N east to the new transfer center. This will add 30 minutes to the running time, which will necessitate 90- minute, rather than 60-minute headways. The proposed Route 111N will be 31 miles round trip, which will result in a higher average operating speed than currently, though it may be feasible to have this route run in an express mode between downtown Salisbury and transfer center, as this segment is covered by the Salisbury-Fruitland local. The longer headway for Route 111N is the only real disadvantage to this proposed configuration.

Route Timing

When implementing these proposed changes it will be important to ensure that either Route 111N or the Salisbury-Fruitland loop meets Route 111S in downtown Salisbury so that passengers traveling to and from points to the south can have convenient access to Salisbury destinations.

Eliminated Stops

In order to improve frequency and streamline the route, several stops were eliminated from the Salisbury-Fruitland Local route. The eliminated stops are those that exhibit low ridership, cause the route to be circuitous, and/or are still within one-half mile of the proposed new configuration. Figure 14 provides a map of the new route proposal, along with the current fixed routes. The affected bus stops are shown in red on this map. Table 22 lists these stops, along with the average daily ridership from the four-month sample ridership data.

Title VI Implications

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin. Public transportation agencies planning service and facility changes must take into consideration the potential impact on minority and low income populations. Any service cuts should not result in a relatively higher loss of service for minority and low-income communities, while service expansions should serve minority and low-income communities as well as other communities.

