KFH GROUP, INC.

STAR Transit

Final Report

FY 2013-FY 2018
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Prepared for:

STAR Transit
and the
Virginia Department of Rail and Public Transportation

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Chapter 1

Overview of Transit System

INTRODUCTION

A Transit Development Plan, often referred to as a TDP, serves as a "road map" for public transportation improvements in a community or service area. The Virginia Department of Rail and Public Transportation (DRPT) requires that any public transit (bus, rail, ferry) operator receiving state funding prepare, adopt, and submit a TDP every six years. The TDP outlines the services that STAR Transit intends to implement during the six-year planning horizon, estimates what resources will be needed, what funding opportunities are likely to be available, and serves as a management and policy document. DRPT has adopted and updated TDP requirements that form the basis of the planning effort.

BACKGROUND

STAR Transit (Shore Transit and Rideshare) serves the Eastern Shore of Virginia, which comprises Accomack and Northampton Counties. Figure 1-1 is a map of both counties. The 70-mile long region is part of the Delmarva Peninsula and is separated from the rest of Virginia by the Chesapeake Bay. Its population was 45,553 as of 2010.[1]

The terrain of Accomack and Northampton Counties is very flat throughout, ranging from sea level to 50 feet above sea level. The rural area has been devoted to cotton, soybean, vegetable and truck farming, and large-scale chicken farms. The land area of the shore includes barrier islands. At the northern end of the Atlantic side is the beach community of Chincoteague. Wallops Flight Facility, a NASA space launch base, is also located at Chincoteague. Tangier Island, off the western shore in the Chesapeake Bay, is another day-tourist destination. The Eastern Shore is geographically removed from the rest of Virginia; the 23-mile long Chesapeake Bay Bridge-Tunnel, which is part of U.S. Route 13, spans the mouth of the Bay and connects the Eastern Shore to South Hampton Roads and the rest of the state.

[1] 2010 United States Census.

Figure 1-1

HISTORY

In 1996, DRPT approved a $150,000 grant for the Accomack-Northampton Transportation District Commission (ANTDC) to initiate a public transportation system. Commencing on October 7, 1996, the Red route operated north to Onley from Cape Charles and the Blue route operated south to Onley from Chincoteague. About six months later, the Yellow route was added, originally traveling north from Cape Charles to major employers along the Shore, along with the Green demand response route, operating between Gargatha and Painter. In March 1998, the Orange route was formed to serve Saxis and Sanford. The Purple route was established in April of 2000 to run opposite of the Red route, southbound from Cape Charles to Onley. Two express routes implemented include the Silver Express to connect with Worcester County Ride at the Maryland line and the Ruby Express, demand response between Machipongo and Painter. A new transit facility opened in Tasley in February of 2009[2]. Most of these routes are still in service, although some have been modified. More details regarding the current STAR Transit routes are detailed in a subsequent section.

Virginia Regional Transit (VRT) commenced management and operation of STAR Transit in January of 2010. VRT conducted a Comprehensive Operational Analysis and redesigned some of the routes. A full-time transit manager was hired in April 2013.

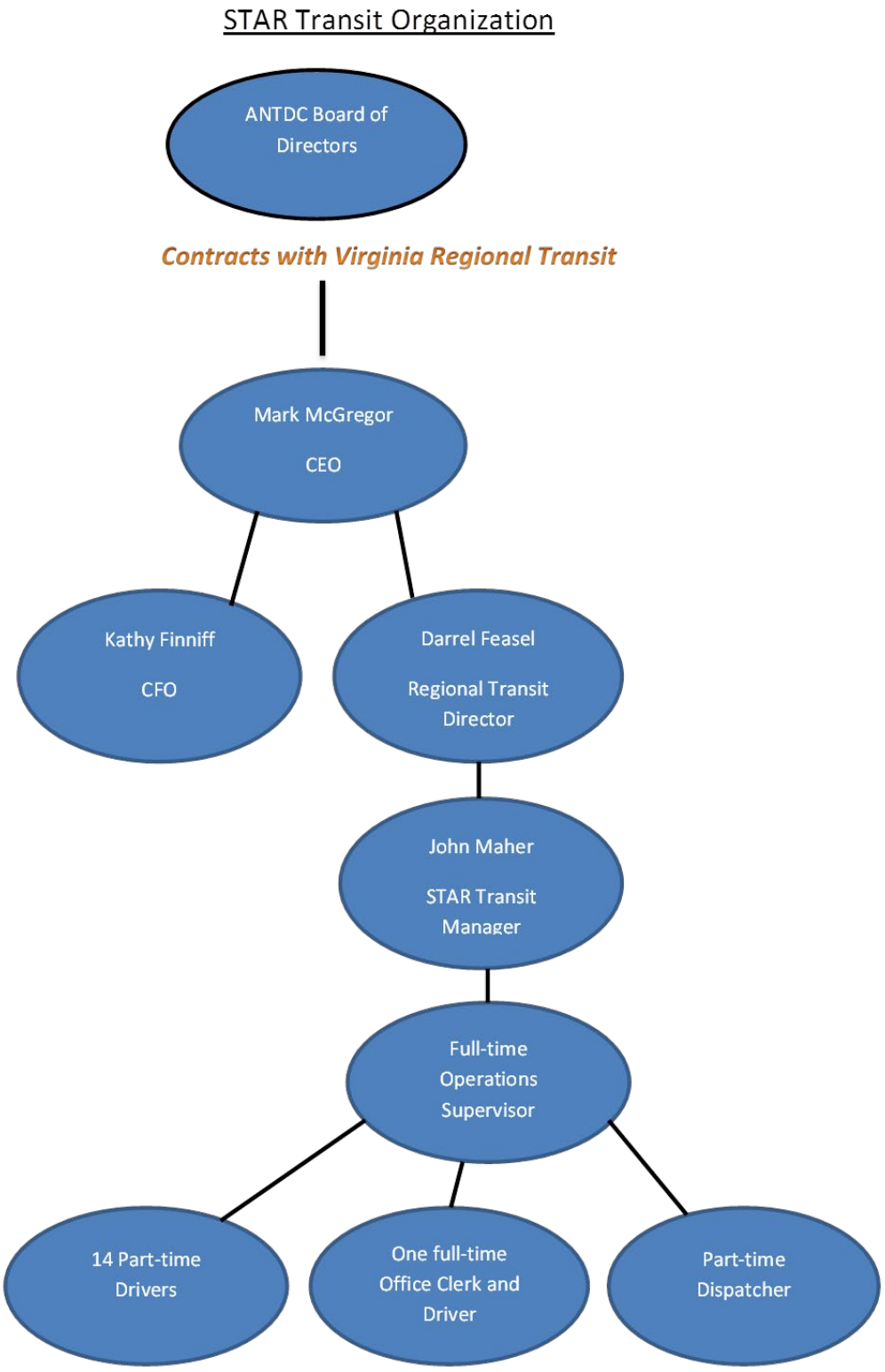
GOVERNANCE AND ORGANIZATIONAL STRUCTURE

The regional transportation governing body for the region is the Accomack-Northampton Transportation District Commission. A subset of the commission is a six member Board of Directors to oversee STAR Transit. Each board member serves at the discretion of the appointing County, with no set term-length. The Virginia Regional Transit (VRT) Chief Executive Officer or Regional Transit Director reports to and communicates with the ANTDC Board of Directors on all matters relating to the operation of Star Transit. The ANTDC Board meets on a monthly basis, with the meeting typically held the first Tuesday of every month at 5:30 p.m. The current Board of Directors includes:

- Oliver H. Bennett, Chairman
- Donald L. Hart, Jr., Vice Chairman
- C. Reneta Major, Secretary-Treasurer
- Willie C. Randall
- Laurence J. Trala
- Ron Wolff

[2] http://www.mystartransit.com/about

Figure 1-2: STAR Transit Organization



The contract to operate and provide management services for STAR Transit was awarded to Virginia Regional Transit (VRT) in January 2010. VRT is, "a not-for-profit 501(c)(3) organization specializing in providing high quality, affordable community transportation service solutions."[3] Figure 1-2 is a visual of the organization and relationship between the Board and VRT. The Memorandum of Agreement between the two parties can be found in Appendix A.

As of October 1, 2013 the Transit Manager is a STAR Transit Employee, previous to then the Transit Manager was a VRT employee. The STAR Transit Manager oversees the day-to-day operations of STAR Transit, and all of the employees under the STAR Transit Manager on the organization chart are employed by STAR Transit. The STAR Transit Dispatcher and Operations Supervisor assign drivers to routes that they are most familiar with and that fit their part time schedules. The STAR Transit office is open from 6:00 a.m. to 6:00 p.m. Monday through Friday in Tasley, Virginia.

TRANSIT SERVICES PROVIDED AND AREAS SERVED

STAR Transit Bus Services

The following public transportation routes are operated in the Eastern Shore service area Monday through Friday. Figure 1-3 is a map of the transit routes and the route schedule. Many of the stops do not show specific time points, are only served part of the day, or are served as deviations, which require a call for pick-up. Qualified ADA passengers may be dropped off at their curbside if it is within ¾ of a mile of a scheduled route. This service requires 24 hours' notice.

Red Northbound: Cape Charles – Onley

The Red Route runs from 6:00 a.m. to 6:15 p.m. The route takes about an hour and 50 minutes from start to finish with an hour and 50 minute headway. This route serves a variety of residential and commercial destinations, as well as the Eastern Shore Community College, Nassawadox Hospital, and the library.

Purple Southbound: Onley – Cape Charles

The Purple Route runs opposite of the Red Route from 6:20 a.m. to 6:05 p.m. Headway ranges from 1 hour and 40 minutes to almost 3 hours. The route takes about 1 hour and 40 minutes from start to finish. This route serves a variety of residential and commercial destinations, as well as the Eastern Shore Community College, Nassawadox Hospital, and the library.

[3] Virginia Regional Transit, "About US" http://www.vatransit.org/

Blue Northbound: Onley – Bloxom

The Blue Route runs from 7:45 a.m. to 5:32 p.m. with a headway of about two hours and 15 minutes. The route takes about an hour from start to finish. This route serves major destinations such as the Accomack Health Department, Social Services, and commercial establishments.

Gold Southbound: Bloxom – Onley

The Gold Route runs opposite of the Blue Route from 6:40 a.m. to 4:24 p.m. Headway is about 2 hours and 10 minutes and the route takes about an hour from start to finish. This route serves major destinations such as the Accomack Health Department, Social Services, and commercial establishments.

Silver Northbound: Onley – Chincoteague

The Silver Route runs from 9:08 a.m. to 6:15 p.m. with headway ranging from two to four hours. The route takes about 1 hour and 20 minutes. An express route is offered, departing the Walmart at 6:45 a.m. and arriving at Chincoteague Town Office at 7:30 a.m. A variety of commercial, residential, and public establishments are served, including Oak Hall Post Office, Food Lion, and the Tasley Food Bank.

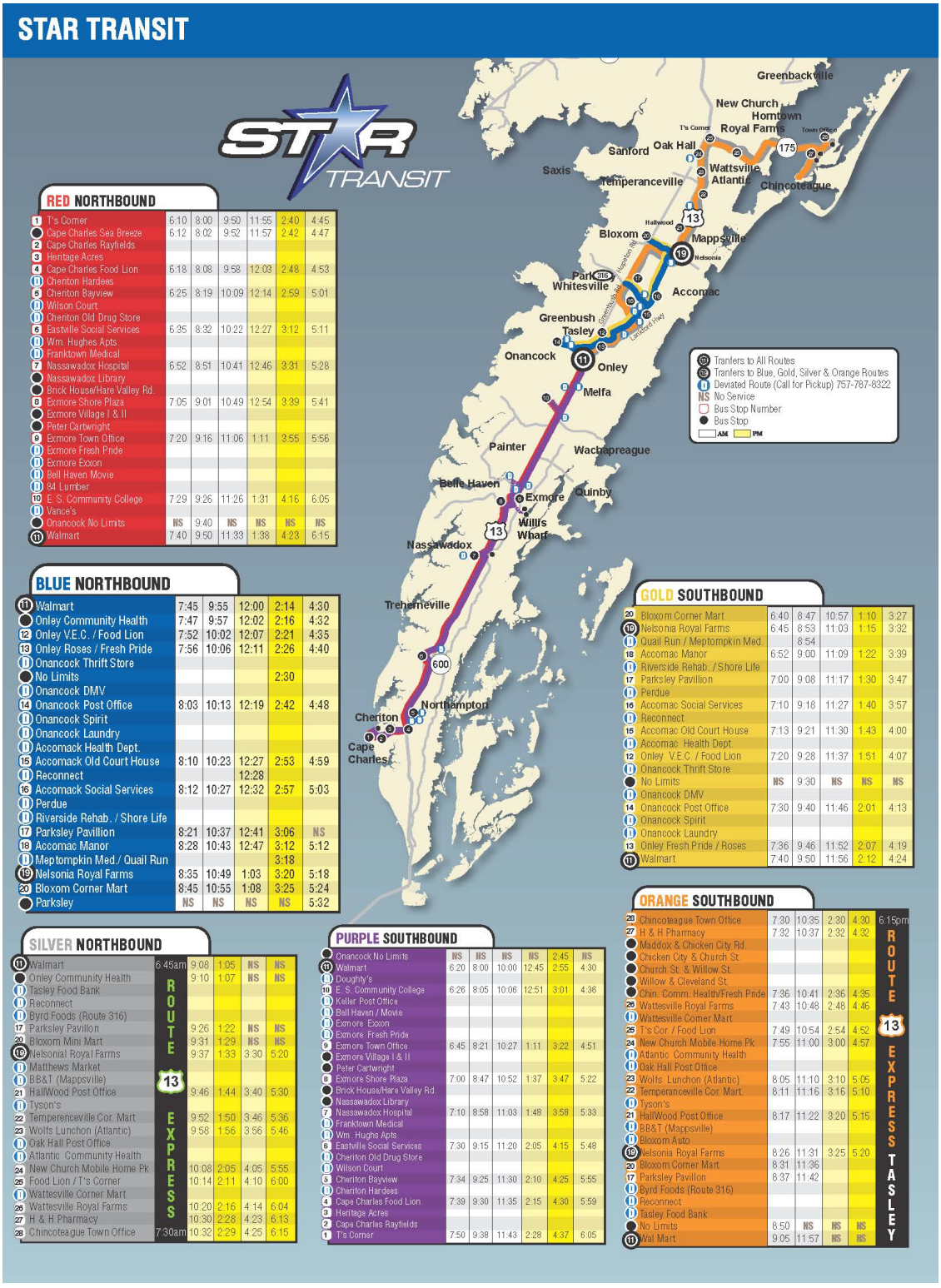
Orange Southbound: Chincoteague – Onley

The Orange Route runs opposite of the Silver Route from 7:30 a.m. to 5:20 p.m. Headway ranges from two to three hours and the route takes about 1 hour and 30 minutes from start to finish. An express route is offered in the evening, departing Chincoteague Town Office at 6:15 p.m. A variety of commercial, residential, and public establishments are served, including Oak Hall Post Office, Food Lion, and the Tasley Food Bank.

Green Demand Response Service

The Green demand response service will pick up or drop off passengers as far north as Metompkin Medical in Gargatha and as far south as Corner Mart in Painter from 7:00 a.m. to 5:00 p.m.

Figure 1-3: STAR Transit Route Map and Schedule



RED NORTHBOUND						
1 T's Corner	6:10	8:00	9:50	11:55	2:40	4:45
Cape Charles Sea Breeze	6:12	8:02	9:52	11:57	2:42	4:47
2 Cape Charles Rayfields						
3 Heritage Acres						
4 Cape Charles Food Lion	6:18	8:08	9:58	12:03	2:48	4:53
D Cheriton Hardees						
5 Cheriton Bayview	6:25	8:19	10:09	12:14	2:59	5:01
D Wilson Court						
D Cheriton Old Drug Store						
6 Eastville Social Services	6:35	8:32	10:22	12:27	3:12	5:11
D Wm. Hughes Apts.						
D Franktown Medical						
7 Nassawadox Hospital	6:52	8:51	10:41	12:46	3:31	5:28
Nassawadox Library						
Brick House/Hare Valley Rd.						
8 Exmore Shore Plaza	7:05	9:01	10:49	12:54	3:39	5:41
Exmore Village I & II						
Peter Cartwright						
9 Exmore Town Office	7:20	9:16	11:06	1:11	3:55	5:56
D Exmore Fresh Pride						
D Exmore Exxon						
D Bell Haven Movie						
D 84 Lumber						
10 E.S. Community College	7:29	9:26	11:26	1:31	4:16	6:05
D Vance's						
Onancock No Limits	NS	9:40	NS	NS	NS	NS
11 Walmart	7:40	9:50	11:33	1:38	4:23	6:15

BLUE NORTHBOUND					
11 Walmart	7:45	9:55	12:00	2:14	4:30
Onley Community Health	7:47	9:57	12:02	2:16	4:32
12 Onley V.E.C. / Food Lion	7:52	10:02	12:07	2:21	4:35
13 Onley Roses / Fresh Pride	7:56	10:06	12:11	2:26	4:40
D Onancock Thrift Store					
No Limits				2:30	
D Onancock DMV					
14 Onancock Post Office	8:03	10:13	12:19	2:42	4:48
D Onancock Spirit					
D Onancock Laundry					
D Accomack Health Dept.					
15 Accomack Old Court House	8:10	10:23	12:27	2:53	4:59
D Reconnect			12:28		
16 Accomack Social Services	8:12	10:27	12:32	2:57	5:03
D Perdue					
D Riverside Rehab. / Shore Life					
17 Parksley Pavillion	8:21	10:37	12:41	3:06	NS
18 Accomac Manor	8:28	10:43	12:47	3:12	5:12
D Meptompkin Med./ Quail Run				3:18	
19 Nelsonia Royal Farms	8:35	10:49	1:03	3:20	5:18
20 Bloxom Corner Mart	8:45	10:55	1:08	3:25	5:24
Parksley	NS	NS	NS	NS	5:32

GOLD SOUTHBOUND					
20 Bloxom Corner Mart	6:40	8:47	10:57	1:10	3:27
19 Nelsonia Royal Farms	6:45	8:53	11:03	1:15	3:32
D Quail Run / Meptompkin Med.		8:54			
18 Accomac Manor	6:52	9:00	11:09	1:22	3:39
D Riverside Rehab. / Shore Life					
17 Parksley Pavillion	7:00	9:08	11:17	1:30	3:47
D Perdue					
16 Accomac Social Services	7:10	9:18	11:27	1:40	3:57
D Reconnect					
15 Accomac Old Court House	7:13	9:21	11:30	1:43	4:00
D Accomac Health Dept.					
12 Onley V.E.C. / Food Lion	7:20	9:28	11:37	1:51	4:07
D Onancock Thrift Store					
No Limits	NS	9:30	NS	NS	NS
D Onancock DMV					
14 Onancock Post Office	7:30	9:40	11:46	2:01	4:13
D Onancock Spirit					
D Onancock Laundry					
13 Onley Fresh Pride / Roses	7:36	9:46	11:52	2:07	4:19
11 Walmart	7:40	9:50	11:56	2:12	4:24

SILVER NORTHBOUND					
11 Walmart	6:45am	9:08	1:05	NS	NS
Onley Community Health		9:10	1:07	NS	NS
D Tasley Food Bank					
D Reconnect					
D Byrd Foods (Route 316)					
17 Parksley Pavillion		9:26	1:22	NS	NS
20 Bloxom Mini Mart		9:31	1:29	NS	NS
19 Nelsonial Royal Farms		9:37	1:33	3:30	5:20
D Matthews Market					
D BB&T (Mappsville)					
21 HallWood Post Office		9:46	1:44	3:40	5:30
D Tyson's					
22 Temperenceville Cor. Mart		9:52	1:50	3:46	5:36
23 Wolfs Lunchon (Atlantic)		9:58	1:56	3:56	5:46
D Oak Hall Post Office					
D Atlantic Community Health					
24 New Church Mobile Home Pk		10:08	2:05	4:05	5:55
25 Food Lion / T's Corner		10:14	2:11	4:10	6:00
D Wattesville Corner Mart					
26 Wattesville Royal Farms		10:20	2:16	4:14	6:04
27 H & H Pharmacy		10:30	2:26	4:23	6:13
28 Chincoteague Town Office	7:30am	10:32	2:29	4:25	6:15

PURPLE SOUTHBOUND						
Onancock No Limits	NS	NS	NS	NS	2:45	NS
11 Walmart	6:20	8:00	10:00	12:45	2:55	4:30
D Doughty's						
10 E.S. Community College	6:26	8:05	10:06	12:51	3:01	4:36
D Keller Post Office						
D Bell Haven / Movie						
D Exmore Exxon						
D Exmore Fresh Pride						
9 Exmore Town Office	6:45	8:21	10:27	1:11	3:22	4:51
Exmore Village I & II						
Peter Cartwright						
8 Exmore Shore Plaza	7:00	8:47	10:52	1:37	3:47	5:22
Brick House/Hare Valley Rd.						
Nassawadox Library						
7 Nassawadox Hospital	7:10	8:58	11:03	1:48	3:58	5:33
D Franktown Medical						
D Wm. Hughs Apts.						
6 Eastville Social Services	7:30	9:15	11:20	2:05	4:15	5:48
D Cheriton Old Drug Store						
D Wilson Court						
5 Cheriton Bayview	7:34	9:25	11:30	2:10	4:25	5:55
D Cheriton Hardees						
4 Cape Charles Food Lion	7:39	9:30	11:35	2:15	4:30	5:59
3 Heritage Acres						
2 Cape Charles Rayfields						
1 T's Corner	7:50	9:38	11:43	2:28	4:37	6:05

ORANGE SOUTHBOUND					
28 Chincoteague Town Office	7:30	10:35	2:30	4:30	6:15pm
27 H & H Pharmacy	7:32	10:37	2:32	4:32	
Maddox & Chicken City Rd.					
Chicken City & Church St.					
Church St. & Willow St.					
Willow & Cleveland St.					
Chin. Comm. Health/Fresh Pride	7:36	10:41	2:36	4:35	
26 Wattesville Royal Farms	7:43	10:48	2:48	4:46	
D Wattesville Corner Mart					
25 T's Cor / Food Lion	7:49	10:54	2:54	4:52	
24 New Church Mobile Home Pk	7:55	11:00	3:00	4:57	
D Atlantic Community Health					
D Oak Hall Post Office					
23 Wolfs Lunchon (Atlantic)	8:05	11:10	3:10	5:05	
22 Temperanceville Cor. Mart	8:11	11:16	3:16	5:10	
D Tyson's					
21 HallWood Post Office	8:17	11:22	3:20	5:15	
D BB&T (Mappsville)					
D Bloxom Auto					
19 Nelsonia Royal Farms	8:26	11:31	3:25	5:20	
20 Bloxom Corner Mart	8:31	11:36			
17 Parksley Pavillon	8:37	11:42			
D Byrd Foods (Route 316)					
D Reconnect					
D Tasley Food Bank					
No Limits	8:50	NS	NS	NS	
11 Wal Mart	9:05	11:57	NS	NS	

FARE STRUCTURE

Exact change is required when depositing the fare. The one way fare is $0.50; however STAR Transit will deviate up to ¾ of a mile from its fixed route to pick up qualified ADA passengers for $1.00. The fare for the Green demand response service is $3.00. Table 1-1 lists all of the fare options for STAR Transit patrons.

Table 1-1: Fare Options for STAR Transit Riders

Type of Fare	Population Served				
	Regular	Green Demand Response	ADA Route Deviation	ESCC Students	Children under 4
One-Way	$0.50	$3.00	$1.00	Free	Free
20-ride punch card	$10.00	$50.00			

A 20 ride punch card can be purchased for $10.00 for all routes, except the Green, where the punch card costs $50.00. Students of the Eastern Shore Community College ride for free with a school identification card.

EXISTING FACILITIES AND FLEET

STAR Transit currently has 8 revenue vehicles and one non-revenue vehicle. All 20-passenger vehicles are used for all routes and no vehicles are designated as spares. Most of STAR Transit's vehicles are stored at the STAR Transit facility in Tasley. One is stored in Eastville and another is sometimes stored in Chincoteague to minimize unnecessary mileage. VRT has a contract with Shore Tire and Auto for vehicle maintenance.

VRT buses are equipped with bicycle racks. An inventory of all VRT vehicles used for STAR Transit is listed in Appendix B.

There are some bus stop signs and a handful of bus shelters throughout the service area, including a bus shelter in the Town of Exmore and another on the Eastern Shore Community College campus. More bus shelters and bus stop signs have recently been ordered. Other improvements to STAR include a raise for drivers after a 4-year stint, uniforms, and advertising on buses.

Transit Facility in Tasley

STAR Transit Vehicle

Bus Shelter in Exmore

SAFETY AND SECURITY

STAR Transit does not have a Safety and Security Plan in place. According to VRT, STAR accident packets and step-by-step procedures for drivers are located on all vehicles. The procedures to be followed include: notifying the dispatcher or operations supervisor on duty to contact police or emergency services if necessary (if this has not yet been done by the driver); the operations supervisor or transit manager go to the scene of the accident; an accident report is submitted to the VRT Director of Fleet Maintenance and Safety within 24 hours; the Transit Manager determines if the accident was preventable and makes recommendations for follow-up action to the Accident Review Committee; and the Accident Review Committee makes a decision with follow-up actions within 30 days of the incident. In addition, VRT has recently instituted a monthly driver-training program.