Figure 14: Current and Proposed Routes

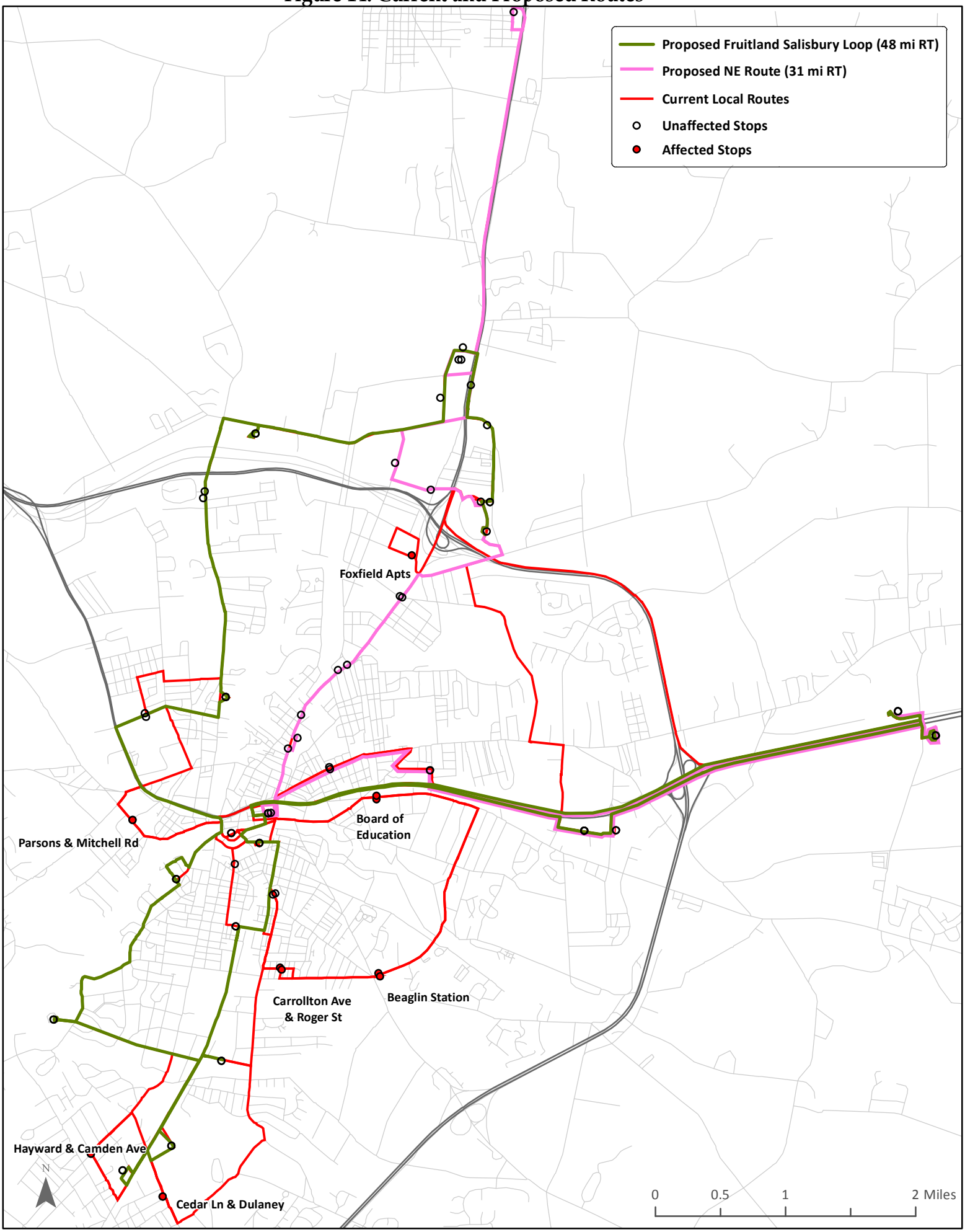


Table 22: Affected Stops

	Route	Stop ID	Estimated Daily Ridership*
Parsons Rd & Mitchel Rd	190/191	S159/S289	1.4
Hayward Ave & Camden Ave	190/191	S284	no data available
Cedar Ln & Dulany	190/191	S285	no data available
Roger St & Carrollton Ave	194/195	S115/S280	2
Beaglin Station/Beaglin Park Dr	194/195	S108/S279	0.8
917 Mt Hermon Rd/Board of Ed	194/195	S158/S278	3.2
Foxfield Apts	111N	S134	2.3

*Estimates based on Shore Transit data from July, Sept., and Nov. 2011, and Feb. 2012.
Route changes since this time may result in data discrepancies.

The study team reviewed the proposed service changes for Title VI issues. Of the seven stops proposed for elimination, two are in areas that do not have an above average percentage of minorities or people living in poverty (Foxfield Apartments and 917 Mount Hermon Road).

There may be Title VI implications with the following five proposed stop eliminations:

- Parsons Road and Mitchell Road – this area exhibits an above average percentage of minority residents and an above average percentage of people living in poverty.

- Hayward Avenue and Camden Avenue – this area exhibits an above average percentage of people living in poverty.

- Cedar Land and Dulany – this area exhibits an above average percentage of minority residents.

- Roger Street and Carrollton Avenue - this area exhibits an above average percentage of people living in poverty.

- Beaglin Station - this stop is on the border of a block group that exhibits an above average percentage of people living in poverty and an above average percentage of minority residents.

It should be noted that six of the seven stops slated for elimination are within one-half mile of a transit stop that will continue to be served. Beaglin Station is the only stop proposed for elimination which is farther than one half-mile from an active transit stop.

Figure 15 displays the proposed route changes and the Salisbury area Census block groups displayed according to the whether the percentage of people living in poverty is above or below average Figure 16 shows a similar map displaying the Salisbury area Census block groups according to whether the percentage of minority population is above or below average.

Increase Frequency

One of the issues with the current local Salisbury route configuration is that service is provided only once every two-four hours. Infrequent transit service makes it difficult for people to use transit for shopping and appointments, as they must wait a long time for their return trips. Work trips are easier to accommodate with less frequent service, as people tend to work similar hours each day and stay for several hours at a time.

Most small urban fixed-route systems operate on hourly headways, which is often viewed as the minimum standard. This proposal improves frequency on the local routes from two hours to 90 minutes, but reduces the frequency on Route 111N from hourly to 90 minutes. Without adding additional resources, it is not possible to maintain service coverage and improve frequency any further. Future service goals should include hourly frequency for both the local route(s) and Route 111N. Sixty-minute frequency is listed as the suggested maximum headway (minimum frequency) for small urban fixed route service in the *Maryland State Transit Guidelines.*

Provide Connections to Transfer Center at Tri-County Council and Continue to Use Calvert Street as Transfer Location

One of the purposes of this route analysis is to re-structure the fixed routes so that the major transfer and layover location is shifted from Calvert Street to the new transfer center at the Tri-County Council building near Walston Switch Drive and U.S. 50. The study team concluded that it is feasible for the following routes to use the new transfer facility:

- Route 190/191 (or proposed streamlined version - Salisbury-Fruitland Local)
- Route 194/195 (or proposed streamlined version - Salisbury-Fruitland Local)
- Route 111N - with a significant route extension
- Route 431 - add the stop, the route already travels by this location
- Route 451 - add the stop, the route already travels by this location

Figure 15: Salisbury Percentage Below Poverty Population

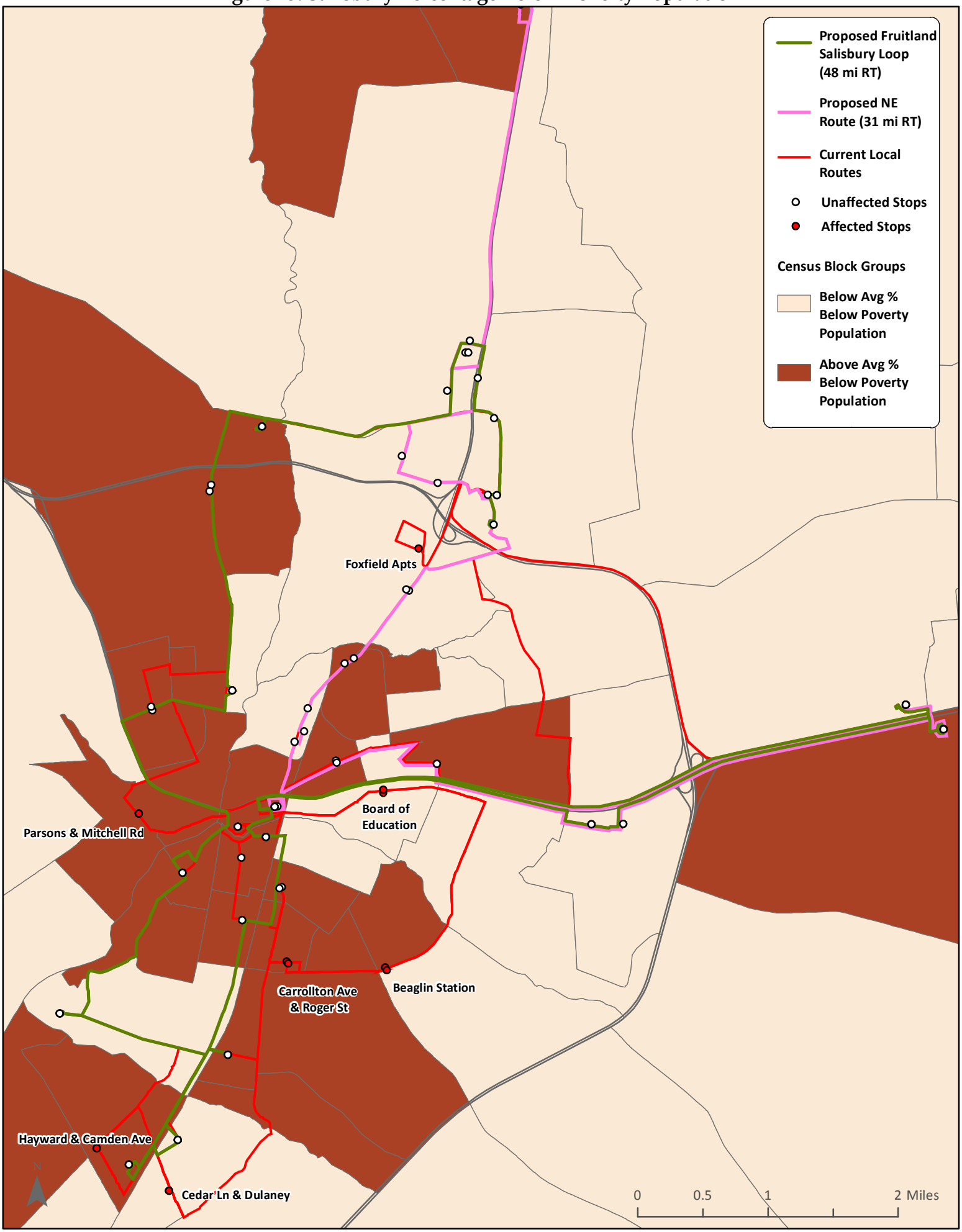
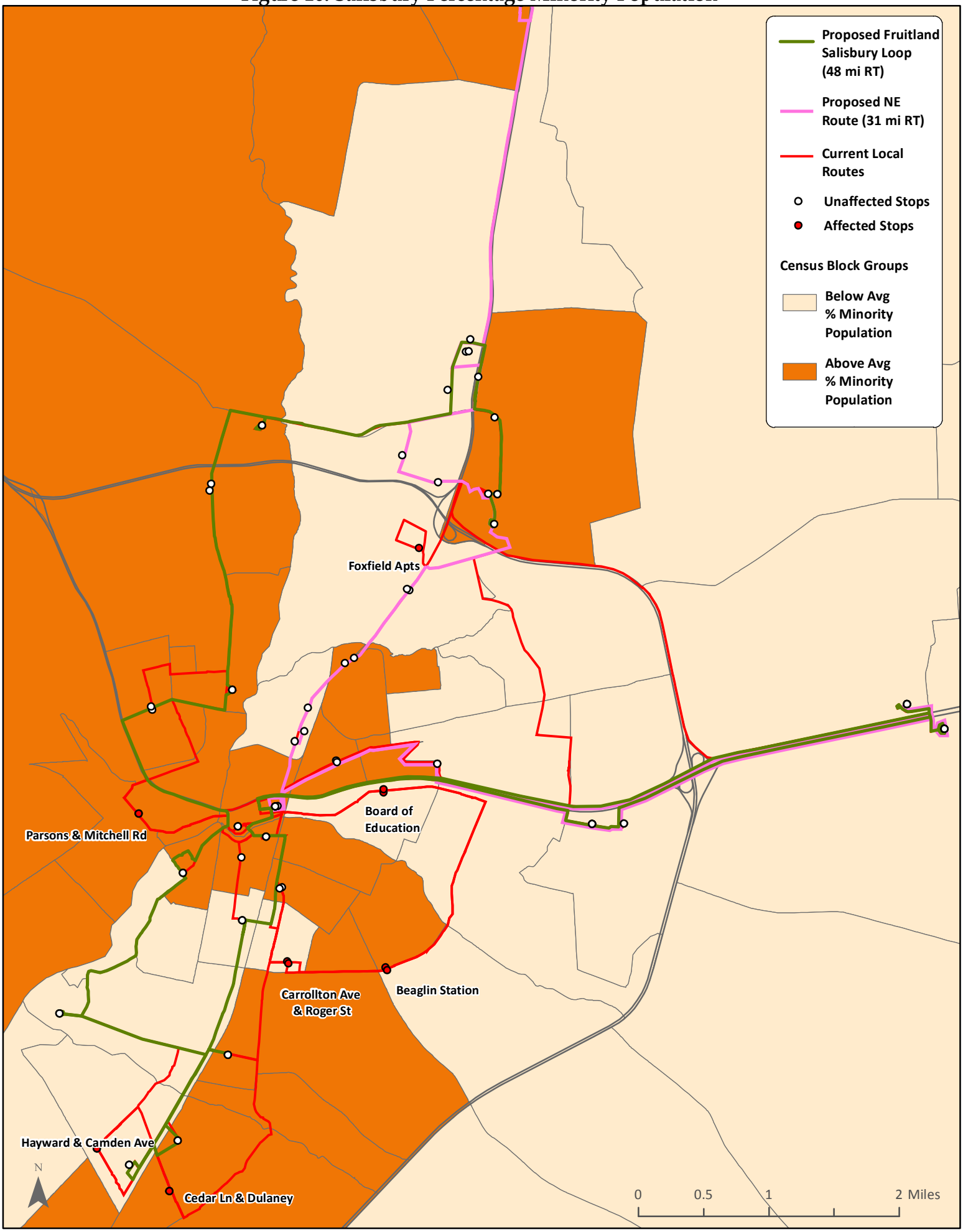