INTELLIGANT TRANSPORTATION SYSTEMS (ITS) PROGRAM

STAR Transit completed installation of GPS units on the entire fleet of buses which has resulted in the ability to provide real-time data to passengers.[4] The GPS units track mileage, fuel economy, and speed, among other features. A monitor is mounted on the wall in the dispatch office.[5]

STAR Transit uses Verizon "push to talk" cell phones to communicate between transit vehicles and to the dispatch office. Video teleconferencing equipment is located at the STAR Transit facility.

PUBLIC OUTREACH

STAR Transit schedules are posted on VRT's website. In addition, route brochures are given out to various organizations and businesses throughout the Eastern Shore. The STAR Transit Manager meets with various organizations to discuss mobility and the Regional Transit Director and VRT CEO have spoken at a number of public meetings concerning STAR Transit.

[4] Virginia Regional Transit 2011 Annual Report
http://www.vatransit.org/annual%20pdfs/annual2011.pdf
[5] http://www.co.accomack.va.us/home/showdocument?id=1114

OTHER TRANSPORTATION SERVICES

Intercity Bus

Intercity bus service is available in Oak Hall and Exmore at Exxon stations. The Greyhound stop for Oak Hall is located at 6491 Lankford Hwy and for Exmore is at 2668 Lankford Hwy. The Virginia Beach - Norfolk – Philadelphia/New York route serves both stops on the Eastern Shore. Exhibit 1-1 displays the northbound and southbound routes, respectively.

Airports

The Eastern Shore is served by three small airports, Accomack County, Tangier Island, and Campbell Field, located on the Middle and Lower Shores. The closest international airport is Norfolk International.[6]

Ferry

In May through September, the Onancock Ferry transports passengers to Tangier Island for about $30 roundtrip. Charter service is available on the off-season. Other ferries are available to Tangier Island from Crisfield, MD and Reedville, VA.[7]

Amtrak

There are no Amtrak rail stations on the Eastern Shore. The closest station is in Norfolk at Tides' Stadium, served by the Northeast Regional route. The route connects Virginia Beach (by thruway bus) to Boston (MA) via Richmond, Washington D.C., Baltimore (MD), Philadelphia (PA), New York (NY) and New Haven (CT).

Medicaid Transportation

Transportation for Medicaid recipients and some Medicare recipients is arranged by Logisticare for this region of Virginia.

[6] http://www.esvatourism.org/es_services/services_select.asp?cat2ID=44&ref=trans
[7] http://www.esvatourism.org/es_services/services_select.asp?cat2ID=46&ref=trans

Exhibit 1-1: Greyhound Route 420 Timetables

VIRGINIA BEACH - NORFOLK - PHILADELPHIA/NEW YORK
TABLE 420

Carrier	SCHEDULE NUMBER		904	900	908	906
	1-16-13		NOR NYD		NOR NYD	VAB NYD
	FREQUENCY			●57	●57	
GL	**Virginia Beach, VA**	LV				
	Norfolk, VA	AR				
	Norfolk, VA	LV	06:30	13:00	15:15	23:00
	Exmore, VA		07:50		16:35	00:15
	Oak Hall, VA *(T's Corner)*		08:40		17:25	01:05
	Univ of Maryland, MD *(Student Svc Ctr)*		09:25	15:30	18:10 D	01:45
	Salisbury, MD	AR	09:45	15:50	18:30	02:05
	Salisbury, MD	LV	10:00	16:10	18:45	02:15
	Rest Stop					
	Ocean City, MD					
	Rest Stop (Royal Farms, DE)		15"	30"	30"	15"
	Dover, DE		11:35	18:00	20:35	03:50
	Newark, DE (*Univ of Delaware)*		12:20	18:45	21:20	
	Wilmington, DE	AR	12:50	19:15	21:50	04:50
	Wilmington, DE	LV	13:10	19:35	22:00	04:55
	Newark NJ	AR	D 15:20	D 21:45	D	07:10
	Newark NJ	LV	D 15:30	D 21:45	D	07:10
GL	**New York, NY**	AR	16:05	22:20	00:10	07:45

● Will operate Mon Jan 21 instead of Sun Jan 20
Wil operate Mon Feb 18 instead of Sun Feb 17
Will operate Mon May 27 instead of Sun May 26

NEW YORK/PHILADELPHIA - NORFOLK - VIRGINIA BEACH
TABLE 420

Carrier	SCHEDULE NUMBER		903	909	905	901
	1-16-13		NYD NOR	NYD NOR	NYD NOR	NYD NOR
	FREQUENCY			●57		●57
GL	**New York, NY**	LV	08:30	13:30	20:15	22:00
	Newark, NJ	AR	09:00	14:00	20:40	22:30
	Newark, NJ	LV	09:05	14:05	20:45	22:35
	Wilmington, DE	AR	11:20	16:20	23:00 D	00:45
	Wilmington, DE	LV	11:35	16:35	23:15	
	Newark, DE (*Univ of Delaware)*		12:05	17:05		
	Dover, DE		12:50	17:50	00:30 D	01:35
	Rest Stop (Royal Farms DE)		*30"*	*20"*	*15"*	*15"*
	Ocean City, MD					
	Rest Stop					
	Salisbury, MD	AR	14:40	19:30	01:50	03:05
	Salisbury, MD	LV	14:55	19:45	01:50	03:05
	Univ of Maryland, MD *(Student Svc Ctr)*		15:25	20:05	02:10	
	Oak Hall, VA *(T's Corner)*		16:10	20:45 D	02:45	
	Exmore, VA		17:00	21:35	03:30	
	Norfolk, VA	AR	× 18:30	22:50	04:45	05:45
	Norfolk, VA	LV				
GL	**Virginia Beach, VA**	AR				

● Will operate Mon Jan 21 instead of Sun Jan 20
Wil operate Mon Feb 18 instead of Sun Feb 17
Will operate Mon May 27 instead of Sun May 26

Non-Profit and Community Transportation Services

Pony Express

Any individuals can pay $0.25 to ride this fixed route trolley in the Town of Chincoteague from May (weekends only) with daily service running mid-June until November.

Bayview Citizens for Social Justice

Volunteer vehicles are used to transport seniors, individuals earning a low income, and youth to meal programs and activities within Northampton County.

Eastern Shore Area Agency on Aging

Seniors, individuals with disabilities, and individuals earning low incomes can take advantage of door-to-door transportation for meals at senior centers, shopping trips, and programs such as Head Start within Accomack and Northampton Counties.

Eastern Shore Community Services Board

Individuals with developmental disabilities, mental illness, and substance abuse issues can receive door-to-door transportation to and from the facilities in Accomack and Northampton Counties. Trips covered by Medicaid can also be provided.

Chapter 2

Goals, Objectives, and Standards

INTRODUCTION

This section presents the goals and objectives that STAR Transit aims to achieve. It is important that the transit system have specific goals, objectives, and service standards to help guide the system and objectively measure if the system is accomplishing its mission. The mission of STAR Transit is "…to provide safe, reliable, and cost-efficient general public transportation services to the residents of the Eastern Shore."[1] Although STAR Transit does not have an adopted set of goals for their transportation program, presented below are general, but appropriate goals, objectives, and standards for consideration.

GOALS AND OBJECTIVES

Goals and Objectives

Goals provide policy guidance as to how the transit system's mission should be accomplished. Objectives provide more specific and tangible direction as to how transit goals can be met. Securing and maintaining federal and state funding is needed to reach the goals listed below. Goals and objectives for STAR Transit to consider adopting include:

Goal: *Offer convenient access to medical facilities, employment areas, shopping, and community agencies.*

Objectives:

- Provide route deviation fixed-route service to employment opportunities for residents.
- Increase the hours the service operates.
- Examine ways to modify the routes to cover more areas of the Counties.

[1] http://www.mystartransit.com/about

Goal: *Provide adequate mobility options that enable residents to maintain personal independence and be engaged in civic and social life.*

Objectives:

- Examine ways to provide better transportation options for residents which would also benefit tourists.
- Strengthen coordination and explore partnerships between Accomack and Northampton Counties, the Town of Chincoteague, the Planning District Commission, STAR Transit, and private vendors that provide transit service.

Goal: *Manage, maintain, and enhance the existing public transportation system to ensure safe and reliable transportation services.*

Objectives:

- Compile and analyze reference information that can provide objective data for making route changes.
- Continue to maintain the fleet in accordance with the manufacturer's maintenance schedules.
- Replace vehicles and equipment as recommended by DRPT's useful life criteria.
- Monitor system safety and take corrective actions if necessary.
- Provide new and increased marketing of the service.
- Help improve the environment by offering transportation alternatives beyond the automobile.

SERVICE STANDARDS

Service standards are benchmarks by which service performance is evaluated. Service standards are typically developed in several categories of service such as service coverage, passenger convenience, fiscal condition, and passenger comfort. The most effective service standards are straightforward and relatively easy to calculate and understand.

STAR Transit does not currently have adopted service standards. There are several basic service standards that could be used to help evaluate service on a regular basis to ensure that STAR Transit is carrying out its mission in the most effective manner possible. Table 2-1 includes proposed service standards for STAR Transit.

Table 2-1: Suggested Service Standards

Category	Standard

Availability
 	
Service availability is a direct reflection of the level of financial resources available for the transit program. Service coverage, frequency, and span of service are considered under the category of "availability."
 	
Frequency currently ranges from about every 2 to 4 hours.
	Service Coverage:
	• Residential Areas:
	  o Areas with population densities of 2,000 people per sq./mile
	• Major Activity Centers:
	  o Employers or employment concentrations of 200+ employees
	  o Health centers
	  o Middle and high schools
	  o Shopping centers with over 25 stores or 100,000 sq. ft.
	  o Social service/government centers
	Frequency:
	• Reduce headways wherever feasible.

Dependability	95% on-time service (0 to 5 minutes late) -- No trips leaving early
Productivity (Pass./rev. hour)	Review service and consider modifications if productivity falls below the FY11/12 average of 6.02 passenger trips per revenue hour.
Cost Effectiveness (Cost per trip)	Review service and consider modifications if operating costs exceed the FY11/12 average of $7.90 per passenger trip.
Cost Efficiency (Cost per revenue hour)	Review service and consider modifications if operating costs exceed the FY11/12 average of $47.57 per revenue hour.
Bus Stop Signs	Located at scheduled stops and key destinations; include system name, contact information, and route.
Public Information	Timetable, maps, and website maintained and updated as needed to be accurate.
Revenue Equipment	Working heat and air condition; vehicles are clean and in good condition.

In addition to the proposed performance standards presented, it is recommended that STAR Transit develop objectives addressing safety and security. A recommended safety standard could be:

- No fatalities.
- No more than .1 Reportable Incidents per 100,000 vehicle miles[2].

A recommended security standard could call for:

- No security incidents or losses due to vandalism.
- Maintaining a record of incidents, vandalism losses, etc.

PROCESS FOR DEVELOPMENT AND UPDATING GOALS, OBJECTIVES AND SERVICE STANDARDS

These draft goals, objectives, and service standards were developed as a component of the 2013 Transit Development Plan for STAR Transit. The system did not previously have these measurement tools in place. As such, it is recommended that STAR Transit and ANTDC examine these goals, objectives, and service standards on an annual basis to ensure that they are appropriate and keep to what the system is experiencing. STAR Transit can update these measures:

- If additional goals are envisioned,
- If specific goals, objectives, or standards are no longer appropriate, represent under-achievement, or cannot reasonably be attained; or
- To reflect new circumstances.

[2] This standard is based on the national rate as reported in the FTA National Transit Database (NTD) Rural Transit reports. In the NTD, a Reportable Incident is defined as:

A safety or security incident occurring on transit property or otherwise affecting revenue service that results in one or more of the following conditions:
- A fatality confirmed within 30 days of the incident
- An injury requiring immediate medical attention away from the scene for one or more persons
- Property damage equal to or exceeding $25,000
- An evacuation for life safety reasons; or
- A mainline derailment

Currently rural reporting for NTD is done by DRPT, which is why it collects certain data elements from individual rural systems like STAR Transit.

Chapter 3

System Evaluation and Transit Needs Analysis

INTRODUCTION

This chapter of the TDP focuses on two primary analyses – the evaluation of the current service and the transit needs analysis, both of which contribute to the development of service alternatives and improvements. Since one of the key purposes of the TDP is to improve the efficiency and effectiveness of transit services, the system evaluation helps identify areas for improvement in STAR Transit's operational performance and any capital needs. The system evaluation includes a peer review to determine how STAR Transit service has performed in comparison to other transit agencies in the Commonwealth with similar operating characteristics.

The needs analysis provided an important opportunity to engage the community to identify unmet transit needs and issues, which STAR Transit may help address as the system grows. While STAR Transit's ridership growth from 2012 to 2013 was a good indicator of transit need and demand in the community, the TDP analyzes demographic data, input from rider surveys, and related transportation and land use studies to formally identify unmet needs and gaps in transportation services. The analyses described below highlight transit needs and issues in and around the Eastern Shore that will be considered in developing the service alternatives.

SYSTEM EVALUATION

STAR Transit's evaluation was multi-faceted and included an assessment of the current system's performance, relative to performance standards and peer transit systems, an evaluation of transit equipment and facilities, and a review of compliance requirements. This analysis was important to gauge how successful STAR Transit's service has been to date and to identify any areas for improvement that the transit system should address to maintain efficient and effective service.

Evaluation of Existing Service

STAR Transit has been in operation for about 16 years, but as noted previously, VRT took over management of the system in 2010. Performance evaluation for the purpose of this study includes only data from 2010 to present. Table 3-1 provides performance data for FY 2011 through FY 2013 for STAR Transit. Note that the FY 2013 data represents nine months of true data and three months of forecasted data, since the current fiscal year is not yet over. Each forecasted month comprised of the average of the first nine months of FY 2013 data.

Table 3-1: STAR Transit Performance Data and Measures for FY 2011-2013

Performance Data and Measures	FY 2011	FY 2012	FY 2013*
One-Way Passenger Trips	60,401	71,933	82,420
Revenue Hours	10,023	11,958	13,826
Revenue Miles	297,006	332,049	378,356
Operating Expenses	$497,861.64	$543,648.02	$606,033.57
Farebox	$36,823.59	$38,573.83	$40,135.06
Farebox Recovery	7.4%	7.1%	6.6%
Passenger Trips/Revenue Hour	6.03	6.02	5.96
Passenger Trips/Revenue Mile	0.20	0.22	0.22
Operating Cost/Revenue Hour	$49.67	$45.46	$43.83
Operating Cost/Revenue Mile	$1.68	$1.64	$1.60
Operating Cost/Passenger Trip	$8.24	$7.56	$7.35

*The federal FY runs from October 1 through September 30. Since the current FY has not yet concluded, the FY 2013 data represents the first 9 months of the year, October 2012 through June 2013 plus three forecasted months in order to complete the year.
Source: STAR Transit, Virginia Regional Transit

STAR Transit serves towns and areas, most of which have a population of 500 persons or less per square mile. This is lower than the service coverage standard of serving areas with population densities of at least 2,000 persons per square mile; however almost all major destinations are served by the transit service. The number of passenger trips per hour in FY 2013, 5.96, falls below the proposed service standard of 6.02. The cost effectiveness of $7.35 per passenger trip and cost efficiency of $43.83 per revenue hour in FY 2013 has improved from the proposed service standards of $7.90 per trip and $47.57 per hour.

Operating Budget

The expenditures and revenues for STAR Transit are included as part of its annual budget. Table 3-2 provides a summary of STAR Transit's operating revenue since VRT took over management of the system. The numbers below were taken from STAR Transit's budgets approved by DRPT's Rail and Public Transportation Improvement Program. DRPT approved budgets can be found in Appendix C.

Table 3-2: STAR Transit Operating Budgets

Operating Budget	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Fares (Farebox & Other)	$53,925	$40,000	$35,000	$35,000	$28,848
Federal (FTA Section 5311)	$238,645	$183,250	$189,750	$244,479	$288,716
Federal (ARRA FTA Funding)	$48,182	n/a	n/a	n/a	n/a
State (Operating Assistance)	$69,320	$60,467	$77,694	$90,310	$63,367
Local (Local General Funds)	$169,325	$122,783	$112,056	$154,169	$225,350
Total	**$579,397**	**$406,500**	**$414,500**	**$523,958**	**$606,281**

Source: DRPT FY 2010-2014 Rail and Public Transportation Improvement Program

On-Board Rider Surveys

To supplement the review of existing planning documents, this needs analysis included a survey to better understand the travel behavior, level of satisfaction, and motivation behind riders of the transit system. An analysis of the survey results shows real or perceived gaps in the transit system as well as general suggestions from the riders that the agency may take note of to improve quality or increase ridership.

Surveys were distributed on-board the transit vehicles on July 24, 2013. Riders completed a two-page survey, distributed and collected by KFH Group staff. The participants were instructed to only complete one survey. A copy of the survey can be found in Appendix D and the results in Appendix E.

The study team conducted this survey in an effort to gather the opinions of riders of STAR Transit as well as to determine any unmet transit needs their responses may reveal. During the one day of survey distribution and collection, a total of 92 surveys were completed by fixed-route riders.

Trip Patterns of Surveyed Riders

The first part of the survey helped determine the general travel behavior of STAR Transit riders.

- The majority of survey participants, about 70 percent, were riding the Purple and Red routes, which serve Northampton County. This high number of participants

is supported by the count of passengers riding each bus route on that same day. About 70 percent of total passenger boardings occurred on the Red and Purple routes. Passenger counts will be discussed in a subsequent section.

- Over 70 percent of riders did not need to transfer to another bus to complete their trip.
- The most popular destinations were Nassawadox Hospital and Cape Charles at 13.6 percent and 10.6 percent respectively. The Walmart was the third most popular destination for 7.6 percent of survey participants. The seemingly low percentage of riders traveling to the Walmart as their final destination was surprising because this is the hub and transfer point for all of the bus routes.
- Over 85 percent of participants paid the one-way $0.50 fare.
- Trips lasted 45 minutes or less for 75 percent of respondents.
- Almost 50 percent of customers who completed the survey were using the bus service to access employment, and another 15 percent for shopping.
- Almost 70 percent of customers reported riding the bus two to ten times a week.

Service Improvements

While the first part of the survey established a sense of rider travel patterns, a few questions that followed and a section for general comments garnered any need for service improvements. The top three service improvements expressed by customers can be viewed in Table 3-3.

- Almost 45 percent of survey participants answered that there are specific destinations that they would like to see served by STAR Transit. The most popular destination suggested was the Tidewater area.

- Many of the general comments were positive, giving praise to STAR Transit. The second most popular comment was the need for weekend service.

Table 3-3: Top Three Service Improvements, Results from Rider Survey

Service Improvement	Percent Response
Weekend service	75.6%
Later evening hours of service	53.8%
Improved on-time performance	34.6%

Rider Satisfaction

The next part of the survey gave an idea of STAR Transit riders' level of satisfaction with the transit service.

- When asked to rate their overall satisfaction with STAR Transit, over 90 percent said they were very satisfied or satisfied. Only 2.5 percent said they were unsatisfied, and no one responded with a very unsatisfied level of satisfaction with the system.

- When asked what they liked most about the bus system, about 39 percent of respondents stated that it was the cheap fares. Almost 30 percent of survey respondents liked least that the bus is often not on time.

Rider Characteristics

The final section of the survey helped determine the demographic makeup of STAR Transit riders:

- Only about 20 percent of respondents answered that they have a car and half of them did not have the car available for this trip.

- More than half of survey participants do not have a driver's license.

- About 70 percent of customers who completed the survey were between the ages of 25 and 64.

- About 43 percent of customers are employed full-time.

- Over 60 percent of customers who reported an annual household income earn less than $15,000, and overall, about 93 percent had an annual household income of less than $35,000.

STAR Transit Ridership – On/Off Counts

This section takes a closer look at existing ridership patterns to identify ways to improve the current routes and potentially add service or amenities to the most popular transit stops. The TDP evaluation of the current service involved conducting passenger on/off counts to help determine riders' travel patterns and needs. The passenger counts were conducted by KFH Group staff on July 24, 2013. The counts included data from all of the bus runs over the course of one day on all six deviated fixed routes.

Total Activity

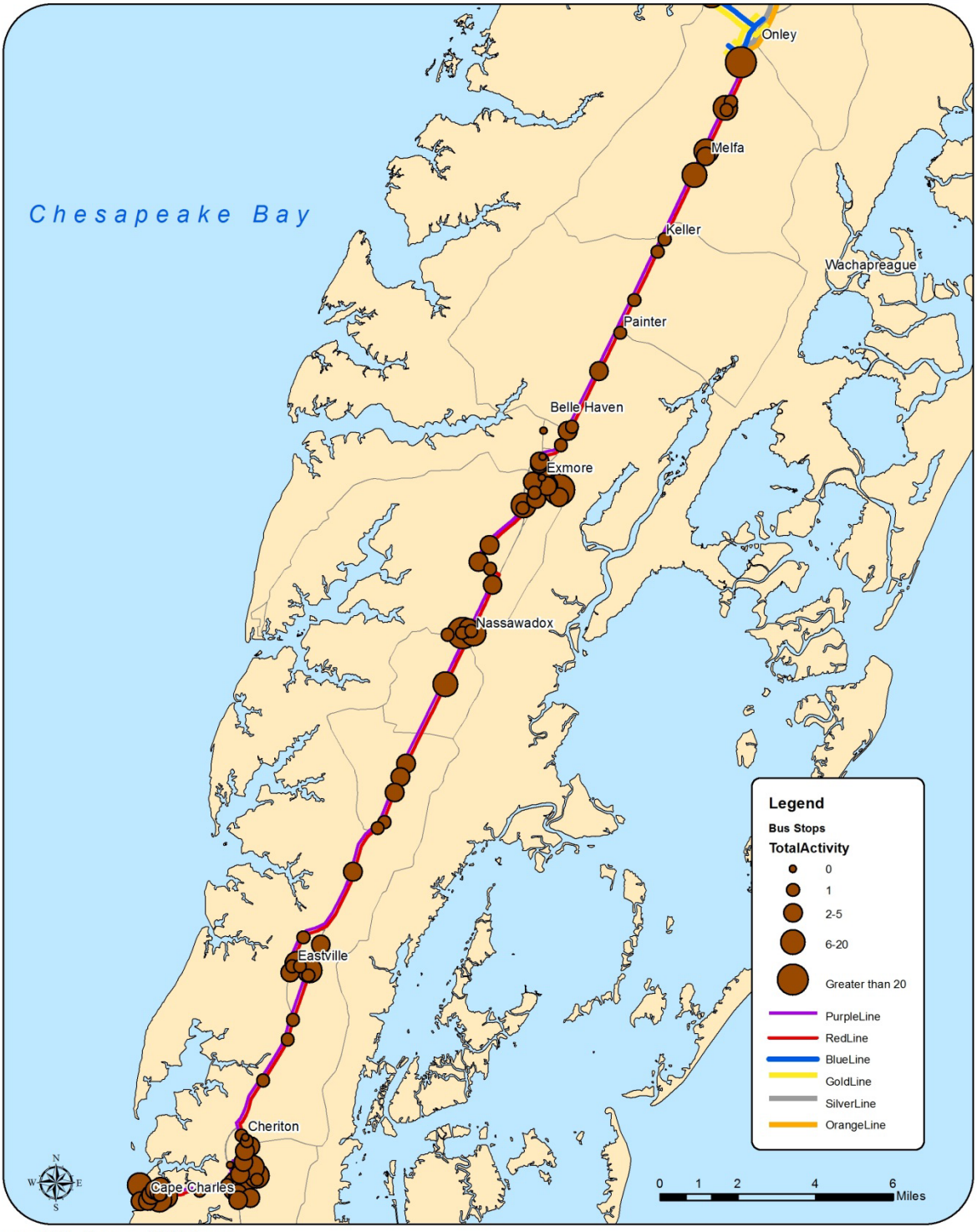
Ridership is measured by the total activity, or the sum of daily boardings and alightings, at a given stop. Passenger boardings and alightings were noted at the bus stops printed on the schedule, referred to as "time points", and at deviation stops that riders requested. Table 3-4 depicts the stops with the highest total activity and Figures 3-1 through 3-3 illustrate total activity for each route pairing of the transit system.

- The Red and Purple Routes had the highest ridership on the day of the passenger counts, recording a total stop activity of 438 passengers (boardings and alightings). The two routes combined total to about 22 revenue hours of service per day. This equates to 19.91 passenger trips per revenue hour, the highest productivity of the three route pairings.
  Figure 3-1 depicts the activity at each stop along the routes. The route is busiest in the towns: Onley, Exmore, Nassawadox, Eastville, Cheriton, and Cape Charles. Specific stops that produced the most activity include the Walmart, Cape Charles Food Lion, Nassawadox Hospital, Exmore Village I & II, and Doughty's.
- The total activity on the Blue and Gold Routes on the day of the passenger counts was 115. Using one bus for both routes, the total revenue hours for the day are about 11. This equates to 10.45 passenger trips per revenue hour.
  Figure 3-2 depicts the activity at each stop along the Blue and Gold routes. The stops with the greatest activity were Nelsonia Royal Farms and Walmart.
- The total activity on the Orange and Silver Routes was 57, the lowest of the three route pairings. With revenue hours totaling 11 hours for the day, the number of passenger trips per revenue hour was 5.18.
  Figure 3-3 depicts the activity at each stop along the Orange and Silver routes. The stops with the greatest activity were Nelsonia Royal Farms and Walmart.

Table 3-4: Results from Passenger Counts, 10 Most Popular Stops

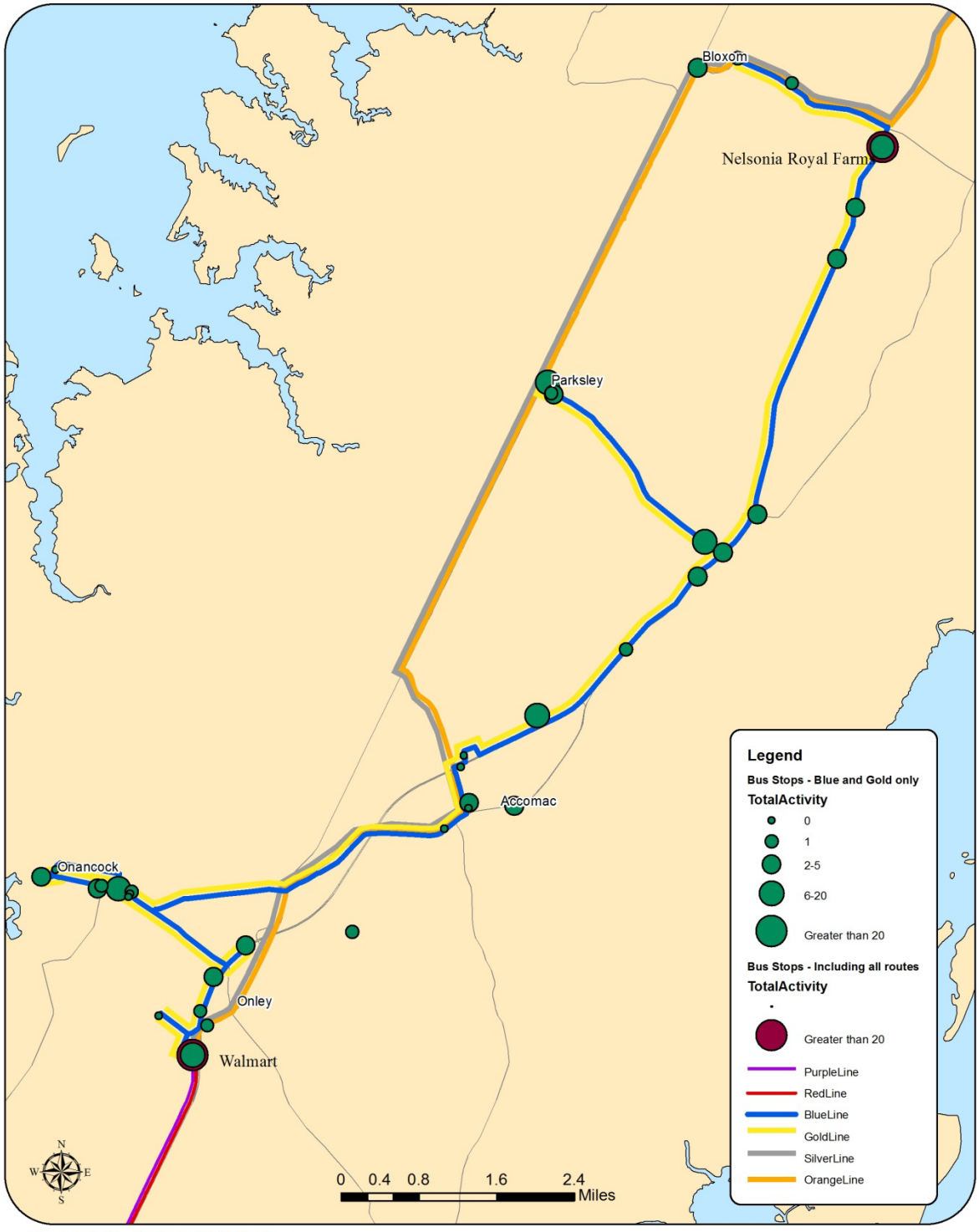
Bus Stops	Total Activity
Walmart *(transfer)*	91
Nassawadox Hospital	38
Nelsonia Royal Farms *(transfer)*	28
Cape Charles Food Lion	23
Exmore Village I & II	22
Culls Woods Apartments	18
Exmore Town Office	16
Parksley Pavilion	15
Heritage Acres	14
Onancock No Limits	14

Figure 3-1: Total Activity on Red and Purple Routes



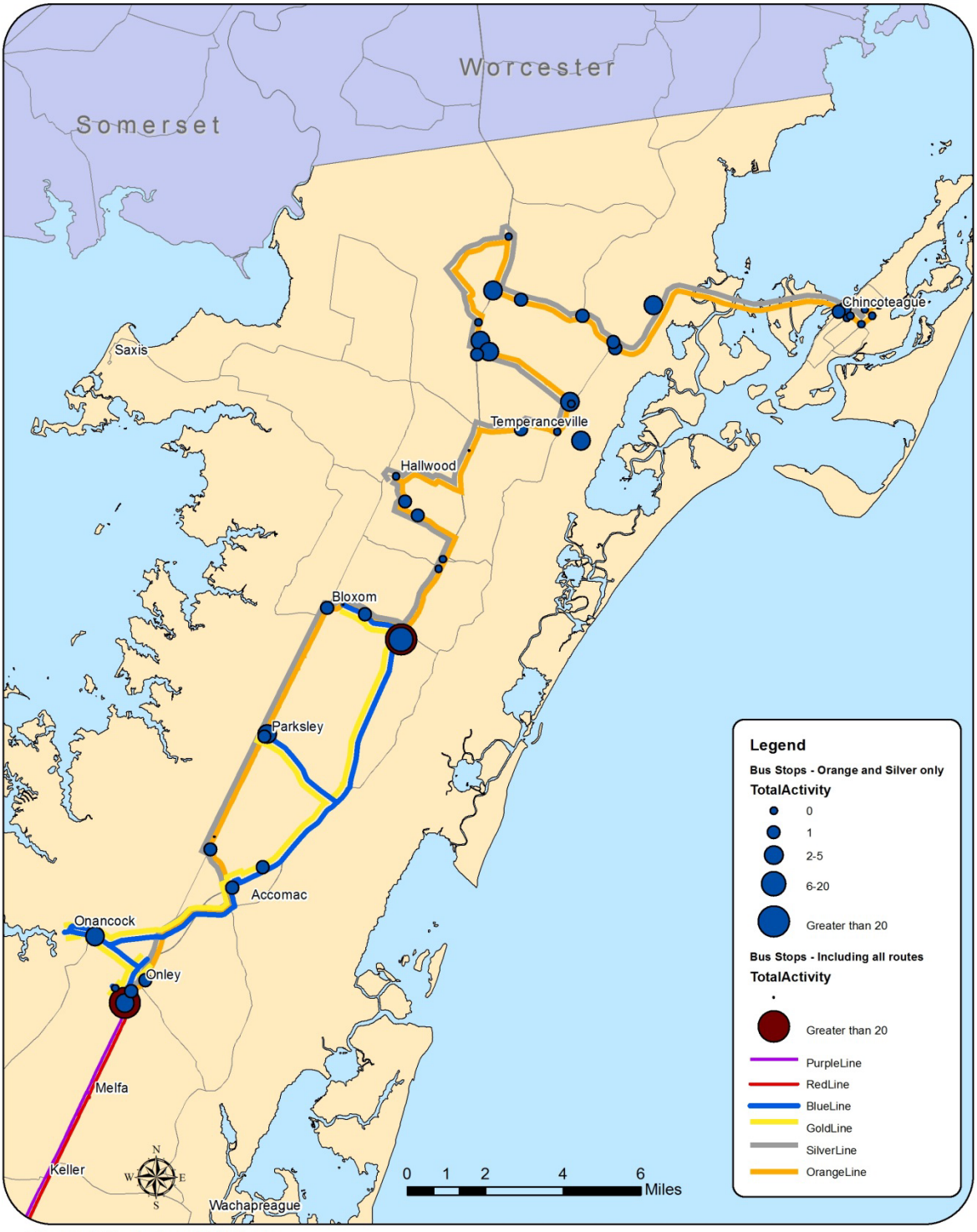
Source: U.S. Census; KFH Group

Figure 3-2: Total Activity on Blue and Gold Routes



Source: U.S. Census; KFH Group

Figure 3-3: Total Activity on Orange and Silver Routes



Source: U.S. Census; KFH Group

Passenger Load

The on/off counts provided the opportunity to determine STAR Transit's current passenger load, which is the number of riders on a single transit vehicle. Passenger load serves as a good indicator of capacity issues.

The sample day of on/off counts indicated that STAR Transit currently has sufficient capacity to meet passenger loads. Drivers indicated that the buses are very crowded on the 1st and 3rd of the month and the Gold/Blue lines are crowded on Thursdays; however, the buses are serving the average capacity of each month.

On-Time Performance

Industry standards consider the bus to be on-time if it arrives within 5 minutes after the time printed on the schedule, and late if it arrives more than 5 minutes after the scheduled time. The bus is considered early if it leaves a stop before the scheduled time. To determine the punctuality of each route, actual times were compared to scheduled times at three points for each run: the route origin, mid-point, and just before the final destination. The trip segments were classified as early, on-time (0-5 minutes late), late (more than 5 minutes late) or very late (greater than 15 minutes late). Table 3-5 displays the on-time performance analysis results.

Table 3-5: Results from Passenger Counts, On-Time Performance

Route	Trip Segments	Early (>0 min. early)	On Time (0-5 min. late)	Late (>5 min. late)	Very late (>15 min. Late)
Purple	15	0.00%	25.00%	25.00%	50.00%
Red	16	0.00%	35.29%	52.94%	11.76%
Blue	12	0.00%	21.43%	42.86%	35.71%
Gold	10	0.00%	21.43%	50.00%	28.57%
Silver	13	0.00%	40.00%	20.00%	40.00%
Orange	17	0.00%	16.67%	25.00%	58.33%

Under the proposed "Dependability" category for service standards, the standard was 95 percent on-time service, with no trips leaving early. It is notable that STAR Transit is unlikely to depart a stop before the scheduled time, based on the on-time performance analysis. However, a large percentage of all of the routes were late or very late, most likely caused by the considerable number of deviations and buses

waiting at transfer points for other late buses. Sufficient buffer time needs to be built into the schedule to account for deviations.

Transit Operator Input

Driver input was solicited as KFH Group rode STAR Transit for the passenger counts. Most driver comments were regarding operations. It was suggested that Hallwood Post Office and New Church Mobile Home Park be transitioned to call-in stops because there is very little to no demand in these communities on a regular basis. Also, Accomack Social Services and Social Security should not be serviced when they are closed. Social Services is open from 8:30a.m. to 5:00p.m. Monday through Friday. The Social Security office is open from 9:00a.m. to 3:00p.m. Monday, Tuesday, Thursday, and Friday and from 9:00 a.m. to 12:00 p.m. on Wednesdays.[1]

Peer Review

While it is most relevant for a transit agency to examine its own performance over time, it is valuable to know the operating statistics for transit programs that could be considered "peers", in terms of size, location, and service area characteristics. The study team used FY 2011 and 2012 data provided by DRPT. The transit systems chosen for this analysis include:

- Blackstone Area Bus,
- Graham Transit; and
- Pulaski Area Transit.

The results of this peer review are presented in Table 3-6. Although STAR Transit is somewhat "peerless" because it runs along a peninsula with one main highway, each of the systems reviewed offer some similarities for analysis purposes.

The review of the peer data in regard to productivity indicates that STAR Transit:

- Has a cost per mile that is almost a dollar less than the peer average. This is impressive as the STAR Transit system covers 70 miles of the Eastern Shore peninsula through two counties.

[1] http://www.virginianavigator.org/vn/home-and-community-based-care-medicaid-waiver-program/accomack-county-department-of-social-services/program-124327.aspx
http://socialsecurityhop.com/offices/social-security-office-accomac-va-23301-virginia

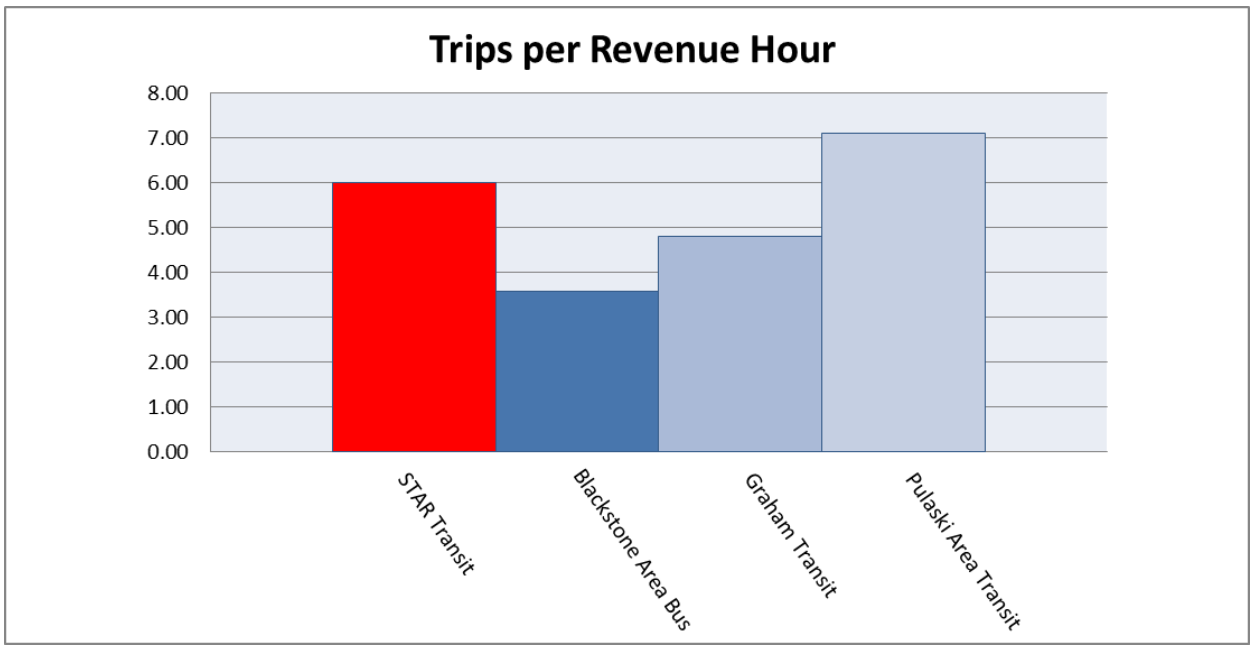
- Has the lowest number of passenger trips per mile, of .22. That is understandable because of the number of miles covered. STAR Transit covers about 80,000 more revenue miles than the peer average.

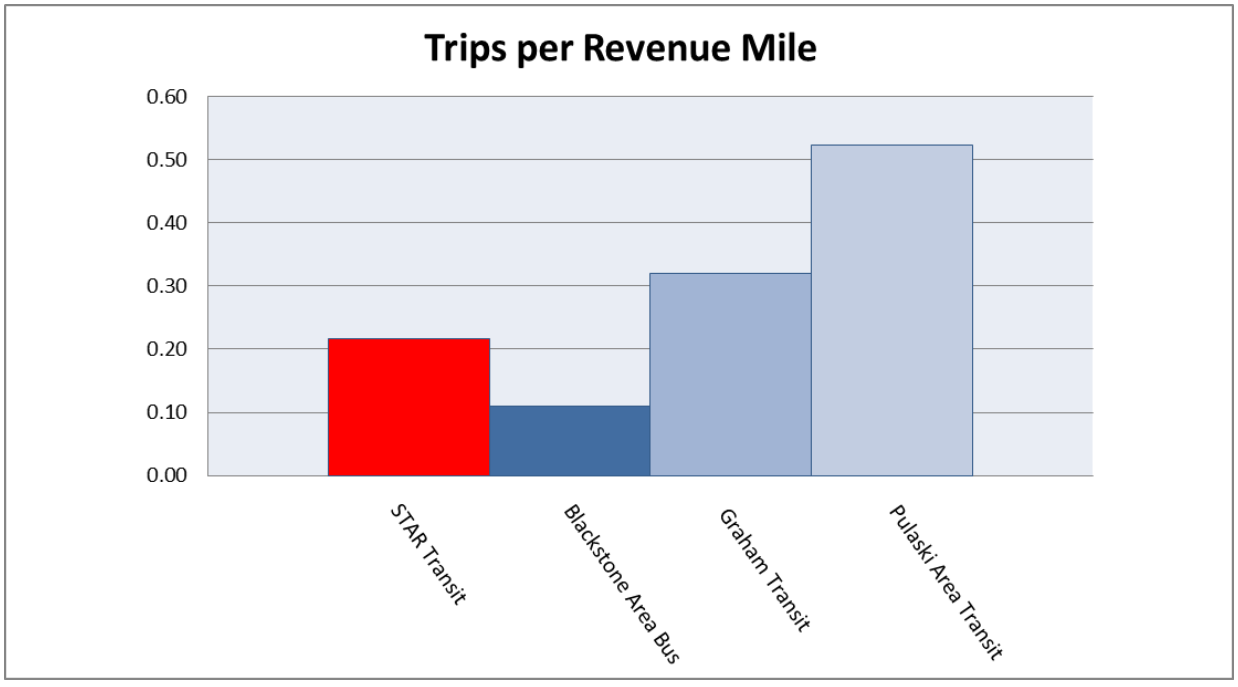
- May need to improve the number of passenger trips per hour. Compared to its peers, STAR Transit has a lower number of passenger trips per revenue hour than three out of five of its peers.

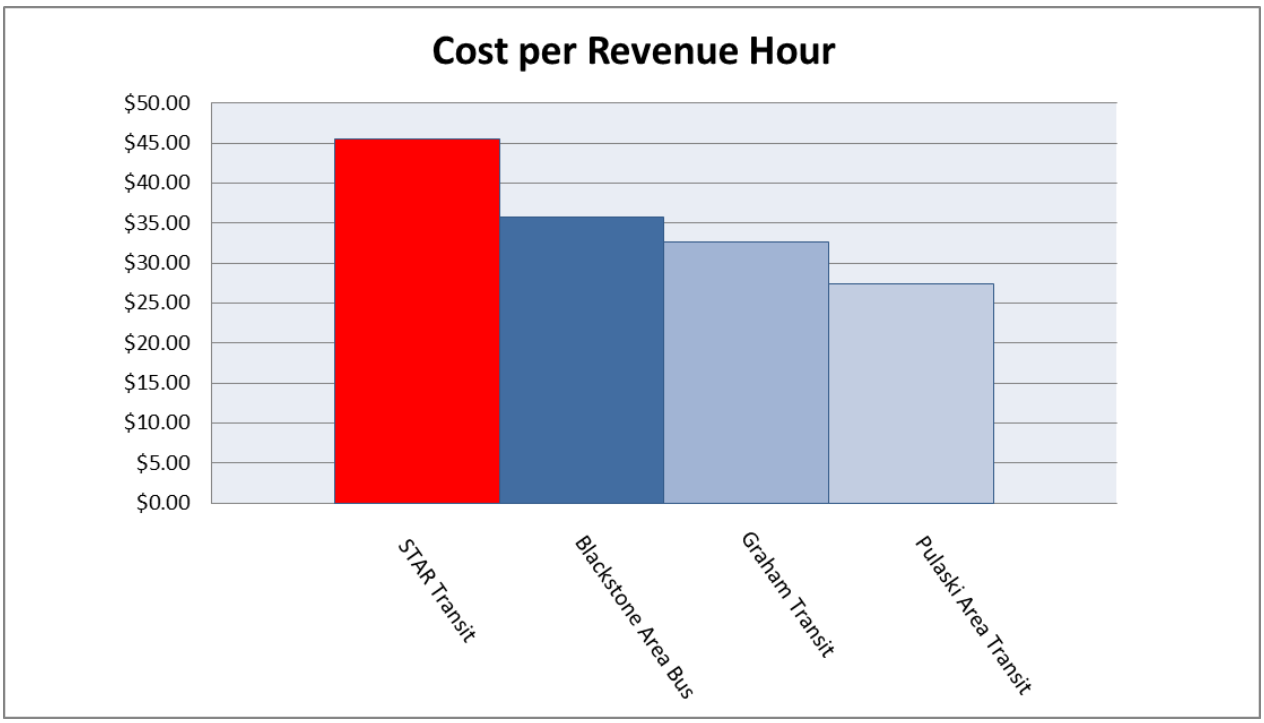
Table 3-6: Peer Comparison

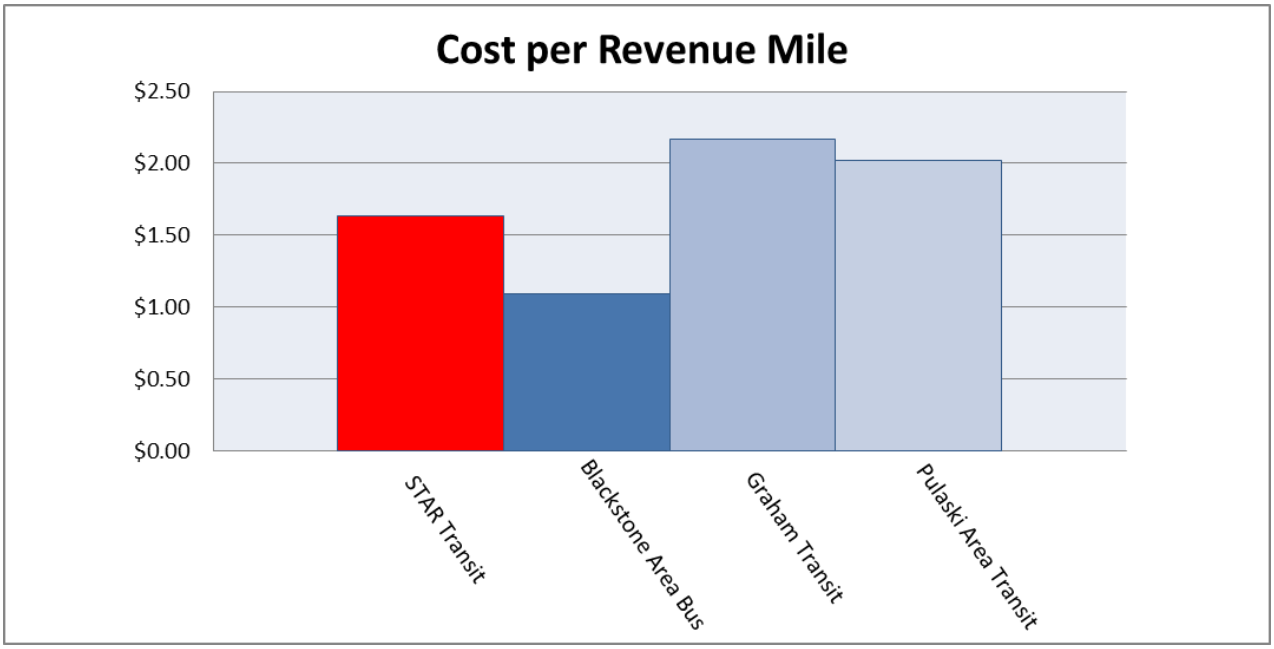
Service Characteristics & Performance Measures	STAR Transit	Peer Average	Blackstone Area Bus	Graham Transit	Pulaski Area Transit
Peak Vehicles	4	n/a	6	3	8
Service Area Population	50,000	n/a	6,000	6,000	49,000
Service Area Pop. Density	20	n/a	911	584	66
Passenger Trips	71,933	**110,977**	45,621	33,304	101,565
Revenue Hours	11,958	**14,019**	12,769	6,920	14,304
Revenue Miles	332,049	**253,492**	417,464	104,200	194,233
Operating Expenses	$543,648	**$517,174**	$456,452	$226,164	$391,794
Passenger Trips/Rev. Hour	6.02	**7.29**	3.57	4.81	7.10
Passenger Trips/Rev. Mile	0.22	**0.51**	0.11	0.32	0.52
Operating Cost/Rev. Hour	$45.46	**$38.32**	$35.75	$32.68	$27.39
Operating Cost/Rev. Mile	$1.64	**$2.58**	$1.09	$2.17	$2.02
Operating Cost/Trip	$7.56	**$5.95**	$10.01	$6.79	$3.86

Data Sources:
DRPT's FY12 Performance Data: Passenger Trips, Revenue Miles & Revenue Hours from:
http://www.drpt.virginia.gov/activities/files/PerformanceData_Transit_2012_TSDAC_FY11_Miles_Hours_Compare.pdf.
Other peer data from: http://www.drpt.virginia.gov/activities/files/111312%20Peer%20Group%20Spreadsheet.xlsx.