Figure 16: Salisbury Percentage Minority Population



It is not feasible for the following routes to use the new transfer facility (without significant service disruption):

- Route 111S
- Route 701N
- Route 701S (not really applicable, as this route does not come to Salisbury)
- Route 703

For these routes it is proposed that there continue to be a transfer opportunity on Calvert Street so that the north-south regional routes can connect with the Salisbury local route(s), Route 111N, and Route 431/451. The transfer function on Calvert Street will be scaled back to offer a simple transfer from one route to another, rather than serving as a place for driver breaks and idling in between runs. It is anticipated that no more than three vehicles will be there at any one time. The local routes and the Route 111N will need to be timed such that meaningful connections with the Route 111S are possible.

Downtown Transit-Oriented Design Concepts

While the major transfer point and layover location will no longer be located in downtown Salisbury, there still will be a significant level of transit service downtown, and, as discussed above, the need for a smaller-scale transfer opportunity. It is unlikely that densities and transit investments in downtown Salisbury would be able to support the traditional Transit Oriented Development (TOD) concept where development occurs around, and as a result of, transit facilities and services.[3] However, the concept of Transit Oriented Design, which considers the need to accommodate transit during the site design stage, is appropriate. Encouraging transit use is important to ensuring mobility of residents as well as one tool that can be used to combat sprawl. Transit Oriented Design can lead to developments that could eventually support the provision of effective local and regional transit services. For example, as the site of the current downtown transfer/layover is re-developed, the City could require developer permits to allow public transit access to the site.

Prioritizing Convenience for the Route 111N

The proposed recommendations include a basic trade-off of conveniences that Shore Transit will have to consider. We have suggested lengthening the headway of the

[3]TODs typically have land use density sufficient to support transit services, mixed land uses, and pedestrian- and bike-oriented designs that encourage walking and biking, less auto ownership and less auto mode share, and proximity of destinations such as retail, employment, and residential areas to transit stations/services.

Route 111N so that it can travel to the new transfer center. This is convenient in some regards, but provides less frequent service and eliminates the current through-routing with the Route 111S. If the Route 111N does not travel to the new transfer center, it is possible to maintain 60 minute headways and keep the through-routing arrangement. However, passengers may need to transfer more than they do now and there will not be layover opportunities for the 111N at the new transfer center.

If additional resources were to become available, it is suggested that a second bus be added to the 111N so that it can travel to the new transfer center and also offer 60-minute headways.

Fewer Service Changes

While not always possible in these economic times, as a rule of thumb, most transit agencies test a new service for 18 months before making major changes. Minor stop changes and timing updates may occur in the interim, but the basic route and schedule is tested for an 18-month period to give riders time to learn about and use the service. A shorter window does not offer enough time to build ridership on the route. If at all possible, it is suggested that Shore Transit limit its major service changes so that they do not occur more frequently than 18 months, unless there is a compelling financial need to do so. Since the passenger facilities at the new facility are expected to be completed the summer of 2013, any new route changes should be delayed until that date to allow the public to adjust to changes made over the past year or so.

Implementation

Given that there have been several recent service changes associated with the Salisbury area fixed routes, it is recommended that no changes be implemented in the short-term. The new transit transfer facility will not be open for about a year, so it is not urgent to implement the proposed changes imminently. In the meantime, it is recommended that Shore Transit collect and analyze the stop level data for the current routes to ensure that the service changes proposed in this report are consistent with the stop-level data for the current routes.

When the new facility is open, it is recommended that Routes 190/191 and Routes 194/195 be consolidated and streamlined to offer more frequent service and also serve the new transfer center. Shore Transit still will need to decide what the best scenario for the Route 111N should be – understanding the trade-off between frequency and connectivity. If additional funding were to be available, a second bus could be added to the route, which would eliminate the need for this trade-off.

Summary

This study addresses four primary issues: 1) the shifting transfer center location, 2) reduced funding levels, 3) a lack of system stability due to many recent service changes, and 4) low ridership and resulting low performance on related performance measures (cost per trip, trips per hour, trips per mile).

A streamlining of the local Salisbury routes is proposed, including the combining of Route 190/191 and Route 194/195 and the extension of Route 111N to the new transfer center. These adjustments improve the local route frequency from two hours to 90 minutes and will likely increase ridership. However, Shore Transit will have to consider this alternative in light of seven eliminated stops and the longer Route 111N headways. The study also proposes route extensions to serve the new transfer center location. The transfer function at Calvert Street will be scaled back significantly. Finally, the study proposes limiting major service and route name changes in the immediate future in order to build ridership and minimize rider confusion. In addition to addressing the issues above, the proposed changes improve route frequency and productivity while holding operating expenses steady.