Trips per Revenue Hour
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
STAR Transit
Blackstone Area Bus
Graham Transit
Pulaski Area Transit


Trips per Revenue Mile
0.60
0.50
0.40
0.30
0.20
0.10
0.00
STAR Transit
Blackstone Area Bus
Graham Transit
Pulaski Area Transit


Cost per Revenue Hour
$50.00
$45.00
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$0.00
STAR Transit
Blackstone Area Bus
Graham Transit
Pulaski Area Transit


Cost per Revenue Mile
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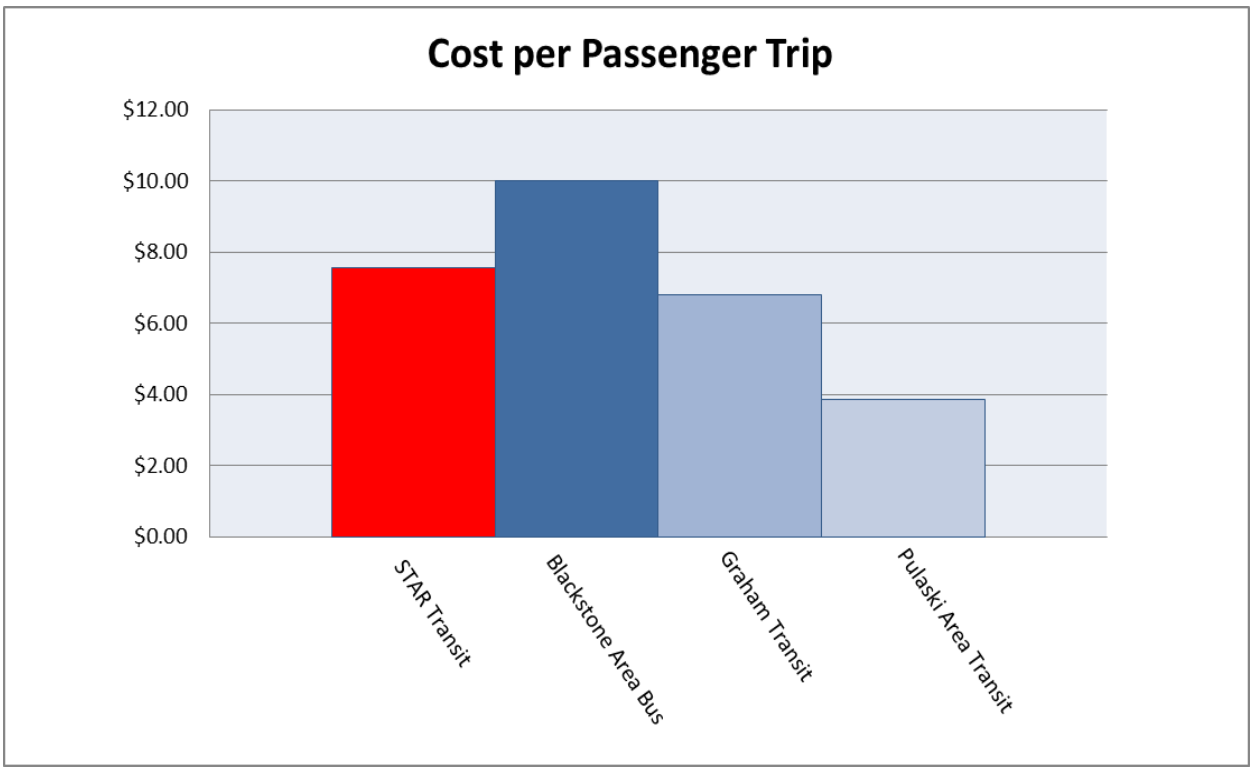
$2.00
$1.50
$1.00
$0.50
$0.00
STAR Transit
Blackstone Area Bus
Graham Transit
Pulaski Area Transit



Evaluation of Equipment and Facilities

Revenue Equipment

STAR Transit's vehicles seem to be in good working condition. One of the buses did not have working air conditioning in the back of the bus on the day of the passenger counts.

Operations Facility

The operations facility in Tasley is well equipped with dispatch, a conference room, a kitchenette, and restrooms.

Passenger Amenities

Bus stop signs and shelters are located sporadically throughout the service area. More bus stops signs are needed and shelters placed at popular stops and transfer points, such as the Walmart and Nelsonia Royal Farms.

Review of Title VI Report

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities that receive financial assistance from the federal government. VRT's Title VI Plan was completed in 2012 and can be found in Appendix F. This plan outlined VRT's policies and procedures to ensure that the transit system does not discriminate on the basis of race, color, or national origin.

Federal Transit Administration Triennial Review

Though STAR Transit receives federal funding, the transit system has not been required to undergo a triennial review by the Federal Transit Administration, which applies to recipients of federal Urbanized Area Formula Program funds only. The STAR Transit service area is not located in an urbanized area.

NEEDS ANALYSIS

Population Characteristics and Trends

While most localities saw their population increase during the decade, the Eastern Shore was one of 30 localities in Virginia that experienced population loss. In fact, Accomack County lost more than 10 percent of its population.[2]

Greater than half of the population of Accomack and Northampton Counties is White. About 78 percent have achieved a high school degree or higher and about 19 percent have achieved a Bachelor's degree or higher, both percentages lower than the State of Virginia. Both Accomack and Northampton have a higher homeownership rate then the state at 74 percent and 69 percent respectively, but a lower median value of owner-occupied units. The percentage of people below poverty in both counties combined is 19 percent, greater than the state percentage of 10.7.

Population Density

Population density is often an effective indicator of the types of public transit services that are most feasible within a study area. While exceptions exist, an area with a density of at least 2,000 persons per square mile will generally be able to sustain frequent, daily fixed-route transit service. Conversely, an area with a population density below this threshold but above 1,000 persons per square mile may be better suited for demand-response or deviated fixed-route services.

[2] The Weldon-Cooper Center for Public Service. www.coopercenter.org.

Figure 3-4 portrays Accomack and Northampton counties' population density by Census block group. No census blocks on the Eastern Shore have a population density greater than 2,000 persons per square mile. Onancock and Chincoteague contain a population density of between 1,001 and 2,000 persons, and pockets of the service area, such as Cape Charles, Exmore, Onley, and Parksley have a population density between 101 and 500 persons per square mile.

Methodology for Transit Dependence Index

The Transit Dependence Index (TDI) is an aggregate measure that may be used to effectively display relative concentrations of transit dependent populations within a study area. The framework for the TDI is based on the findings of a 2004 National Cooperative Highway Research Program (NCHRP) report that examined the process of assessing environmental justice persons and, subsequently, produced an index to locate concentrations of minority and low-income populations. The NCHRP report introduced the Environmental Justice Index (EJI), which the report's authors stated may be modified to include additional protected population factors.[3]

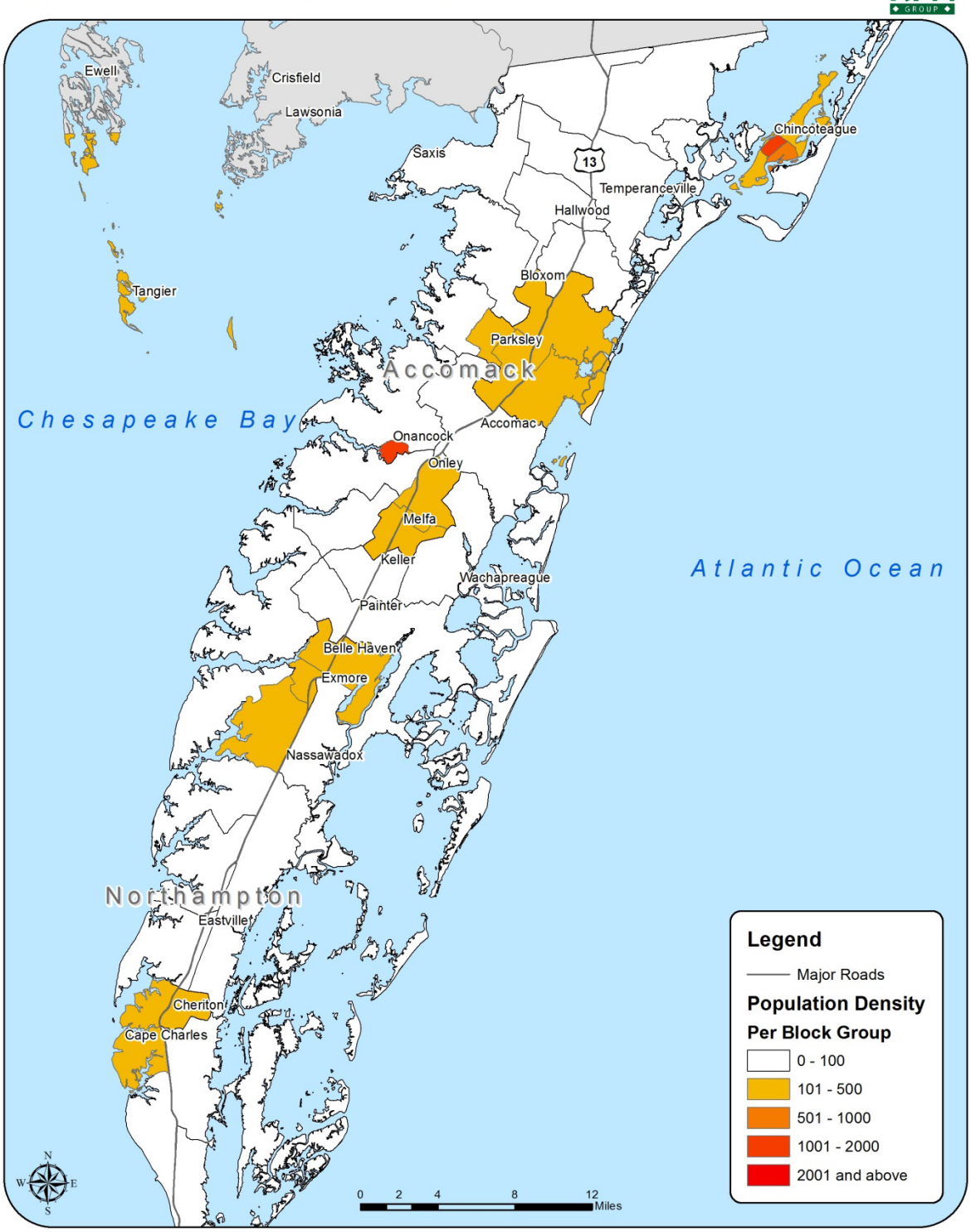
Population Groups

The demographic analysis examines five potentially transit-dependent population segments:

- ***Older Adults*** – Persons ages 65 and above. This group may include those who either choose not to drive any longer, have previously relied on a spouse for mobility, or because of factors associated with age can no longer drive;
- ***Persons with disabilities*** – Persons ages 16 and over who have a disability lasting six months or more that makes leaving the home alone for simple trips such as shopping and medical visits difficult;
- ***Low-income residents*** – Persons living below the poverty level who may not have the economic means to either purchase or maintain a personal vehicle;
- ***Autoless households*** – Number of households without an automobile. One, if not the most, significant factor in determining transit needs is the lack of an available automobile for members of a household to use; and
- ***Youth*** - Persons 10 – 17 years of age. This group may include youth and teenagers who cannot drive or are just starting to drive but do not have an automobile available to them and would appreciate continued mobility.

[3] Forkenbrock, D. and Sheeley, J. 2004. *Effective Methods for Environmental Justice Assessment.* NCHRP Report 532. Transportation Research Board, National Research Council. Washington, DC: National Academy Press.

Figure 3-4: Population Density per Block Group



Source: 2010 U.S. Census, 2007-2011 American Community Survey

Data Sources

The TDI and TDIP utilize data from the American Community Survey (ACS) five-year estimates, which permit an analysis of socioeconomic characteristics at the block group level, in addition to geographic information (e.g., block group boundaries) supplied by the United States Decennial Census. Table 3-7 displays The Data and Corresponding Sources. An exception to the use of ACS five-year estimates for socioeconomic characteristics is made when measuring disabled populations, where an alteration to the question in the ACS made during the latest collection period resulted in a disruption in reporting consistency.[4] Therefore, recent US Decennial Census data is used to calculate ten-year population shifts per block group, with this percent change being factored to the most-recent disabled population data that is available at the block group geography.

Table 3-7: Data Sources

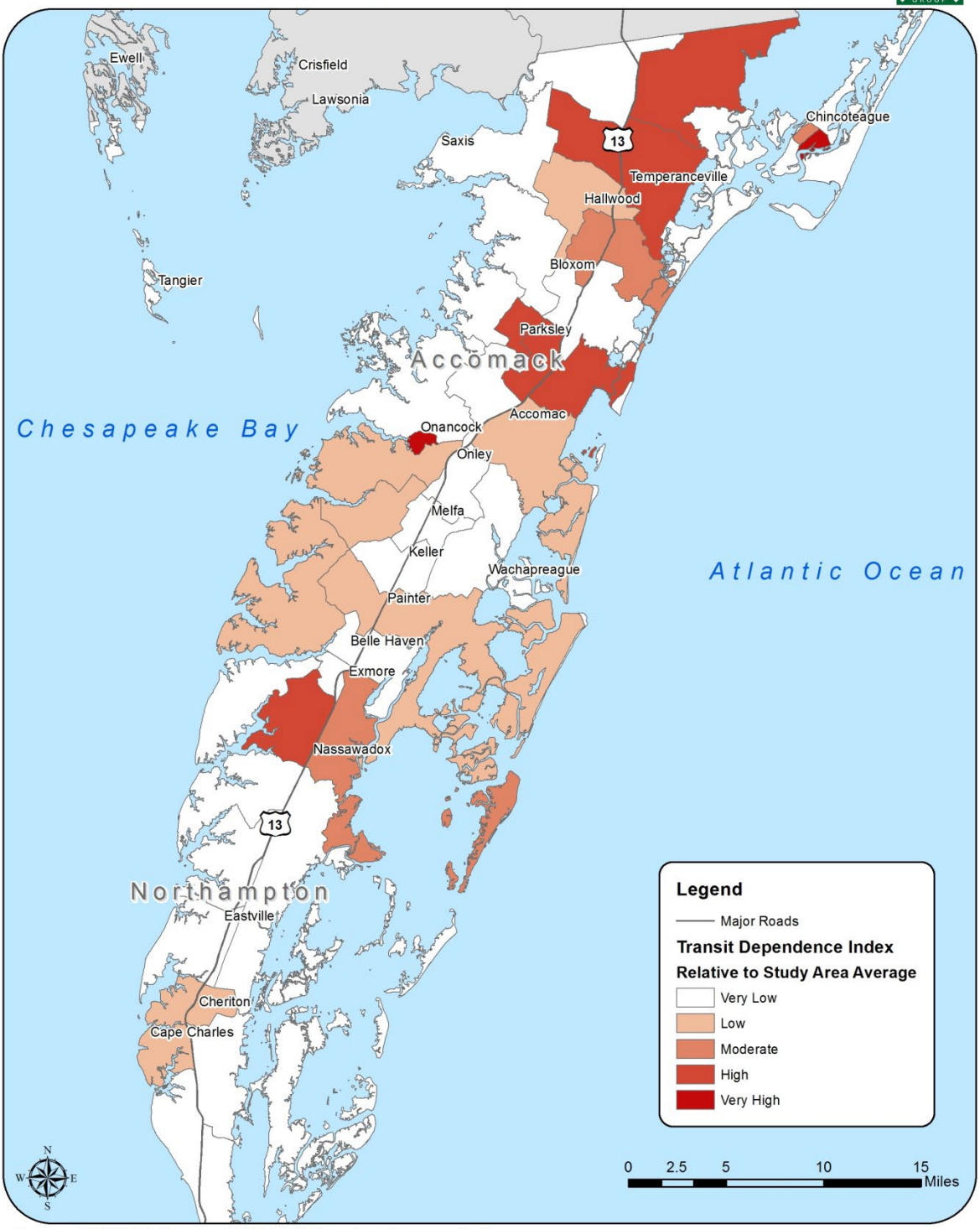
Population Category	Table Source and Number	Table Description
Population Density	ACS - B01003 US Census - AREALAND	Total Population Area in Square Miles (converted from meters)
No Vehicle Household	ACS - B25044	Tenure by Vehicles Available
Older Adult Population	ACS - B01001	Sex by Age (65 years & over)
Youth Population	ACS - B01001	Sex by Age (10 - 17 years)
Disabled Population	US Census - P041012 US Census - P041019	Go-Outside-Home Disability (16 - 64 years) Go-Outside-Home Disability (65 years & over)
Below-Poverty Population	ACS - B17021	Poverty Status of Individuals in the Past 12 Months by Living Arrangement

Transit Dependence Index Formula and Factors

As previously mentioned, the TDI is an aggregate measure which displays relative concentrations of people who may be reliant on public transportation for mobility needs. The formula below outlines the population groups included and how the calculations were completed. Figure 3-5 displays the results of the TDI on the Eastern Shore.

[4] Brault, M., Stern, S., and Raglin, D. 2007. *Evaluation Report Covering Disability*. Available at: http://www.census.gov/acs/www/Downloads/methodology/content_test/P4_Disability.pdf

Figure 3-5: Transit Dependence Index per Block Group



Source: 2010 U.S. Census, 2007-2011 American Community Survey

TDI = PD x [AVNV + AVE + AVY + AVBP], where:

- PD = population per square mile.
- AVNV = amount of vulnerability based on presence of no vehicle households.
- AVE = amount of vulnerability based on presence of older adult population.
- AVY = amount of vulnerability based on presence of youth population.
- AVBP = amount of vulnerability based on presence of below-poverty population.

Transit Dependence Index Percentage Formula and Factors

The Transit Dependence Index Percentage (TDIP) is similar to the TDI in data composition and function. However, slight distinctions exist between the two indices in their factor determination and range in produced scores. The TDIP measures the *degree of vulnerability*, or percentage of vulnerable persons or households per unit of analysis, while the TDI measures the *amount of vulnerability* in comparison to the average of the overall study area. Figure 3-6 displays the results of the TDIP for the shore.

TDIP = [DVNV + DVE + DVY + DVBP], where:

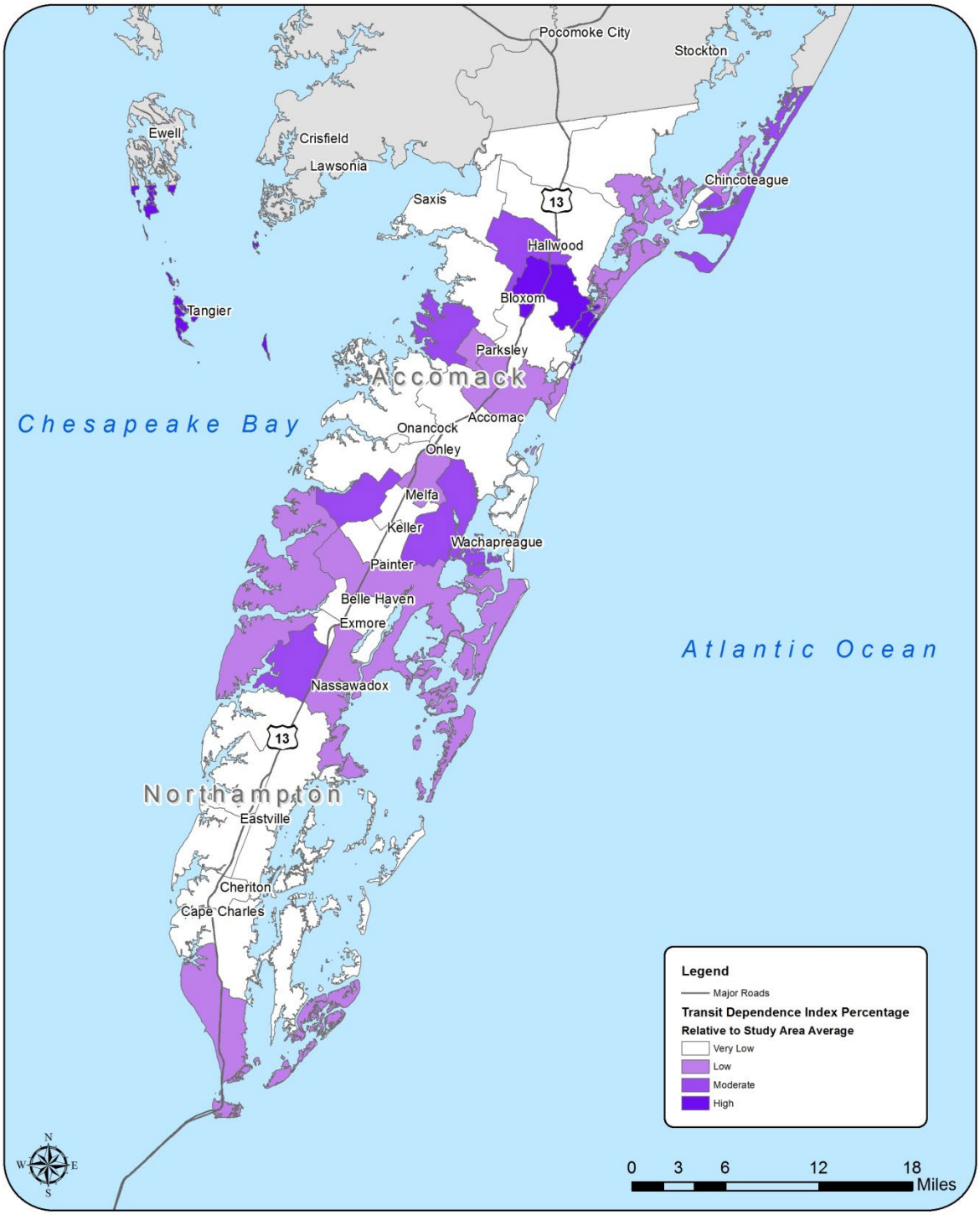
- DVNV = degree of vulnerability based on presence of no vehicle households
- DVE = degree of vulnerability based on presence of older adult population
- DVY = degree of vulnerability based on presence of youth population
- DVBP = degree of vulnerability based on presence of below-poverty population

The aforementioned factors need to be calculated at both the selected geography of analysis (e.g., block group) and the overall study area (e.g., county) for comparison purposes. Each block group is ranked from 1 to 5 based on its relation to the shore's average. Table 3-8 displays the classification used for ranking each block group's transit dependency in the TDI and TDIP.

Table 3-8: TDI and TDIP Ranking Classifications

Number of Vulnerable Persons/Households	AVNV or AVE or AVY or AVD or AVBP Value
< Study Area Average (SAA)	(Very Low) 1
≥ SAA and < 1.33 times the SAA	(Low) 2
≥ 1.33 times the SAA and < 1.67 times the SAA	(Moderate) 3
≥ 1.67 times the SAA and < 2.00 times the SAA	(High) 4
≥ 2.00 times the SAA	(Very High) 5

Figure 3-6: Transit Dependence Index Percentage per Block Group



Source: 2010 U.S. Census, 2007-2011 American Community Survey

Transit Dependent Populations

Autoless Households

Households without at least one personal vehicle are more likely to depend on the mobility offered by public transit than those households with access to a car. Although autoless households are reflected in both the TDI and TDIP measures, displaying this segment of the population separately is important when many land uses are at distances too far for non-motorized travel. Figure 3-7 displays the relative number of autoless households in the study area. All of the block groups in color have a greater amount of autoless households than the average for the service area. The darker the color, the more autoless households can be found there.

Senior Adult Population

A second socioeconomic group analyzed by the TDI and TDIP indices is the senior adult population. Individuals 65 years and older may scale back their use of personal vehicles as they age, leading to greater reliance on public transportation compared to those in other age brackets. Figure 3-8 displays the relative concentration of senior adults in Accomack and Northampton counties.

Low-Income Population

Individuals who earn an income less than the federal poverty level face financial hardships that make the ownership and maintenance of a personal vehicle difficult, and thus they may be more likely to depend on public transportation. Figure 3-9 depicts the percentage of below-poverty individuals per block group.

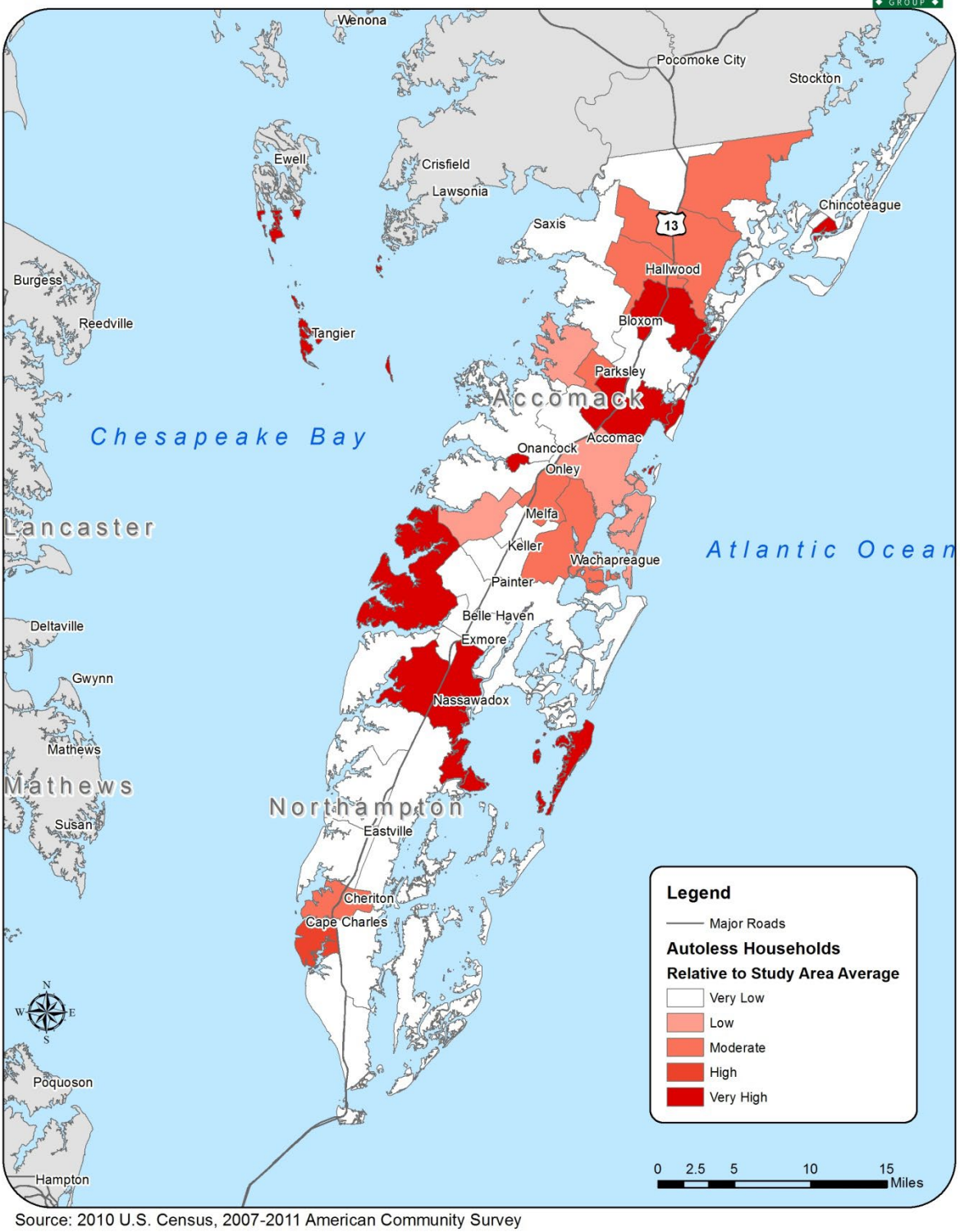
Disabled Population

As mentioned previously, the disabled population was not included in the TDI and TDIP due to a change in the ACS questionnaire. This population group has been mapped separately in Figure 3-10.

Title VI Demographic Analysis

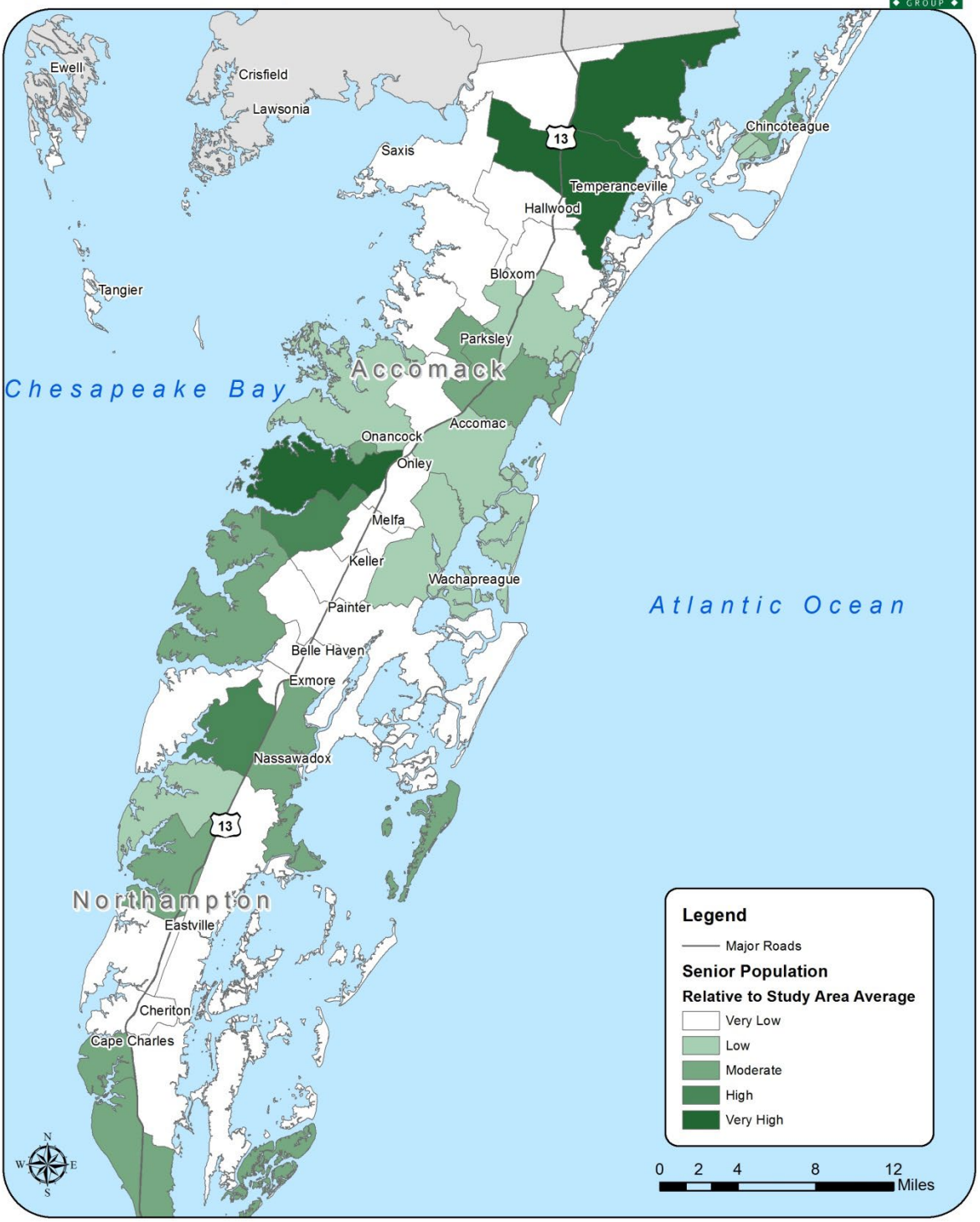
As part of the Civil Rights Act of 1964, Title VI prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal subsidies. This includes agencies providing federally funded public transportation. In accordance with Title VI, the following section examines the minority and below poverty populations of the Eastern Shore. It then summarizes the prevalence of residents with Limited-English Proficiency (LEP).

Figure 3-7: Autoless Households per Block Group



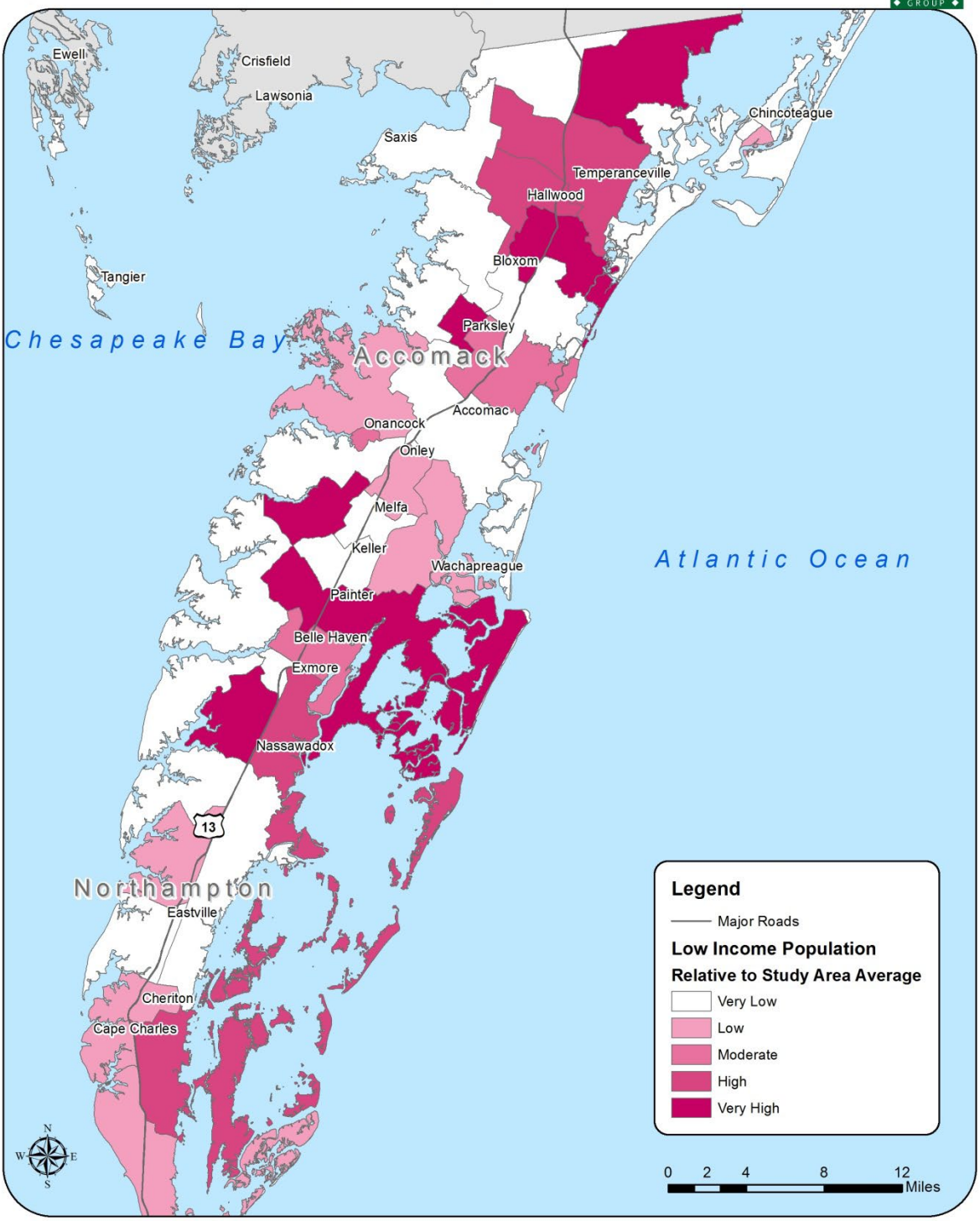
Source: 2010 U.S. Census, 2007-2011 American Community Survey

Figure 3-8: Senior Population per Block Group



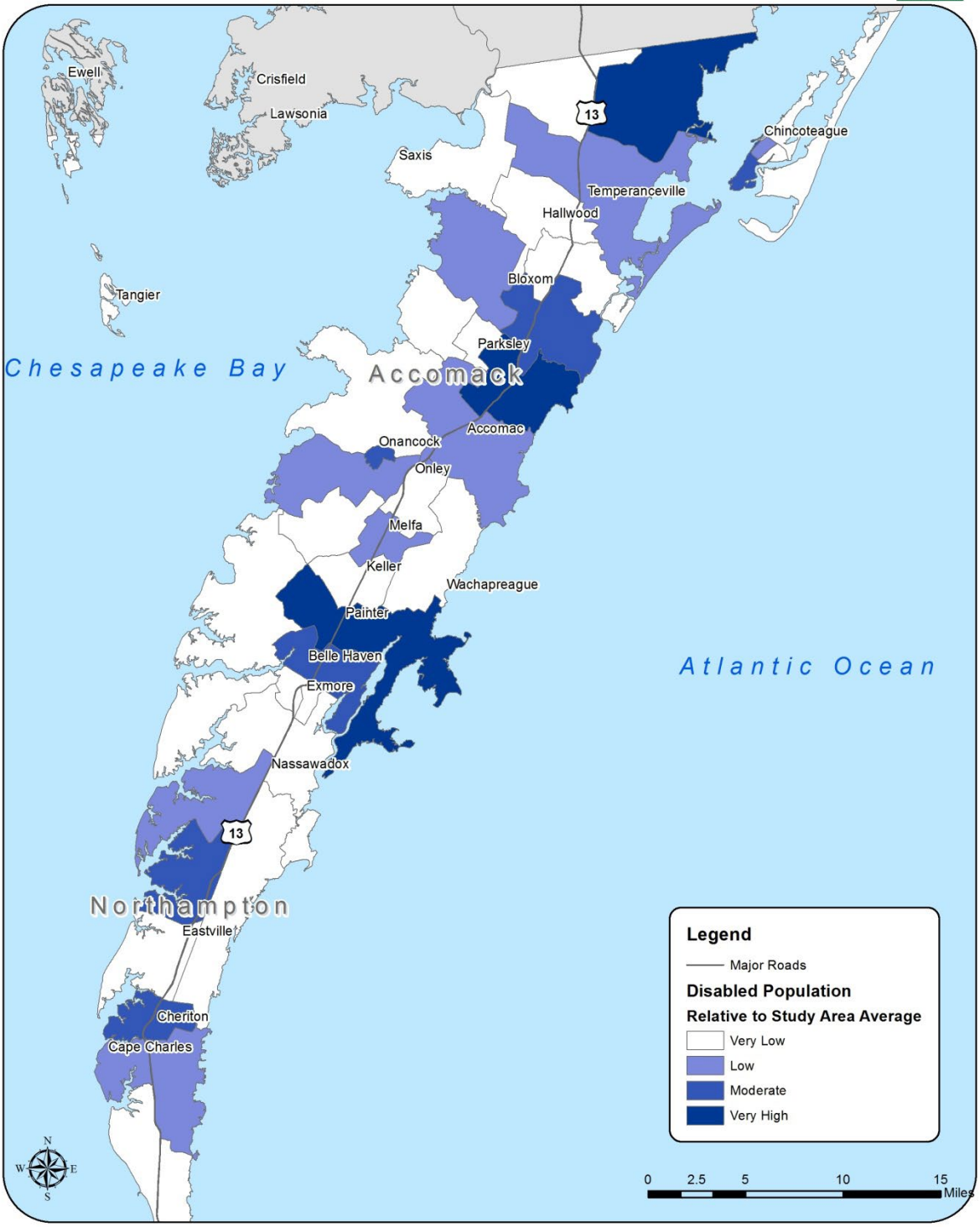
Source: 2010 U.S. Census, 2007-2011 American Community Survey

Figure 3-9: Low Income Population per Block Group



Source: 2010 U.S. Census, 2007-2011 American Community Survey

Figure 3-10: Disabled Population per Block Group



Source: 2000 U.S. Census

Minority Population

It is important to ensure that areas with an above average percentage of racial and/or ethnic minorities are not negativity impacted by any proposed alterations to existing public transportation services. Figure 3-11 depicts the Eastern Shore based on the percentage of minority persons per block group. Out of 45 total block groups, 19 have a minority population above the service area average. These blocks groups cover most of STAR Transit's service area.

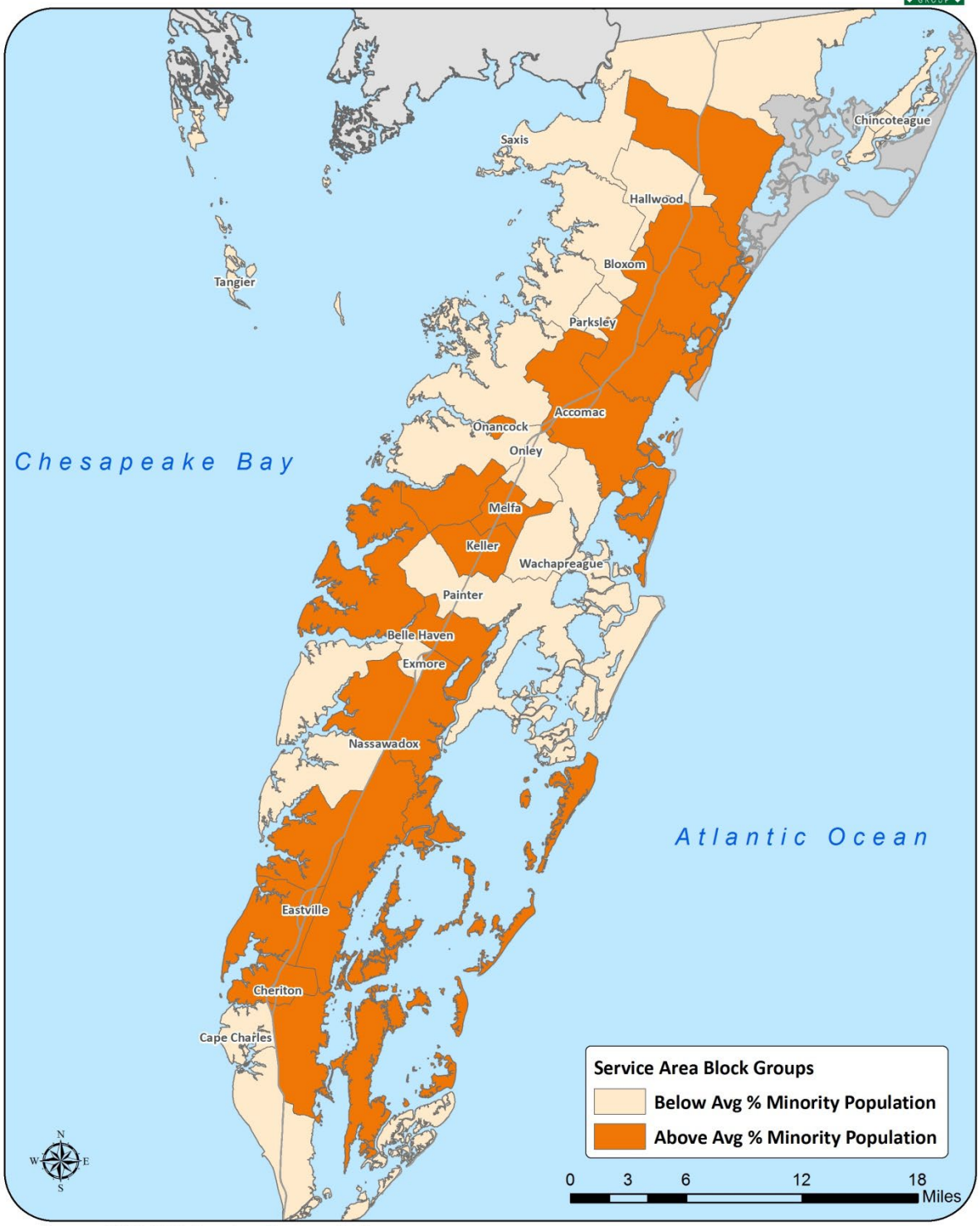
Low-Income Population

The second socioeconomic group included in the Title VI analysis represents those individuals who earn less than the federal poverty level. These individuals face financial hardships that make the ownership and maintenance of a personal vehicle difficult, and thus they may be more likely to depend on public transportation for both mandatory and discretionary trips. It is important to ensure that this population is identified and protected from any injustice that may result from service modifications. Figure 3-12 depicts the percentage of below poverty individuals per block group on the Eastern Shore. Out of 45 total block groups, 19 have a below poverty population above the service area average. These block groups are scattered throughout the Eastern Shore; a few of which are clustered in areas where STAR Transit does not serve, such as the southern tip of the peninsula and the north western portion, close to the Maryland State line.

In addition to providing public transportation for a diversity of socioeconomic groups, it is also important to serve and disseminate information to those of different linguistic backgrounds. As shown in Table 3-9, the Eastern Shore residents predominately speak English (91.5%). Among the other languages spoken, only Spanish has a percent share greater than one percent.

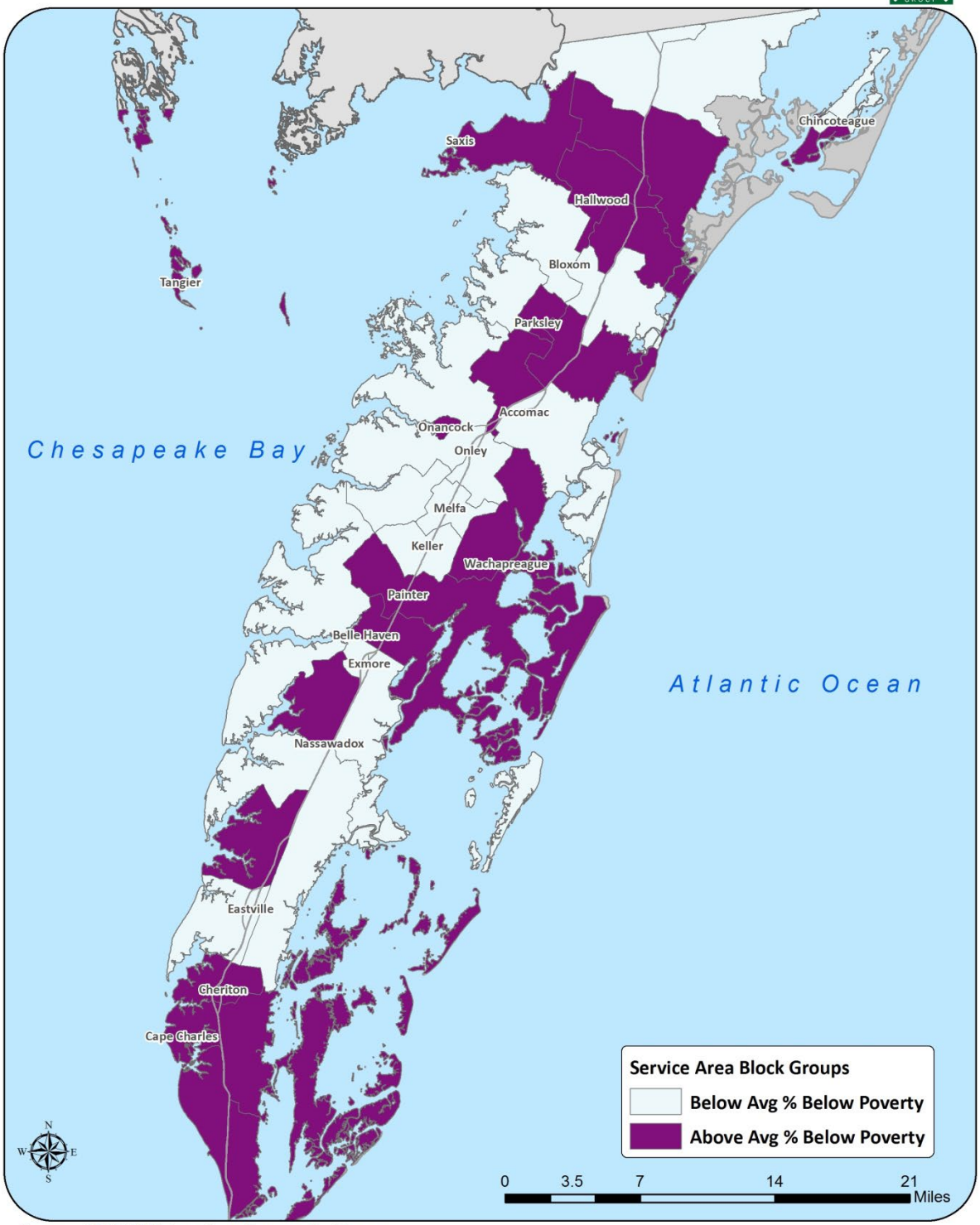
The LEP analysis shows that 3,551 Eastern Shore residents five years and older speak non-English at home (8.16%) and over 60 percent are able to speak English less than "very well".

Figure 3-11: Percentage Minority Population per Block Group



Source: 2006-2010 American Community Survey

Figure 3-12: Percentage Below Poverty Population per Block Group



Source: 2006-2010 American Community Survey

Limited-English Proficiency

Table 3-9: Prevalence of Limited-English Proficiency Persons on the Eastern Shore

Place of Residence	Accomack County		Northampton County		Virginia	
Population Five Years and Older	31,721		11,789		7,419,283	
Language Spoken at Home	Number	Percent	Number	Percent	Number	Percent
a) English (only)	28,861	90.98%	10,948	92.87%	6,352,945	85.63%
b) Spanish	2,299	7.25%	678	5.75%	483,452	6.52%
c) French	214	0.67%	17	0.14%	33,752	0.45%
d) German	68	0.21%	38	0.32%	28,787	0.39%
e) Vietnamese	30	0.09%	21	0.18%	47,221	0.64%
f) Other	181	0.57%	81	0.69%	473,126	6.38%
Speak non-English at Home						
Ability to Speak English--	2,792	8.70%	759	6.40%	1,036,378	14.10%
a) "Very Well"	1,090	39.04%	356	46.90%	620,981	59.92%
b) Less than "Very Well"	1,702	60.96%	453	59.68%	415,397	40.08%

Source: U.S. Census Bureau, 2007-2011 American Community Survey

LAND USE ANALYSIS – KEY TRANSIT DESTINATIONS

Identifying land uses and major trip generators on the Eastern Shore complemented the above demographic analysis by indicating where transit services may be most needed.

Review of Land Use Plans

Accomack County Comprehensive Plan, 2008

The Accomack County Comprehensive Plan thoroughly described the current status of the natural and developed environments, issues and concerns, and recommended actions. Since the plan was adopted in 2008, much of its information will be out of date for consideration by this transit development plan. A few highlights include that agriculture, including poultry operations, is the dominant land use in the County. A large portion of land is also under conservation ownership. Single-family homes are the predominant housing type and mobile homes comprise 25 percent of the housing stock.

Northampton County Comprehensive Plan

Northampton County's Comprehensive Plan includes seven main sections: Land Use, Economic, Housing, Environment and Natural Resources, Community Facilities and Services, and Transportation. Similar to Accomack, Northampton County is very rural in nature and has large portions of land dedicated to agriculture or conservation efforts. Any new development aims to be located in existing communities. A recommended strategy for addressing adequate housing needs includes supporting the expansion of STAR Transit services and other public and private transportation options.

Key Destinations

Major trip generators are those origins from which a concentrated transit demand is typically generated and those destinations to which both transit-dependent persons and choice riders are attracted. They include high density housing locations such as apartments and assisted living facilities, major employers, medical facilities, educational facilities, shopping malls and plazas, grocery stores, public buildings, and human service agencies. The data on major trip generators were collected from county and state websites and through Google Search and Maps.

Figure 3-13 shows the locations of major trip generators throughout the service area. The purpose of this map is to highlight areas that have concentrations of major trip generators, and therefore are good candidates for expanded or new transit services. Appendix G provides the names and addresses for each of these activity centers, organized by type.

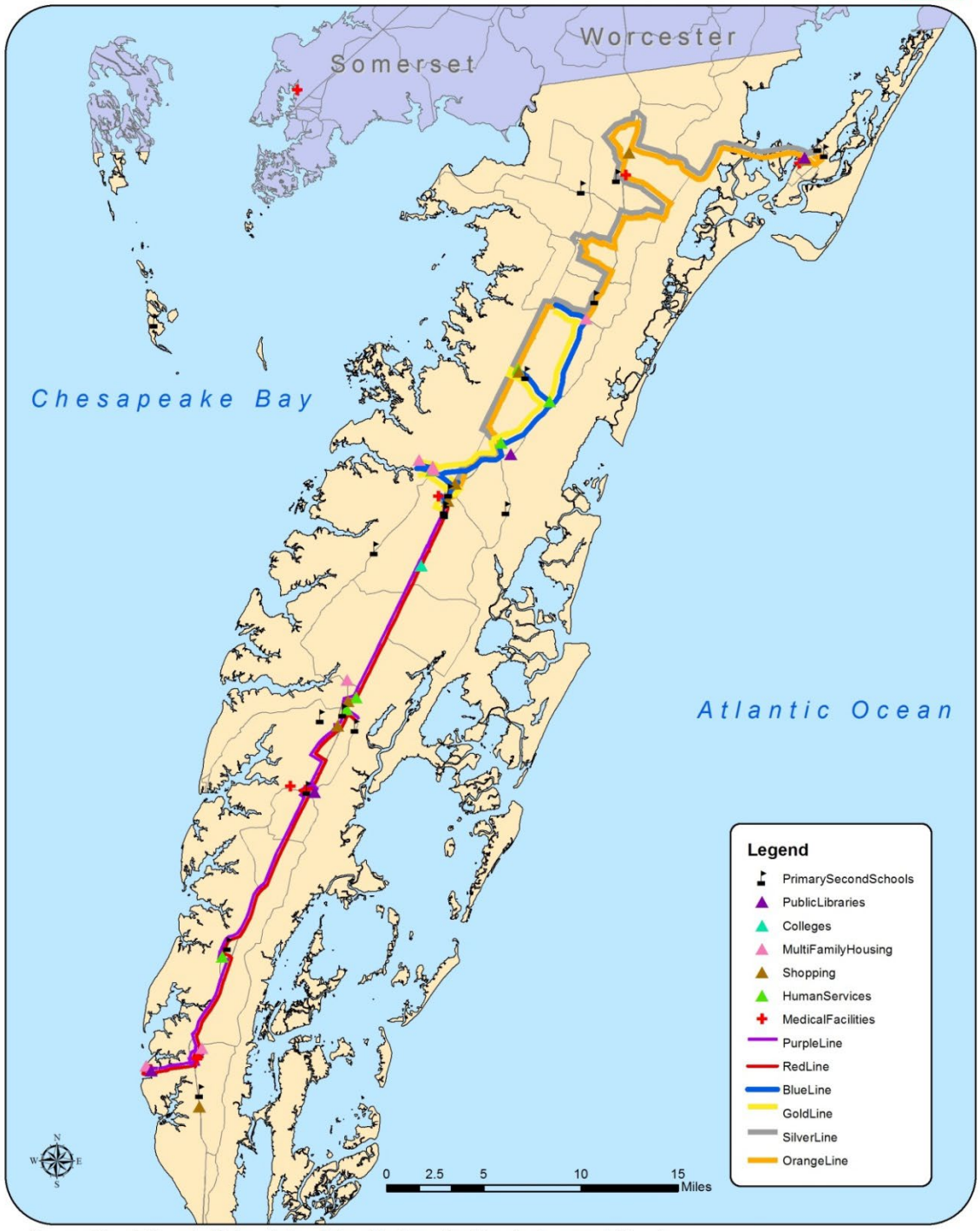
Shopping Centers

Shopping centers are trip destinations at which residents may purchase essential items such as groceries, clothing, and general retail. These centers are an attractive trip destination for many residents since they also serve some individuals as a place of employment. The main shopping destinations in Accomack and Northampton counties are grocery stores and Walmart.

Medical Centers

Medical Centers represent a significant destination for the senior adult population, as well as for other residents who travel to these destinations for medical or employment purposes. In the service area, medical centers range from hospitals to community health centers.

Figure 3-13: Key Destinations



Source: GoogleSearch, Walmart, Food Lion, Northampton County, Accomack County

Human Service Agencies

Human service agencies provide assistance and resources to residents seeking support for issues including health care, childhood development and nutrition. Due to the range of critical services they offer, the agencies are often locations where public transportation is vital as a travel option. Within the service area, human service agencies include each county's social services department along with rehabilitation centers.

Educational Institutions

Given that one of the five socioeconomic characteristics within the TDI measure is the youth population and that many of these individuals are unable to legally drive, it may be assumed that this segment of the population is one that is reliant upon public transportation. Furthermore, the vast majority of individuals between the ages of 10 and 17 are full-time students and therefore are enrolled in educational facilities. Many adults above the age of 18 are also associated with educational institutions as a site for continued learning or employment. There are primary and secondary schools scattered throughout the service area, many along the Lankford Highway corridor. Eastern Shore Community College is the only higher education facility on the Eastern Shore, located in Melfa.

High Density Housing

To best serve residents of Accomack and Northampton Counties with an efficient public transportation network, it is imperative to assess where the largest concentrations of individuals reside. Identifying these important origins complement the broader analyses associated with the two transit dependence indices and population density overview. The majority of multi-family housing units on the Eastern Shore are located in Onancock and Cheriton.

Public Libraries

Public libraries are an important community resource. They are a learning resource, a place for community gathering, and often a location of local government announcements and documents. The public libraries on the Eastern Shore are located in Accomac, Nassawadox, Chincoteague, and Cape Charles.

Major Employers

Employment sites serve as popular travel destinations for many residents of the Shore. For the purposes of this needs assessment, a major employment site is recognized as a single location that employs at least 100 workers, as reported by the Virginia Employment Commission in 2012. Table 3-10 lists major employers along with pertinent details.

Table 3-10: Major Employers on the Eastern Shore

Employer	Industry	Size Class	County
County of Northampton	Executive, Legislative, and Other General Government Support	100 to 249 employees	Northampton
Lfc Agricultural Services Inc.	Crop Production	100 to 249 employees	Northampton
Chesapeake Bay Bridge Tunnel	Support Activities for Transportation	100 to 249 employees	Northampton
Heritage Hall	Nursing and Residential Care Facilities	100 to 249 employees	Northampton
New Raveena Inc.	Nonmetallic Mineral Product Manufacturing	100 to 249 employees	Northampton
Therapeutic Interventions	Social Assistance	100 to 249 employees	Northampton
Bayshore Concrete Products Company	Nonmetallic Mineral Product Manufacturing	100 to 249 employees	Northampton
Food Lion	Food and Beverage Stores	100 to 249 employees	Northampton
Eastern Shore Community Services	Administration of Human Resource Programs	100 to 249 employees	Accomack
The Cube Corporation	Administrative and Support Services	100 to 249 employees	Accomack
Riverside Regional Medical Center	Hospitals	100 to 249 employees	Accomack
Eastern Shore Community College	Educational Services	100 to 249 employees	Accomack
EG & G, Inc.	Professional, Scientific, and Technical Services	100 to 249 employees	Accomack
Royal Farms 79	Gasoline Stations	100 to 249 employees	Accomack
Food Lion	Food and Beverage Stores	100 to 249 employees	Accomack
Eastern Shore Rural Health System	Ambulatory Health Care Services	100 to 249 employees	Accomack
McDonalds	Food Services and Drinking Places	100 to 249 employees	Accomack
Perdue Products	Food Manufacturing	1,000 + employees	Accomack
Tyson Farms	Food Manufacturing	1,000 + employees	Accomack
Accomack County School Board	Educational Services	1,000 + employees	Accomack
Northampton County Schools	Educational Services	250 to 499 employees	Northampton
County of Accomack	Executive, Legislative, and Other General Government Support	250 to 499 employees	Accomack
LJT Associates Inc.	Professional, Scientific, and Technical Services	250 to 499 employees	Accomack
Walmart	General Merchandise Stores	250 to 499 employees	Accomack
Nat'l Aeronautics & Space Admin.	Space Research and Technology	250 to 499 employees	Accomack
Riverside Regional Medical Center	Hospitals	500 to 999 employees	Northampton

Chapter 4

Service and Organizational Alternatives

INTRODUCTION

This fourth chapter provides a range of service and organizational alternatives for STAR Transit to consider when planning transit services for the six-year horizon covered by the TDP. These alternatives have been developed based on the data compiled and analyzed in Chapters 1 through 3. Service alternatives are presented first, followed by organizational alternatives.

These alternatives are modest in scope, reflecting the geographic limitations, relatively slow growth in the region, and the challenging economic conditions. Due to uncertainty concerning the availability of funding, the alternatives are presented as short/mid-term versus long-term. The former are either cost neutral or incur minimal costs given the potential benefits achieved. The long-term alternatives also meet transportation needs that the community has identified, but may require more resources than are feasible within the next few years.

SERVICE ALTERNATIVES

The previous chapter provided an evaluation of current STAR Transit services, as well as an analysis of transit needs based on quantitative data and on input from customers and other key stakeholders. Through the service evaluation, needs assessment, and outreach, specific service improvements are proposed for consideration. These alternatives focus on:

1. Additional hours of service in the evening,
2. Minor route adjustments,
3. Saturday service; and
4. Regional connector service to Tidewater.

Each service alternative is detailed in this section, and includes (where applicable):

- A summary of the service alternative,
- Potential advantages and disadvantages,
- Ridership estimates,
- An estimate of the operating and capital costs,
- Potential funding sources or issues; and
- Compatibility with local land use planning.

It should be noted that these alternatives are designed to serve as a starting point and can be modified as needed based on the needs of STAR Transit and stakeholder input. In addition, the cost information is expressed as the fully allocated costs, which means we have considered all of the program's costs on a per unit basis when contemplating expansions. This does overstate the incremental cost of minor service expansion, as there are likely to be some administrative expenses that would not be increased with the addition of a few service hours. The cost estimates will be refined during the alternatives discussion in regard to possible cost implications.

The ridership impacts and cost estimates were calculated using STAR Transit's FY 2012 operating statistics, including an operating cost per hour of $45.46, a farebox recovery rate of 7.1%, and an average of six passenger trips per hour. Both the total annual operating expenses and the net deficit (total operating expenses less the anticipated farebox revenue) are outlined for the service alternatives, where applicable.

Service Alternative #1: Expanded Evening Service

Currently, STAR Transit provides weekday service from around 6:00 a.m. until 6:15 p.m. (each route is slightly different). This service span is not ideal for many individuals who work outside of traditional shifts, take continuing education classes, or who need to run errands in the evenings. Since 50 percent of the customers who completed the on-board survey were using the bus service to access employment and another 15 percent for shopping, it is easy to understand why extended evening hours of service was the second highest service improvement request. This alternative would facilitate resident mobility by extending evening hours for each existing route until 8:15 p.m. on weekdays. Adding two hours (Monday-Friday) would result in about 2,000 additional annual service hours. In the future, additional hours could be considered (both earlier and/or later) if there is sufficient ridership growth and demands from the merchants within Accomack and Northampton Counties.

STAR Transit continues to focus on the extension of hours during weekdays to accommodate night classes at ESCC, as well as employment shuttle opportunities to

various industry locations. STAR Transit is hopeful that by FY21-FY22 expanding hours would be an option.

Advantages

- Provides an extra two hours of service for riders, offering expanded mobility for customers on weekdays.
- Addresses a need articulated via the passenger surveys and stakeholder input.
- Utilizes current vehicles.

Disadvantages

- Would increase the annual operating expenses.
- Adds service that is not likely to be as productive as service during other parts of the day.
- There would be additional mileage on current vehicles, thereby accelerating the need to replace vehicles in the current fleet.

Expenses

- Using STAR Transit's fully allocated cost per hour of $45.46, two additional evening hours on weekdays only would cost about $90,920 ($45,460 for the Red/Purple route and $22,730 each for the Blue/Gold and Orange/Silver routes) in operating expenses annually. No additional capital would be required.
- With an average farebox recovery of 7.1%, the annual net deficit for this expansion would be $84,465.
- Vehicles in the current fleet will be used; therefore, no immediate additional capital costs would be incurred. However, the vehicle replacement schedule would accelerate. This factor will be considered when developing the Capital Improvement Plan detailed in Chapter 6.

Ridership

- The average ridership per revenue hour was 6.02 passenger trips per revenue hour for FY 2012. However, the on-off count data indicates 13.86 passenger trips per revenue hour. Assuming that the first hour of service will have below average ridership, the study team used the FY 2012 passenger trips per

revenue hour. Thus, it is estimated that about 12,040 additional passenger trips per year would be generated by an additional two hours of service.

Service Alternative #2: Minor Route Adjustments

The STAR Transit routes operate as deviated fixed-routes. As such, they do make minor route adjustments each day depending upon flag stops and people who may call to request a ride. The focus of this alternative is to suggest a minor change to the basic structure of each route.

Red/Purple Routes: The Red/Purple routes are the two most heavily utilized routes in the system. The routes serve from Cape Charles to Onley, primarily in areas directly adjacent to US-13. One adjustment to streamline the routes is recommended based upon on/off stop data. In Cheriton, the routes should utilize Bayview Circle to the east of South Bayside Road (Business US-13) from or before Stone Road. Figure 4-1 shows the Red/Purple Routes with these modifications. The areas of the route that are no longer on the fixed-route portion could still be served via a deviation, but would not appear on the printed schedule. This would add a little time into the schedule that could offset periods when deviations are requested.
STAR Transit implemented this change in FY13 to add a small amount of time into the schedule while not adversely affecting service.

Blue/Gold Routes: The Blue/Gold routes have the second highest ridership and are situated in the middle of the service area. It is proposed that these routes be streamlined, eliminating the service to Bloxom (which is also served by the Orange/Silver routes). Figure 4-2 provides a map of the Blue/Gold Routes with this modification. This would make the Nelsonia Royal Farms stop the end node. STAR Transit should explore having this be a timed transfer. This would add valuable time into the schedule that could offset periods when traffic is heavy and delays associated with transfers from other routes. Based on the passenger counts, ridership in Onancock and Accomac was low and a route modification could be to transition destinations in these two areas to call-ins. As mentioned in Chapter 3, two employment destinations in Accomac, Social Services and Social Security, are being served by STAR Transit all day (including before they open and after they are closed).
STAR Transit continues to serve Bloxom on a regular basis and has noted that passenger pickups in that are modest. STAR Transit continues to monitor the performance of the Blue/Gold Routes.

Orange/Silver Routes: The Orange/Silver routes have the lowest ridership and these routes connect to the northern portion of the region. Therefore, the greatest modifications are recommended for these routes. Since Chincoteague ridership is very modest and most of which is occurred right over the bridge, it is recommended that

service only extend south to Cleveland Street. It is also proposed to eliminate scheduled service north of the intersection of Chincoteague Road and US-13. Additional streamlining is recommended by no longer serving Hallwood on each run. If a customer calls in to request a ride, both of these areas should still be served. Like the changes in the other routes, modifications are being proposed to better match ridership patterns and to aid in on-time performance. Figures 4-3 and 4-4 provide maps of the Orange/Silver Routes with these modifications.

STAR Transit extends service to Chincoteague to Cleveland Street, Town Hall and the Chincoteague Medical Center. Passenger counts have improved beyond a "modest amount". Hallwood has been made a "will call" stop to streamline the service as recommended in the TDP.

INSERT FIGURE 4-1

INSERT FIGURE 4-2

INSERT FIGURE 4-3

INSERT FIGURE 4-4

Advantages

- Promotes on-time performance. Adhering as closely as possible to the posted schedules makes STAR Transit more convenient and appealing for riders.
- Adds extra time to the existing route through route segment eliminations since delays are prevalent along each route.
- Uses data from on/off counts to maximize service to the highest ridership corridors.
- Is cost neutral.

Disadvantages

- Regular service to Bloxom from the Blue/Gold Routes would no longer occur, impacting riders with origins and destinations along this route.
- Certain route segments would be eliminated necessitating calls for pickup from current fixed-route riders.
- Will require new schedules to be printed, as well as advertising to reduce rider confusion.

Expenses and Revenues

- This change is cost-neutral.

Ridership

- This change is not expected to have a significant impact on ridership, though the route adjustments may result in a slight increase in ridership overtime based on better on-time performance and a more reliable service.

Service Alternative #3: Saturday Service

STAR Transit does not currently provide Saturday service. On-board surveys confirmed that more than half of riders do not have a driver's license and only twenty percent had a car. These individuals lack Saturday transportation options beyond walking or catching rides from family and friends. Substantiating this need, weekend service was the number one service improvement request from the rider survey. This service would benefit both Saturday shift workers, and those needing to run errands and shop for groceries. STAR Transit could offer Saturday service from 9 a.m. to 3 p.m., to sustain 90 minute headway for the Red/Purple routes. In the future, STAR Transit could also consider extending service later in the day. Adding six hours of Saturday service for all existing routes would result in about 1,200 additional service hours per

year. The annual operating cost for each route pair is presented separately so that they could be funded independently from one another:

STAR Transit has not implemented Saturday service as yet, but continues to focus on this initiative for possibly FY21 or FY22.

Red/Purple Routes:	$27,276 (600 hours)
Blue/Gold Routes:	$13,638 (300 hours)
Orange/Silver Routes:	$13,638 (300 hours)
Total if all Routes are funded:	$54,552

Advantages

- Addresses a need for weekend service articulated by riders and the public.
- Offers additional mobility for STAR Transit users, facilitating employment, essential shopping, and social/recreational trips.

Disadvantages

- Extended hours would increase annual operating expenses.
- Saturday ridership may not be as productive (passengers/hour) as current service.
- There would be additional mileage on current vehicles, thereby accelerating the need to replace vehicles in the current fleet.

Expenses

- Using STAR Transit's FY 2012 operating cost of $45.46 per hour, six Saturday hours would cost about $54,550 in operating expenses annually. No additional capital would be required.
- With an average farebox recovery of 7.1 percent, the annual net deficit for this service would be about $50,675.
- Vehicles in the current fleet will be used, so no immediate additional capital costs would be incurred. However, the vehicle replacement schedule would accelerate. This factor will be considered when developing the Capital Improvement Plan detailed in Chapter 6.

Ridership

- Using an estimate of six passenger trips per hour, Saturday service is likely to generate about 7,200 additional trips annually.

Service Alternative #4: Regional Service to Virginia Beach Connecting with HRT Once a Week

From the on-board surveys, one of the major themes that emerged was the need for regional connectivity across the Chesapeake Bay Bridge-Tunnel. Out of those who reported a specific destination they would like to see STAR Transit serve, about 35 percent identified Tidewater. The focus of this alternative is to develop a regional service that would connect Accomack and Northampton Counties to Tidewater via Hampton Roads Transit (HRT). The route would originate in Onley with one stop in Cape Charles, travel over the Chesapeake Bay Bridge-Tunnel, and connect with HRT at the Pleasure House Rd/Shore Dr. bus stop. Although Greyhound serves Norfolk from Oak Hall (T's Corner) and Exmore, three times daily, the one-way fare is $35 and $25 respectively. Additionally, same day roundtrip service hours are very prohibitive.

Figure 4-5 provides a map of the proposed route. The route would take 1½ to 2 hours (one-way) and cover about 65 miles, resulting in a 130-mile round trip. Two round trips per day, once a week are proposed for the Tidewater Regional Connection.

STAR Transit continues to focus on the possibility of service to Virginia Beach, and as noted in the TDP. Surveys have been completed and analysis delivered to the ANTDC. STAR Transit is hopeful that service across the bridge to HRT will take place in the next 5 years.

Advantages

- Responds to a need indicated by riders and stakeholder input.
- Provides regional mobility.
- Provides access to educational, medical, and shopping destinations.

Disadvantages

- The demand for this type of service is untested in this region.
- There are significant expenses associated with implementing the route.

Expenses

- One contracted vehicle would be needed for this service
- Using STAR Transit's FY 2012 operating cost of $45.46 per hour, eight hours for one day weekly would cost about $18,200 in annual operating expenses

and the total annual revenue service hours would be 400. Additionally, the Chesapeake Bay Bridge-Tunnel toll costs $30 each way (if a reduced toll cannot be negotiated) that equates to $6,000 per year.

- With an average farebox recovery of 7.1 percent, the annual net deficit for this service would be about $50,675 plus the $6,000 in tolls totaling $56,675.

INSERT FIGURE 4-5

Ridership

- Service to Virginia Beach using the estimated six passenger trips per revenue hour (400 service hours at average ridership) is likely to generate 2,400 additional trips annually.

ORGANIZATIONAL ALTERNATIVES

Organizational alternatives include proposals for potential changes that affect the way that transit is guided, administered, and/or managed for STAR Transit. The organizational alternatives developed for consideration do not contemplate any major organizational changes, but rather additional options to consider.

Organizational Alternative #1: On-Going Transit Advisory Committee

Many transit agencies have found that it is helpful for them to have a Transit Advisory Committee beyond just the requirements for a TDP. A Transit Advisory Committee is comprised of community stakeholders who have an interest in preserving and enhancing transit in the community. Typical Transit Advisory Committee members would include representatives from the following types of organizations:

- Social Services,
- Health Department,
- Human Service Agencies,
- Aging/Senior Services,
- Planning District Commission,
- Chamber of Commerce,
- Disability advocates,
- City/County Planning Department,
- Elected Official Liaison.

The role of a Transit Advisory Committee is to help the transit program better meet mobility needs in the community by serving as a link between the citizens served by the various entities and public transportation. A Transit Advisory Committee is a good community outreach tool for transit programs, as having an ongoing dialogue with stakeholders allows for a greater understanding for transit staff of transit needs in the community, as well as greater understanding by the community of the various constraints faced by the transit program. Transit Advisory Committees also typically serve in an advisory capacity for other transit initiatives.

For STAR Transit, it is suggested that a Transit Advisory Committee be created, serving in an advisory capacity. This will allow for enhanced local and regional coordination, allowing transit needs to be met in the most effective manner. It is proposed that this Committee meet twice a year -- once prior to the grant cycle so that new initiatives can be coordinated, and once mid-way through the funding year.

Advantages

- Provides a forum for dialogue between the community and the transit program.
- Provides a venue for community networking.
- Can be a good community relations and marketing tool.
- Provides enhanced regional coordination.

Disadvantages

- Takes staff time to organize and document Committee meetings and initiatives.

Expenses and Revenues

- The expenses associated with the Transit Advisory Committee are modest and include the cost associated with the staff time spent planning and organizing the meetings, as well as any printing and presentation materials needed for the meetings.

Ridership

- While formalizing the Transit Advisory Committee will not have a direct effect on ridership, it may generate ideas that will help boost ridership.

Organizational Alternative #2: STAR Transit Program Manager

As noted in Chapter 1, the only Accomack-Northampton Transportation District Commission staff position that is directly involved with the transit system is the secretary for the ANTDC. The secretary works with the appointed six members Board of Directors that oversee STAR Transit.

As the system grows, the ANTDC could consider a position dedicated to the administration and oversight of the transit system. This position may begin as part-time, and then transition into a full-time position – especially if the ANTDC seeks to

manage federal funding internally that will require additional reporting and other administrative responsibilities. Overall roles of this position would include:

- Overseeing current contract with VRT, and working with the ANTDC when future contracts go out for bid.
- Preparing appropriate federal, state, and local reports.
- Working with the contractor on service planning and implementation of new services.
- Serving as a liaison to the community and to market current services and build ridership.
- Coordinating and facilitating meetings of the TAC described in the previous alternative.
- Participating in land use issues and new development to ensure a transit perspective is provided.

Advantages

- Ensures a position that is entirely focused on the oversight and evaluation of the current transit system.
- Expands outreach and marketing efforts to help build ridership on current services.
- Creates a position that serves as a primary point of contact for transit services in the region, and helps reinforce the importance and need for transit services.

Disadvantages

- Would require the creation of a new position at a time when local governments are facing fiscal constraints.

Expenses

- This new position would result in salary and benefit expenses as well as implementation of the position by the ANTDC's human resources department that would establish a salary range.

Ridership

- The additional marketing and outreach efforts that would be a component of this new position would expand knowledge of current services and help build ridership.

SUMMARY AND NEXT STEPS

This chapter has provided a number of alternatives for STAR Transit to consider over the next six years with regard to public transit services. Table 4-1 provides a summary of these proposals. The entire menu of alternatives offers a fairly aggressive expansion, adding 3,600 annual revenue hours to the existing system. There are some additional revenue sources that may be available to help fund these expansions and these will be more completely researched if STAR Transit wishes to pursue them.

The next steps will be to present these alternatives for review and comment. The reviewers will be asked to decide which alternatives should move forward to the six-year plan, as well as to provide any additional alternatives that may have been overlooked thus far. KFH Group will research additional alternatives as needed to provide a six-year plan that meets the needs of STAR Transit.

Once the projects have been decided upon for the six-year period, KFH Group will draft the operations plan, capital plan, and financial plan for the TDP described in Chapter 5. The draft final report will include these sections, as well as edited versions of the first three chapters that have already been prepared, and a final chapter outlining the ongoing monitoring activities for the plan.

Table 4-1: STAR Transit TDP - Summary of Alternatives

Project Description	Purpose	Annual Revenue Service Hours	Annual Operating Expenses	Capital Expenses	Proposed Funding Sources	Estimated Ridership
Service Alternative #1: Expanded Evening Service	Provide service for two hours in the evening, responding to a need articulated by survey respondents.	2,000	$ 90,920	$ -	Local and State	12,040
	Red/Purple Route:	*1,000*	*$ 45,460*			
	Blue/Gold Route:	*500*	*$ 22,730*			
	Orange/Silver Route:	*500*	*$ 22,730*			
Service Alternative #2: Minor Route Adjustments for each Route	Offer more convenient service	-	$ -	$ -	n.a.	-
Service Alternative #3: Saturday Service	Provide service for six hours on Saturday, responding to a need articulated by survey respondents.	1,200	$ 54,552	$ -	Local and State	7,200
	Red/Purple Route:	*600*	*$ 27,276*			
	Blue/Gold Route:	*300*	*$ 13,638*			
	Orange/Silver Route:	*300*	*$ 13,638*			
Service Alternative #4: Regional Service to Virginia Beach Connecting with HRT Once a Week	Regional service that would connect Accomack and Northampton Counties to Tidewater via Hampton Roads Transit (HRT).	400	$ 56,675	$ -	Local and State	2,400
Organizational Alternative #1: Transit Advisory Committee	Provide a forum for dialogue between the community and the Pony Express.	-	Minimal	$ -	n.a.	-
Organizational Alternative #2: ANTDC Transit Program Manager	Dedicated staff person to administer program, work with contractor, and implement service improvements and expansions.	-	Not yet determined	$ -	Local and State	-
	TOTALS	**3,600**	**$ 202,147**	**$ -**		**21,640**

Chapter 5

Operations Plan

INTRODUCTION

The development of the STAR Transit TDP has included four technical chapters (documented in Chapters 1-4), which provided an overview of transportation; discussed goals, objectives, and standards; analyzed the need for transit services; and proposed financially constrained and vision alternatives for STAR Transit to implement over the next six years. The process has been guided by STAR Transit staff, their contractor (VRT), and input from DRPT and area stakeholders. Chapters 6 and 7 provide companion capital and financial plans.

This chapter provides the Operations Plan. It details the specific projects broken down into financially constrained and vision categories. While the former follow a six year timeline, the latter is indeterminate, as the year of possible implementation is unknown. The TDP recognizes current financial constraints while allowing STAR Transit to adapt to changing circumstances, and consider accelerated implementation during its yearly reviews. The recommendations are divided into short- and mid-term based on the prioritization of the projects. The details concerning each service proposal are described below. Focusing first on the financially constrained category, STAR Transit can better achieve its transportation program goals.

The operational changes included in this chapter include cost estimates that are based on the FY 2012 actual expenses ($543,648.02) submitted to DRPT. The service revenue hours reported (11,958 hours) was also used for purposes of this analysis. Using these figures the operating cost for FY 2012 was $45.46 per revenue hour. The Operations Plan includes the following projects:

Short-Term Projects

- Maintain current service level with minor route adjustments,
- Increased marketing.

Mid-Term Projects

- Expanded evening service,
- Saturday service.

Vision Project

- Regional service to Virginia Beach Connecting with HRT.

FINANCIALLY CONSTRAINED SHORT-TERM PROJECTS

Maintain Current Service Level with Minor Route Adjustments

The six STAR Transit routes operate as fixed route service with route deviation for anyone that requests it. As such they do make minor route adjustments each day depending upon flag stops and people who may call to request a ride. The focus of this recommendation is to suggest a few potential minor changes to the basic structure of each route pairing.

Figures 5-1 through 5-3 portray adjustments to the existing deviated fixed routes. The focus of each route modification is to improve service by providing more direct trips between the residential core and major destinations. Below are the highlighted adjustments to each route.

Red/Purple Routes – The Red/Purple routes provide service between Cape Charles and Onley (Walmart), benefiting from the highest ridership. Based on stop data collected, these routes should be realigned to better serve the businesses and residents along Bayview Circle.
STAR Transit has adjusted service to Bayview Circle without adversely affecting passenger service in the area.

Blue/Gold Routes – The Blue/Gold routes provide service between Bloxom (via Parksley) and Onley (Walmart), experiencing the second highest ridership. To improve ridership and on-time reliability, these routes would be streamlined by eliminating the Bloxom connection and making Nelsonina the end node.
STAR Transit has not eliminated service to the Bloxom area. The decision to not make this move was based on ridership information that indicated the Bloxom stop was being utilized on a frequent basis, more so than a traditional will call stop.

Orange/Silver Routes – The Orange/Silver routes provide service between Chincoteague (northern most location) and Onley (Walmart), encountering the lowest ridership. The modified route will condense the service coverage in Chincoteague and eliminate fixed-route service to Hallwood (still available for call-in trips).

STAR Transit moved forward with making Hallwood a "will call" stop to streamline the Chincoteague route as suggested in the TDP.

Figure 5-1

Figure 5-2

Figure 5-3

- At the current level of service, STAR Transit's operating expenses would increase by an assumed 3 percent rate of inflation each year over the FY 2014 budget cost figure used as the base.

- This change is cost-neutral with regard to operating cost. This change will necessitate a revision of the schedules (as do some other changes included within this plan). The cost to revise the schedules is included with the discussion of improved passenger information and infrastructure.

- This change is not expected to have a significant impact on ridership, though more riders may be attracted to the service based on improved on-time performance and the maturing system.

- The operating deficit would be split up to 50 percent Federal Section 5311, 15 percent state, and 35 percent local. This assumption obviously depends on the continued availability of federal and state funding under the current programs.

- STAR Transit requested replacement for two buses in the Fiscal Year 2014 application. If awarded, they would be available for service at the beginning of Fiscal Year 2015.

- Capital costs would be split 80 percent federal, 10 percent state, and 10 percent local.

Increased Marketing

This project involves increasing marketing efforts and public information of STAR Transit's current general public services, focusing on the ease and convenience of the service. Expanded stop signage with a map of the service and a "You are here" dot at key locations would improve the visibility of the service to members of the community.

STAR Transit currently uses limited methods of public outreach including a system map and schedules and the STAR Transit website to educate riders and the general public about STAR Transit services. STAR Transit drivers are also valuable resources in providing suggestions to improve the service. STAR Transit should continue these public outreach efforts in addition to new marketing efforts. While current riders typically are able to find information about STAR Transit, there is a sense that a large part of the community still does not know about the service that STAR Transit offers.

It is recommended that A-NTDC, on behalf of STAR Transit, request technical assistance from DRPT to develop a comprehensive marketing plan. Such technical assistance could be funded through the Rural Transit Assistance Program. The marketing plan would document STAR Transit's current marketing and public outreach activities, and identify marketing goals and related strategies. The marketing plan could take into account public input provided through the TDP process, and identify ways to build partnerships with community organizations and improve public outreach. Strong marketing efforts will be particularly important if STAR Transit aims to grow its position as a regional transit provider.

Even if organizations and businesses do not have employees or patrons who currently ride STAR Transit, it is important to generate community support for the public service that STAR Transit provides. Good marketing and public information efforts help achieve this goal. Marketing efforts should highlight that many members of the community experience a higher quality of life with STAR Transit services. Seniors, individuals with disabilities, and residents who do not have a car are able to live independently because of STAR Transit. STAR Transit helps residents access jobs and students to attend classes. While most existing riders use STAR Transit because they do not have access to a car or the ability to drive, STAR Transit also provides an important alternative to those who might choose to use transit in the future, especially if gas prices continue to rise.

In terms of public information, STAR Transit should continue to maintain accurate information about the route, schedule, fares, and deviation policy on their website, as well as include this material on the A-NTDC, Accomack County and Northampton County websites. It is recommended that revisions to the bus schedule

take out some scheduled stops that have minimal ridership, as noted above. Having fewer time points identified in the schedule allows STAR Transit more flexibility to accommodate deviations and account for traffic issues, and decreases opportunities for early departures from stops (especially little used stops). The schedule will still let riders know the times that major stops will be served.

- STAR Transit should implement marketing efforts in FY 2015 through the Federal Transit Administration's Rural Transit Assistance Program (RTAP). Funding is available up to $2,500, with no required local match.

- Updates to STAR Transit's marketing materials will be necessary every year following FY 2015, corresponding to implementation of expanded service hours and days, as well as for any new stops. It is proposed that FY 2015, 2016, and 2017 include $500 for these expenses.

- Increased marketing may result in a small increase in ridership, but predicting this change is difficult. Additional community-wide knowledge of the services could result in more support for transit even among non-users.

STAR Transit has remained committed to imparting the most current route information possible to the residents and guests of the Eastern Shore. During FY18, further marketing initiatives related to those in this TDP will be implemented for greater ease of use.

MID-TERM PROJECTS

Expanded Evening Hours

This recommendation involves expanding service by two hours on weekday evenings, until 8:15 p.m. This improvement would support the current ridership of which 50 percent are using the bus to access employment and another 15 percent for shopping. Additionally, this was the second highest requested improvement cited through the on-board survey.

- The expansion results in about 2,000 total additional revenue hours per system (Red/Purple route 1,000 hours, Blue/Gold route 500 hours, and Orange/Silver route 500 hours).

- Using the STAR Transit's FY 12 operating cost per hour of $45.46, additional revenue hours would cost about $90,920 annually in operating expenses (Red/Purple route $45,460, Blue/Gold route $22,730, and Orange/Silver route $22,730).

- Maintaining the budgeted FY 2012 average farebox recovery of 7.1 percent, the net deficit for adding two hours of service during the evening is about $85,000.

- It is proposed that this deficit be split up to 50 percent Federal Section 5311, 15 percent state, and 35 percent local. This assumption depends on the continued availability of federal and state funding under the current programs.

- Assuming an average ridership of about 6 passenger trips per hour, an additional two hours of service would generate an estimated 12,040 annual passenger trips per year.

- Users will need to be informed through revised information flyers, advertisements, etc. Funding for printing and other expenses will be included for these marketing efforts.

STAR Transit remains committed to the expansion of weekday evening service to the residents and guests of the Eastern Shore. STAR Transit is hopeful that funding might become available in FY19 – FY20 to expand service as stated.

Saturday Service

The desired improvement cited most frequently through the on-board survey was implementing Saturday service. This project addresses rider concerns by providing STAR Transit service on Saturdays from 9:00 a.m. to 3:00 p.m. Since routes are not interlined, the Red/Purple route could be implemented initially followed by the other route pairings.

- The expansion results in about 1,200 total additional revenue hours per system (Red/Purple route 600 hours, Blue/Gold route 300 hours, and Orange/Silver route 300 hours).

- Using the STAR Transit's FY 12 operating cost per hour of $45.46, additional revenue hours would cost about $54,555 annually in operating expenses (Red/Purple route $27,275, Blue/Gold route $13,640, and Orange/Silver route $13,640).

- Maintaining the budgeted FY 2012 average farebox recovery of 7.1 percent, the net deficit for adding two hours of service during the evening is about $50,675.

- It is proposed that this deficit be split up to 50 percent Federal Section 5311, 15 percent state, and 35 percent local. This assumption depends on the

continued availability of federal and state funding under the current programs.

- Assuming an average ridership of about 6 passenger trips per hour, Saturday service for six hours would generate an estimated 7,200 annual passenger trips per year.

- For each of these service expansions, users will need to be informed through revised information flyers, advertisements, etc. Funding for printing and other expenses will be included for these marketing efforts.

STAR Transit remains committed to the expansion of Saturday service to the residents and guests of the Eastern Shore. STAR Transit is hopeful that funding might become available in FY19 – FY20 to expand service as stated.

VISION PROJECT

The vision project included in the TDP represents a more ambitious and long-term action for STAR Transit. Due to the undetermined timeline, the vision project reflects FY 2012 budget cost levels per service hour.

Regional Service to Virginia Beach Connecting with HRT

One of the major topics that emerged from the study outreach process was that there is a need for regional connectivity over the Chesapeake Bay Bridge-Tunnel. The focus of this alternative is to develop a once a week regional service that would connect the Accomack and Northampton Counties to Virginia Beach and the rest of the Tidewater region (via HRT). The route would originate in Onley with one stop in Cape Charles, travel over the Chesapeake Bay Bridge-Tunnel, and connect with HRT at the Pleasure House Rd/Shore Dr. bus stop. Two round trips taking about 2 hours (one-way) would be designed.

- Using STAR Transit's FY 2012 operating cost of $45.46 per hour, eight hours for one day weekly would cost about $18,200 in annual operating expenses and the total annual revenue service hours would be 400. Additionally, the Chesapeake Bay Bridge-Tunnel toll costs $30 each way (if a reduced toll cannot be negotiated) which equates to $6,000 per year.

- It is proposed that this deficit be split up to 50 percent Federal Section 5311, 15 percent state, and 35 percent local. This assumption depends on the

continued availability of federal and state funding under the current programs.

- Service to Virginia Beach using the estimated six passenger trips per revenue hour (400 service hours at average ridership) is likely to generate 2,400 additional trips annually.

STAR Transit remains acutely focused on the possibility of expanding service across the bridge to HRT in Virginia Beach. STAR Transit is hopeful that the demand will exist and funding be available in the coming years to make this advancement.

Planned Service Levels

Table 5-1 summarizes the levels of service planned for the recommendations described above. The TDP identifies an implementation year for each project for planning purposes, but actual implementation may be impacted by the availability of funding, partnerships with other jurisdictions or organizations, and other changes in circumstance that arise.

Table 5-1: Planned Levels of Service

Year of Planned Deployment	Service Project	Annual Revenue Hours	Annual Revenue Miles
EXISTING SERVICE/ROUTE ADJUSTMENTS			
Existing[1]	Current STAR Transit Route (Weekdays)	11,958	332,049
1	Route Adjustments	No change	No change
EXPANSION SERVICE			
2	Expanded Evening Service*	2,000	54,000[2]
4	Saturday Service*	1,200	32,400[2]
N/A	Service to Virginia Beach Connecting with HRT Once a Week	400	13,000

Notes:
[1]Existing service based on federal FY 2012 (FY 2013 had not concluded at the time of the study)
[2]Calculated miles based on vehicles average 27 mph
*Expansion service could be added system-wide (as reflected in the table) or broken out by individual route pairings as warranted by demand. This could occur based on limited funding where expansion would focus on routes with highest ridership.

ORGANIZATIONAL ALTERNATIVES

As of October 1, 2013, STAR Transit will employ a full-time Transit Manager. This position will be dedicated to the administration and oversight of the transit system. The roles and responsibilities of the Transit Manager should include:

- Service planning and implementation of new services,
- Operations and capital maintenance oversight,
- Marketing current services to the community and building ridership,
- Coordinating and facilitating meetings with the proposed Transit Advisory Committee will be accomplished by VRT staff; and
- Working with local governments concerning land use issues and new developments to support a transit perspective.

ESTABLISH ON-GOING TRANSIT ADVISORY COMMITTEE

STAR Transit does not currently have a Transit Advisory Committee (TAC) in place. Many transit agencies have found that it is helpful for them to have a TAC beyond just the requirements for a TDP. A TAC is comprised of community stakeholders who have an interest in preserving and enhancing transit in the community.

The role of a TAC is to help the transit program better meet mobility needs in the community by serving as a link between the citizens served by the various entities and public transportation. A TAC is a good community outreach tool for transit programs, as having an ongoing dialogue with stakeholders allows for a greater understanding for transit staff of transit needs in the community, as well as greater understanding by the community of the various constraints faced by the transit program. A TAC also typically serves in an advisory capacity for other transit initiatives. The role of the A-NTDC would remain unchanged in that they would still be the ultimate guide for STAR Transit, however the TAC would alleviate some of the burden on the Commission.

For STAR Transit, it is suggested that they create a TAC serving in an advisory capacity for the service. This will allow for enhanced local and regional coordination, enabling transit needs to be met in the most effective manner. It is proposed that this TAC meet twice a year -- once prior to the grant cycle so that new initiatives can be coordinated, and once mid-way through the funding year.

Chapter 6

Capital Improvement Program

This chapter of the TDP describes the major capital projects (vehicles, facilities, and equipment) needed to support the provision of public transportation for the six-year period covered by this TDP. It outlines the capital infrastructure projects needed to implement the service recommendations described in the Operating Plan. The Capital Improvement Program (CIP) provides the basis for STAR Transit's requests to DRPT for federal and state funding for capital replacement, rehabilitation, and expansion projects. The recommendations in the CIP are projects for which STAR Transit reasonably anticipates local funding to be available. The recommendations for different types of capital projects including vehicles, facilities, passenger amenities, tools and equipment, and technology upgrades are described below. The descriptions identify the capital projects already programmed in STAR Transit's existing CIP, as well as additional projects recommended in the TDP. The costs associated with these capital projects are provided in the next chapter with the Financial Plan.

VEHICLE REPLACEMENT AND EXPANSION PROGRAM

This section presents the details of the vehicle expansion and replacement plan including vehicle useful life standards, characteristics of the new vehicles, and estimated costs. A vehicle expansion and replacement plan is necessary to maintain a high quality fleet and dispose of vehicles beyond their useful life. This plan is especially important since STAR Transit service covers a large geographic region. The capital plan for the vehicles was developed by applying FTA/DRPT vehicle replacement standards to the current vehicle fleet inventory, which was presented in Chapter 1.

Useful Life Standards

The FTA/DRPT vehicle replacement standards are shown in Table 6-1. The standards indicate that different types of vehicles have different expected lifespans. The builders of these vehicles are required to designate the projected life-cycle when the

vehicles are submitted for testing by the FTA, and the vehicles are designed to meet these standards. If vehicles greatly exceed the expected life, the consequent maintenance costs for over-age vehicles can significantly increase operating costs. In addition, the reliability of vehicles generally declines as they age, particularly after their design life is exceeded. This decrease in vehicle reliability also affects operating costs and impacts the quality of service for passengers.

Table 6-1: DRPT's Vehicle Useful Life Policy

Vehicle Type	Useful Life
Vans	Minimum of 4 Years or 100,000 Miles
Body on Chassis Vehicles	Minimum of 4 Years or 100,000 Miles
Light Duty Bus	Minimum of 4 Years or 150,000 Miles
Supervisory Vehicle	Minimum of 4 Years or 100,000 Miles
Transit Coach	Minimum of 12 Years

Source: DRPT's Section 5311 State Management Plan (April 2009)

Vehicle Plan – Baseline Estimate

STAR Transit currently only operates body on chassis vehicles and one minivan, so the vehicles may be replaced after four years of service or after 100,000 miles. This standard was applied to the existing fleet to ascertain a baseline estimate of capital needs for the next six years to maintain current service levels. Table 6-2 portrays STAR Transit's existing vehicle inventory with the estimated years the vehicles should be replaced, given current service levels. This recommendation differs slightly from the capital projections in DRPT's FY 2014 Six-Year Improvement Program (SYIP), which the Commonwealth Transportation Board updates annually.

Vehicle Plan – Recommended Services

The plan for vehicle replacement and expansion taking into account the recommended service projects is shown in Table 6-3. This table estimates vehicle needs based on the service projects' planned years of implementation described in Chapter 5. Actual vehicle needs may change depending on the years that STAR Transit actually implements the service projects. This expansion plan follows the capital projections in the SYIP and recommends that STAR Transit purchases an expansion vehicle in FY 2017 and FY 2019, assuming STAR Transit implements the new scheduled evening service and Saturday service. In the later years of the TDP timeframe, the replacement vehicles purchased in FY 2015 and FY 2016 will need to be replaced in FY 2019 and FY 2020 respectively, as well as the minivan in FY 2020 based on current mileage estimates.

Table 6-2: STAR Transit Vehicle Inventory with Replacement Years, Baseline Estimate

Vehicle Identification Number (VIN)	Model Year	Make	Model	Seating Capacity	Wheelchair Lift	Mobile Radio	Mileage 5/20/2013	Average Annual Mileage	Estimated Replacement Year
~~1FDFE4FS1BDA15027~~	~~2011~~	~~Ford~~	~~Supreme~~	~~20~~	~~Y~~	~~N~~	~~140,519~~	~~58,066~~	~~FY 2015~~
~~1FDFE4FS3BDA15028~~	~~2011~~	~~Ford~~	~~Supreme~~	~~20~~	~~Y~~	~~N~~	~~107,138~~	~~44,272~~	~~FY 2015~~
~~2D4RN4DG0BR794985~~	~~2011~~	~~Chrysler~~	~~Grand Caravan~~	~~4~~	~~Y~~	~~N~~	~~33,046~~	~~13,655~~	~~FY 2020~~
~~1GB6G5BGXC1157681~~	~~2012~~	~~Ford~~	~~Supreme~~	~~20~~	~~Y~~	~~N~~	~~42,606~~	~~30,004~~	~~FY 2016~~
~~1GB6G5BG5C1159001~~	~~2012~~	~~Ford~~	~~Supreme~~	~~20~~	~~Y~~	~~N~~	~~44,950~~	~~31,655~~	~~FY 2016~~
~~1FDFE4FSXBDA15026~~	~~2013~~	~~Ford~~	~~Challenger~~	~~20~~	~~Y~~	~~N~~	~~557~~	~~N/A~~	~~FY 2017~~
~~1FDFE4FSXBDA15026~~	~~2013~~	~~Ford~~	~~Challenger~~	~~20~~	~~Y~~	~~N~~	~~571~~	~~N/A~~	~~FY 2017~~
~~1FDFE4FSXBDA15026~~	~~2013~~	~~Ford~~	~~Challenger~~	~~20~~	~~Y~~	~~N~~	~~570~~	~~N/A~~	~~FY 2017~~

Table 6-3: Vehicle Replacement and Expansion for Service Recommendations

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
Number of Vehicles							
Replacement	2	2	3	~~0~~4	~~2~~2	~~3~~4	~~12~~17
Expansion	0	0	1	0	~~0~~1	1	~~2~~3
Total Vehicles	**2**	**2**	**4**	**~~0~~4**	**~~2~~3**	**~~4~~5**	**~~14~~20**

VIN	Route	Bus #	Model Year	Make	Model	Seating	WheelChair	Mobile Radio	Mileage (1/18)	Annual Mileage	Replacement Year
1FCFE4FS0HDC43108	#1 Red	40	2017	FORD	Starcraft	19	Y2	n	14,950	70,658	FY20
1FDFE4FSXHDC3097	#2 Purple	39	2017	FORD	Starcraft	19	Y6	n	18,859	69,295	FY20
1FDFE4FS6GDC31978	#3 Blue	36	2016	FORD	Challenger	20	Y2	n	84,319	36,595	FY20
1FDFE4FS6HDC43050	#4 Gold	41	2017	FORD	Starcraft	19	Y2	n	10,290	36,553	FY21
1FDEE3FS6GDC26334	#5 Green Express Route	34	2016	FORD	Challenger	12	Y2	n	93,656	51,577	FY19
1FDFE4FSXHDC43102	#6 Orange/Silver Chincoteague	38	2017	FORD	Starcraft	19	Y2	n	15,958	88,874	FY20
1FDEE3FS6GDC26334	#7 Yellow Route	35	2016	FORD	Challenger	12	Y2	n	90,063	61,628	FY19
1FDFE4S1EDA52289	Spare	32	2014	FORD	Challenger	20	y2	n	198,226	u/k	FY18
1FDFE4FS8EDA52290	Spare	33	2014	FORD	Challenger	20	y2	n	204,347	u/k	FY18
1GB65BGXC1136670	Spare	275	2012	Chevrolet	Supreme	20	y2	n	176,053	u/k	FY18
1FTEW1E83HFC06530	Support	37	2017	FORD	F150	6	n	n	2,375	20,000	FY23
2D4RN4DG0BR794985	Support	26	2011	Chrysler	Caravan	4	y1	n	104,380	20,000	FY18

When removing vehicles from service, STAR Transit will follow DRPT guidelines as described in the Section 5311 State Management Plan. Before disposition may occur, STAR Transit must ensure that any Section 5311 funded vehicle has met DRPT's useful life criteria. STAR Transit must send its disposition request to DRPT, which will grant approval or disapproval for disposition. DRPT may offer the vehicles to other Section 5311 recipients that are in need. Otherwise, STAR Transit may dispose of the vehicles and use the proceeds to support transportation services.

Vehicle Characteristics

Input collected during the TDP process indicated the current type of vehicle that STAR Transit uses serves community needs well. The body-on-chassis buses are suitable for navigating neighborhood streets as well as traveling along U.S. Route 13. STAR Transit will order replacement and expansion vehicles with similar characteristics to its current fleet of vehicles. The new vehicles will have a similar expected life as the current STAR Transit buses: at minimum four years or 100,000 miles.

In the future STAR Transit may consider slightly larger vehicles with more seating capacity, if ridership grows such that the existing buses regularly have high passenger loads including standees.

Estimated Costs

Table 6-4 summarizes the estimated costs for each new replacement or expansion vehicle within the TDP timeframe, based on the cost of vehicles listed in the FY 2014 SYIP. These cost estimates were used to develop the capital budget, which is included with the Financial Plan in the next chapter.

Table 6-4: Estimated Costs of New Vehicles

Fiscal Year	Estimated Cost Per Vehicle
2015	$77,000
2016	$77,000
2017	$80,000
2018	$80,000
2019	$90,000
2020	$90,000

Potential funding sources for the replacement and expansion vehicles include FTA Section 5311 funds, the State's Mass Transit Trust Fund and Mass Transit Capital Fund, and local funds.

Non-Revenue Vehicles

While Tables 6-2 and 6-3 addressed the replacement and expansion of revenue vehicles, it is worth noting that STAR Transit anticipates purchasing a non-revenue support vehicle in FY 2018.

FACILITIES

STAR Transit's fleet will gradually grow within the timeframe of the TDP, including the expansion vehicles for then enhanced service and Saturday service. To continue to maintain their fleet, STAR Transit has specified $50,000 in FY 2017 for "bus rehab/renovation of yards and shop" and $25,000 in FY 2018 for "bus rehab/renovation of admin/maintenance facility."

STAR Transit continually monitors the condition of shop equipment in the Tasley Va facility. In FY18 all indications are that STAR Transit will receive tire and wheel equipment as well as a portable lift set.

PASSENGER AMENITIES

Another capital project is the installation of bus shelters with benches at the highest use bus stops. STAR Transit is currently installing 70 bus stop signs that were purchased under an FTA grant. Additional passenger shelters should be purchased in FY 2016 and FY 2018 as identified in the SYIP to support growth of the system.

STAR Transit continues to focus on the installation of passenger amenities such as bus stop benches, signs and shelters, installing most recently a shelter in Cape Charles. Discussions continue with retail outlets in Onley Va to install two additional shelters there.

EQUIPMENT

There are a few recommendations for equipment within the TDP timeframe. Specifically, purchasing computer hardware and software, surveillance and security equipment, and spare parts for maintenance are required to assist in both administration and operation of the system. These capital purchases are already programmed in the SYIP.

TECHNOLOGY

The only technology project recommended within the TDP planning horizon is for ITS equipment programmed for FY 2018.

Chapter 7

Financial Plan

INTRODUCTION

This chapter provides a financial plan for funding existing and proposed STAR Transit services for the TDP's ~~six~~-ten year planning period. The financial plan addresses both operations and capital budgets, focusing on financially constrained project recommendations. The budgets were constructed with the information that is currently available, including the Commonwealth Transportation Board's FY 2014 Six-Year Improvement Program, the FY 2014 DRPT grant, and STAR Transit's FY 2012 budget. The funding ratios were based on historical funding ratios for rural transit programs in the Commonwealth, but the estimates for state funding err on the conservative side. Guidance from DRPT indicated that, with the passing of a new transportation funding program in the Commonwealth, in the near-term state funding for transit may increase.

It should be noted that there are currently a number of unknown factors that will likely affect transit finance in this area over the course of this planning period, including the future economic condition of the region and the Commonwealth of Virginia, and the availability of local match for the federal and state funds. The exact revenue available each year will be dependent upon the availability of funding from the federal Section 5311 program, the Commonwealth Transportation Fund, and local sources.

OPERATING EXPENSES AND FUNDING SOURCES

Table 7-1 provides a financial plan for operation of STAR Transit's services under the financially constrained ten-year plan, and Table 7-2 presents the financial plan for operations under the vision plan. As discussed in the Operations Plan (Chapter 5), the financially constrained plan projects are moderate in scope, reflecting the current economic climate and the current funding partnerships that provide the local match. The top half of Table 7-1 summarizes the annual revenue hours of service for the existing STAR Transit routes as well as the service projects recommended as part of the financially constrained plan. The bottom half of the table provides operating cost estimates and funding sources associated with these service projects. A number of

assumptions used in developing the operating cost estimates are included as footnotes and described below.

Table 7-1: STAR Transit TDP Financial Plan for Operations - Financially Constrained

Projects[1]	FY 2014 Base	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Projected Incremental Annual Revenue Hours							
Current Level of Service	11,958	11,958	11,958	11,958	11,958	11,958	11,958
Increased Marketing		-	-	-	-	-	-
Minor Route Adjustment to Each Route		-	-	-	-	-	-
Extending Evening Hours until 8:15 p.m.		-	2,000	2,000	2,000	2,000	2,000
Saturday Service, 9:00 a.m. until 3:00 p.m.		-	-	-	1,200	1,200	1,200
Total Transit Revenue Hours	**11,958**	**11,958**	**13,958**	**13,958**	**15,158**	**15,158**	**15,158**
Projected Operating Expenses							
Cost Per Revenue Hour[2]	$ 50.70	$ 52.22	$ 53.79	$ 55.40	$ 57.06	$ 58.78	$ 60.54
Current Level of Service	$ 606,281	$ 624,469	$ 643,204	$ 662,500	$ 682,375	$ 702,846	$ 723,931
Increased Marketing		$ -	$ -	$ -	$ -	$ -	$ -
Minor Route Adjustment to Each Route		$ -	$ -	$ -	$ -	$ -	$ -
Extending Evening Hours until 8:15 p.m.		$ -	$ 107,577	$ 110,804	$ 114,129	$ 117,552	$ 121,079
Saturday Service, 9:00 a.m. until 3:00 p.m.		$ -	$ -	$ -	$ 68,477	$ 70,531	$ 72,647
Total Projected Operating Expenses	**$ 606,281**	**$ 624,469**	**$ 750,781**	**$ 773,304**	**$ 864,980**	**$ 890,930**	**$ 917,658**

[1] *Implementation years are estimated - subject to funding availability. Base revenue hours estimated from FY 2012 data; costs came from FY 2014 SYIP.*

[2] *The hourly rates for subsequent years were increased by 3% annual inflation rate.*

Update for 10 years – hourly rates for subsequent years were increased by 4% annual inflation rate.

Re-7:1 TDP Finanical Plan for Operations	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY2024	FY2025	FY2026	FY2027	FY2028
Projected Incremental Annual Revenue Hours										
Current Level of Service	16,449	17,697	27,268	31,012	31,732	32,452	33,172	33,892	34,612	35,332
Increased Marketing	1,248	2,915	3,744	720	720	720	720	720	720	720
Minor Route Adjustment to Each Route	0	0	0	0	0	0	0	0	0	0
Extending Evening Hours until 8:15										
Weekend Service 9-5		6,656								
Total Transit Revenue Hours	17,697	27,268	31,012	31,732	32,452	33,172	33,892	34,612	35,332	36,052
Projected Operating Expenses										
Cost Per Revenue Hour	$50	$51	$51	$52	$53	$53	$54	$55	$56	$58
Current Level of Service	$828,971	$901,377	$1,385,791	$1,601,916	$1,666,851	$1,734,379	$1,804,604	$1,877,636	$1,953,586	$2,032,574
Increased Marketing	$62,895	$148,472	$190,274	$37,191	$37,821	$38,480	$39,169	$39,888	$40,639	$41,420
Minor Route Adjustment to Each Route	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extending Evening Hours until 8:15		$0								
Weekend Service 9-5		$339,016								
Total Projected Operating Expenses	$891,866	$1,388,865	$1,576,065	$1,639,108	$1,704,672	$1,772,859	$1,843,773	$1,917,524	$1,994,225	$2,073,994

Table 7-1: STAR Transit TDP Financial Plan for Operations - Financially Constrained (continued)

Anticipated Funding Sources	FY 2014 Base	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Federal							
Section 5311	$ 288,716	$ 288,816	$ 348,738	$ 359,200	$ 401,783	$ 413,837	$ 426,252
RTAP		$ 2,500					
Subtotal, Federal	$ 288,716	$ 291,316	$ 348,738	$ 359,200	$ 401,783	$ 413,837	$ 426,252
State							
Formula Assistance[1]	$ 63,367	$ 87,128	$ 89,306	$ 91,539	$ 93,827	$ 117,284	$ 120,216
Additional funding in FY 2014 Mid-Year[2]	$ 21,636						
Subtotal, State	$ 85,003	$ 87,128	$ 89,306	$ 91,539	$ 93,827	$ 117,284	$ 120,216
Local							
Local Contribution	$ 203,714	$ 201,688	$ 259,431	$ 267,661	$ 307,956	$ 296,553	$ 306,036
Revenues - Farebox[3]	$ 28,848	$ 44,337	$ 53,305	$ 54,905	$ 61,414	$ 63,256	$ 65,154
Total Local	$ 232,562	$ 246,025	$ 312,737	$ 322,565	$ 369,370	$ 359,809	$ 371,189
Total Projected Operating Revenues	**$ 606,281**	**$ 624,469**	**$ 750,781**	**$ 773,304**	**$ 864,980**	**$ 890,930**	**$ 917,658**

[1] *State formula assistance assumes a 2.5% growth (per DRPT guidance). DRPT is not committing to funding levels shown for FY15-20. Funding levels are subject to the annual budget and SYIP adoption.*
[2] *The FY 2014 Mid-Year state funding represents additional funding allocated to STAR Transit given the new transportation funding program.*
[3] *The FY 2014 Base amount came from the FY 2014 SYIP. For FY 2015 and on, amounts were estimated based on the FY 2012 farebox recovery rate of 7.1%.*

Update for 10 years

ANTICPATED FUNDING SOURCES Re-7:1 TDP Finanical Plan for Operations	STAR	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY2024	FY2025	FY2026	FY2027	FY2028
Federal											
Section 5311		$ 403,425	$ 694,433	$ 788,033	$ 819,554	$ 852,336	$ 886,429	$ 921,887	$ 958,762	$ 997,113	$ 1,036,997
RTAP											
Sub-total, Federal		$ 403,425	$ 694,433	$ 788,033	$ 819,554	$ 852,336	$ 886,429	$ 921,887	$ 958,762	$ 997,113	$ 1,036,997
State											
Formula Assistance		$ 145,233	$ 249,996	$ 283,692	$ 295,039	$ 306,841	$ 319,115	$ 331,879	$ 345,154	$ 358,961	$ 373,319
Sub-total, State		$ 145,233	$ 249,996	$ 283,692	$ 295,039	$ 306,841	$ 319,115	$ 331,879	$ 345,154	$ 358,961	$ 373,319
Local											
Local Contribution and Other		$ 297,208	$ 386,660	$ 438,776	$ 456,328	$ 474,581	$ 493,564	$ 513,306	$ 533,839	$ 555,192	$ 577,400
Revenue - Farebox		$ 46,000	$ 57,777	$ 65,564	$ 68,187	$ 70,914	$ 73,751	$ 76,701	$ 79,769	$ 82,960	$ 86,278
Total Local		$ 343,208	$ 444,437	$ 504,341	$ 524,514	$ 545,495	$ 567,315	$ 590,007	$ 613,608	$ 638,152	$ 663,678
Total Projected Operating Revenue		$ 891,866	$ 1,388,865	$ 1,576,065	$ 1,639,108	$ 1,704,672	$ 1,772,859	$ 1,843,773	$ 1,917,524	$ 1,994,225	$ 2,073,994

Table 7-2: STAR Transit TDP Financial Plan for Operations – Vision

Projects[1]	Base Year	Phase 1
Projected Incremental Annual Revenue Hours		
Current Level of Service[2]	11,958	11,958
Regional service to Virginia Beach (Connecting with HRT)		400
Total Transit Service Hours	**11,958**	**12,358**
Projected Operating Expenses[3]		
Cost Per Revenue Hour[4]	$ 45.46	$ 45.46
Current Level of Service[5]	$ 543,648	$ 543,648
Regional service to Virginia Beach (Connecting with HRT)		$ 18,184

Chesapeake Bay Bridge-Tunnel Toll Expense ($30 each way)		$ 6,000
Total Projected Operating Expenses	**$ 543,648**	**$ 567,832**

Notes:
[1] Implementation year is undetermined. Implementation will be based on funding availability.
[2] Based on FY 2012 data - 11,958 revenue hours (most recent full year of service)
[3] Assumes constant FY 2012 dollars due to undetermined timeline for implementation.
[4] Based on STAR Transit's FY 2012 fully allocated cost per revenue hour.
[5] Base Year represents full FY 2012 operating budget.

Anticipated Funding Sources	Base Year	Phase 1
Federal		
Section 5311	$ 257,400	$ 263,758
Subtotal, Federal	$ 257,400	$ 263,758
State		
Formula Assistance	$ 77,220	$ 79,127
Subtotal, State	$ 77,220	$ 79,127
Local		
Local Contribution	$ 180,180	$ 184,631
Revenues - Farebox[1]	$ 28,848	$ 40,316
Total Local	$ 209,028	$ 224,947
Total Projected/Proposed Operating Funds/Revenues	**$ 543,648**	**$ 567,832**

Notes: [1] Based on the FY 2012 farebox recovery rate of 7.1%.

As Table 7-1 indicates, the Base Year represents the FY 2014 SYIP; except for the current revenue hours (used FY 2012 data). The projected cost per revenue hour and operating costs to maintain the current level of service in subsequent years are based on a 3% annual inflation rate. While the costs for service alternatives in Chapter 4 had been estimated based on an adjusted operating cost per revenue hour (excluding administration costs) to determine the incremental operating costs, the financial plan uses the fully allocated operating cost per hour (estimated at $50.70 for FY 2014).

Under anticipated funding sources, the FY 2014 base amounts for federal funding and farebox revenue came from the FY 2014 SYIP. The state funding for FY 2014 has been updated to reflect additional state funding, available starting in July 2013, as a result of the Commonwealth's new transportation funding program. However, the state share of total operating revenues from FY 2015 and on was estimated based on historical funding levels, at about 15% of the net deficit. DRPT is not committing to the funding for FY 2015 and beyond. Specific funding amounts are determined during the annual SYIP adoption and budget cycle. With the new transportation funding program, the actual state amounts may be higher, but the formula was still being finalized at the time of the TDP. In each year of the financial plan, the total projected operating expenses account for inflation associated with maintaining the current level of service as well as service expansions. Both federal and state funds are shown to increase with inflation. The funding source amounts for FY 2015 – FY 2020 are based on net operating deficits calculated with a farebox recovery rate of 7.1%. Based on FY 2012 data, this farebox recovery rate provides conservative estimates of farebox revenue during the TDP timeframe.

Table 7-1 indicates that the annual operating expenses for STAR Transit are projected to be about $625,000 in the first year of the TDP planning period (FY 2015). Over the six-year period the STAR Transit operating budget will grow to almost $920,000 including inflation at 3% per year and additional service expansions of later evening hours and Saturday service, which STAR Transit will implement if warranted by demand or pending funding partnerships. The local share is projected to remain steady – about forty percent of the total operating budget.

Table 7-2 details the sole project in the vision plan, which is not constrained to reflect the availability of funding. If one assumes that the vision project is implemented, the total annual budget for transit service would grow by $24,184 (in FY 2012 dollars). The cost is calculated in constant FY 2012 dollars due to the undetermined timeline associated with the project.

VEHICLE PURCHASE EXPENSES AND FUNDING SOURCES

Table 7-3 offers the financial plan for vehicle replacement over the six-year period. The plan includes a total of twelve replacement vehicles, two expansion vehicles, and one support vehicle. As discussed in Chapters 5 and 6, this plan includes a modest need to increase the size of the fleet if additional service is added. The funding split is based on recommendations of the Commonwealth's Transit Service Delivery Advisory Committee. While federal funding remains at 80% of the project cost, the amount of state funding varies depending on the type of capital project. The capital budget for vehicle replacement and expansion (considered "Tier 1" capital projects) is shown in Table 7-3. Under the Transit Service Delivery Advisory Committee's recommendation for "Scenario B", the state match is 80% of the non-federal portion of vehicle costs. Then the local match covers the remaining vehicle costs.

For replacement vehicles, DRPT guidance suggested the funding ratios be applied to the net cost of the replacement vehicle (total cost minus the revenue anticipated from selling the original vehicle). The anticipated revenue from vehicle disposition was estimated based on the experiences of peer systems.

OTHER CAPITAL EXPENSES AND FUNDING SOURCES

The financial plans for infrastructure facilities (considered "Tier 2" capital projects), including bus shelters, and other capital equipment (considered "Tier 3" capital projects) are provided in Tables 7-4 and 7-5, respectively. Passenger amenities, including bus shelters that were the only identified high need Tier 2 capital projects.

Under the Transit Service Delivery Advisory Committee's recommendation for "Scenario B", the state match is applied to the non-federal portion of the project cost: 40% for infrastructure facilities and 22% for other capital projects. Then the local match covers the remaining vehicle costs.

The financial plan for facilities, equipment, and other capital is provided in Table 7-4. These expenses are those associated with passenger amenity and information improvements, as well as tools and routine computer upgrades. A number of Tier 3 other capital needs were specified, including:

- Computer Hardware,
- Computer Software,
- Surveillance/Security Equipment,
- Spare Parts,

- Bus Rehab/Renovation of Yards & Shop,
- Misc. Equipment,
- ITS Equipment,
- Bus Rehab/Renovation of Administrative/Maintenance Facility.

These expenses are also assumed to be funded with federal (80%), state (10%), and local (10%) funds.

Table 7-3: STAR Transit Capital Budget for Tier 1, Replacement and Expansion Vehicles, under Scenario B

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Number of Vehicles						
Replacement	2	2	3	0	2	3
Expansion	0	0	1	0	0	1
Support Vehicle	0	0	0	1	0	0
Total Vehicles	2	2	4	1	2	4
Vehicle Costs [1]	$ 77,000	$ 77,000	$ 80,000	$ 80,000	$ 90,000	$ 90,000
Replacement	$ 154,000	$ 154,000	$ 240,000	$ -	$ 180,000	$ 270,000
Expansion	$ -	$ -	$ 80,000	$ -	$ -	$ 90,000
Support Vehicle	$ -	$ -	$ -	$ 35,000	$ -	$ -
Total Projected Vehicle Costs	$ 154,000	$ 154,000	$ 320,000	$ 35,000	$ 180,000	$ 360,000
Anticipated Revenue from Vehicle Disposition[2]	$ 20,400	$ 20,400	$ 30,600	$ -	$ 26,180	$ 39,270
Projected Net Vehicle Costs	$ 133,600	$ 133,600	$ 289,400	$ 35,000	$ 153,820	$ 320,730
Anticipated Funding Sources [3]						
Federal	$ 106,880	$ 106,880	$ 231,520	$ 28,000	$ 123,056	$ 256,584
State	$ 21,376	$ 21,376	$ 46,304	$ 5,600	$ 24,611	$ 51,317
Local	$ 5,344	$ 5,344	$ 11,576	$ 1,400	$ 6,153	$ 12,829
Total Vehicle Funding	$ 133,600	$ 133,600	$ 289,400	$ 35,000	$ 153,820	$ 320,730

Notes:

[1] *Costs estimates came from the FY 2014 SYIP.*

[2] *The anticipated revenue from disposing the original vehicles was estimated based on the disposition experiences of peer transit systems (estimated revenue of 17% of original vehicle's purchase price - used $60,000).*

[3] *DRPT guidance suggested applying the federal, state, and local shares to the net costs (accounting for revenue from selling the original vehicles) for replacement vehicles. State funding was based on proposed State match of 80% for Tier 1 projects under Scenario B.*

Update for 10 years – assumed 4 year useful life of vehicles:

Re-7:3 TDP Transit Capital Budget for Tier 1	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY2025	FY2026	FY2027	FY2028
Number of Vehicles										
Replacement	3	3	1	2	2	5	2	2	2	5
Replacement Trolley	0	0	0	0	0	0	0	0	0	0
Expansion	1	2	1	0	0	0	0	0	0	0
Support Vehicles	0	0	0	1	1	0	0	1	1	0
Total Vehicles	4	5	2	3	3	5	2	3	3	5
Vehicle Costs										
Replacement	$240,000	$240,000	$80,000	$160,000	$160,000	$400,000	$160,000	$160,000	$160,000	$400,000
Replacement Trolley	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Expansion	$75,000	$150,000	$75,000	$0	$0	$0	$0	$0	$0	$0
Support Vehicles	$0	$0	$0	$55,000	$55,000	$0	$0	$55,000	$55,000	$0
Total Projected Vehicle Costs	$795,000	$1,020,000	$155,000	$375,000	$375,000	$2,000,000	$320,000	$375,000	$375,000	$2,000,000
Anticipated Revenue for Vehicle Disposition	$20,000	$25,000	$10,000	$15,000	$15,000	$25,000	$10,000	$15,000	$15,000	$25,000
Projected Net Vehicle Costs	$775,000	$995,000	$145,000	$360,000	$360,000	$1,975,000	$310,000	$360,000	$360,000	$1,975,000
Anticipated Funding Sources										
Federal	$620,000	$796,000	$116,000	$288,000	$288,000	$1,580,000	$248,000	$288,000	$288,000	$1,580,000
State	$124,000	$159,200	$23,200	$57,600	$57,600	$316,000	$49,600	$57,600	$57,600	$316,000
Local	$31,000	$39,800	$5,800	$14,400	$14,400	$79,000	$12,400	$14,400	$14,400	$79,000
Total Vehicle Funding	$775,000	$995,000	$145,000	$360,000	$360,000	$1,975,000	$310,000	$360,000	$360,000	$1,975,000

Table 7-4: STAR Transit Capital Budget for Tier 2, Infrastructure Facilities, under Scenario B

Projects[1]	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Bus Shelters	$ -	$ 15,000	$ -	$ 15,000	$ -	$ -
Total Projected Non-Vehicle Capital Expenses	$ -	$ 15,000	$ -	$ 15,000	$ -	$ -
Anticipated Funding Sources						
Federal	$ -	$ 12,000	$ -	$ 12,000	$ -	$ -
State[2]	$ -	$ 1,200	$ -	$ 1,200	$ -	$ -
Local	$ -	$ 1,800	$ -	$ 1,800	$ -	$ -
Total Projected Non-Vehicle Capital Revenue	$ -	$ 15,000	$ -	$ 15,000	$ -	$ -

Notes:

[1] *Costs of most capital projects are based on costs in the FY 2014 SYIP.*

[2] *State funding was based on proposed State match of 40% for Tier 2 projects under Scenario B.*

Update:

Projects	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY2025	FY2026	FY2027	FY2028
Bus Shelters		$ 7,000		$ 7,000		$ 7,000		$ 7,000		
Total Projected Non-Vehicle Capital Expenses	$0	$7,000	$0	$7,000	$0	$7,000	$0	$7,000	$0	$0
Anticipated Funding Sources										
Federal	$0	$5,600	$0	$5,600	$0	$5,600	$0	$5,600	$0	$0
State	$0	$1,120	$0	$1,120	$0	$1,120	$0	$1,120	$0	$0
Local	$0	$280	$0	$280	$0	$280	$0	$280	$0	$0
Total Projected Non-Vehicle Capital Revenue	$0	$ 7,000	$ -	$ 7,000	$ -	$ 7,000	$ -	$ 7,000	$ -	$ -

Table 7-5: STAR Transit Capital Budget for Tier 3, Other Capital, under Scenario B

Projects[1]	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Computer Hardware	$ 8,000	$ -	$ -	$ -	$ -	$ -
Computer Software	$ 3,000	$ -	$ -	$ -	$ -	$ -
Surveillance/Security Equipment	$ 8,000	$ -	$ -	$ -	$ -	$ -
Spare Parts	$ -	$ 8,000	$ 15,000	$ -	$ 40,000	$ -
Bus Rehab/Renovation of Yards & Shop	$ -	$ -	$ 50,000	$ -	$ -	$ -
Misc. Equipment	$ -	$ -	$ 15,000	$ 14,000	$ -	$ -
ITS Equipment	$ -	$ -	$ -	$ 4,000	$ -	$ -
Bus Rehab/Renov of Admin/Maint Facility	$ -	$ -	$ -	$ -	$ 25,000	$ -
Total Projected Non-Vehicle Capital Expenses	$ 19,000	$ 8,000	$ 80,000	$ 18,000	$ 65,000	$ -
Anticipated Funding Sources						
Federal	$ 15,200	$ 6,400	$ 64,000	$ 14,400	$ 52,000	$ -
State[2]	$ 836	$ 352	$ 3,520	$ 792	$ 2,860	$ -
Local	$ 2,964	$ 1,248	$ 12,480	$ 2,808	$ 10,140	$ -
Total Projected Non-Vehicle Capital Revenue	$ 19,000	$ 8,000	$ 80,000	$ 18,000	$ 65,000	$ -

Notes:

[1] *Costs of capital projects are based on costs in the FY 2014 SYIP. The computer software item refers to the annual fee for an equipment/maintenance management system, with a 4% annual inflation rate applied.*

[2] *State funding was based on proposed State match of 22% for Tier 3 projects under Scenario B.*

Update:

Projects	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY2025	FY2026	FY2027	FY2028
Computer Hardware		$6,000				$10,000				$10,000
Computer Software and Technology Apps		$13,000	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000
Surveillance/Security Equipment					$8,000					
Spare Parts		$8,000		$10,000		$8,000		$8,000		$8,000
Bus Rehab/ Renovation of Yards and Sh	$35,000			$10,000				$10,000		
Misc Equipment	$25,000			$15,000		$14,000				
ITS Equipment			$6,000				$6,000			$6,000
Bus Rehab/ Renovation admin/ Maint Facility			$25,000		$25,000				$25,000	
Total Projected Non-Vehicle Capital Expenses	$60,000	$27,000	$44,000	$48,000	$46,000	$45,000	$19,000	$31,000	$38,000	$37,000
Anticipated Funding Sources										
Federal	$48,000	$21,600	$35,200	$38,400	$36,800	$36,000	$15,200	$24,800	$30,400	$29,600
State	$9,600	$4,320	$7,040	$7,680	$7,360	$7,200	$3,040	$4,960	$6,080	$5,920
Local	$2,400	$1,080	$1,760	$1,920	$1,840	$1,800	$760	$1,240	$1,520	$1,480
Total Projected Non-Vehicle Capital Revenue	$60,000	$ 27,000	$ 44,000	$ 48,000	$ 46,000	$ 45,000	$ 19,000	$ 31,000	$ 38,000	$ 37,000

Computer Software is the annual licensing fee for a Demand Response Software, GPS tracking app, automated fare and computer software upgrades

Chapter 8

TDP Monitoring and Evaluation

As described in the introduction in Chapter 1, this TDP serves as a "road map" for public transportation improvements that should be reviewed and updated to reflect any changes in community priorities, funding availability, or other factors that may impact STAR Transit services. Several analyses regarding STAR Transit operations, service performance, community transportation needs, and service alternatives have been completed as part of the TDP process, including the following tasks:

- Detailed documentation and analysis of current public transportation services,
- A peer review showing the service and financial characteristics of transit programs similar in scope to STAR Transit,
- A transit needs analysis, including demographic analysis, land use analysis, a review of relevant planning documents, stakeholder interviews, and rider surveys; and
- The development of service and organizational alternatives.

While Chapters 5 and 6 detailed the recommended operations and capital projects, respectively, and Chapter 7 provided the financial plan for these recommendations, it is important to remember that the TDP is a planning document. The plan is modest in nature, but does include some growth. The financially constrained projects included in this TDP are attached to particular years, but all of the projects are contingent on future funding. This TDP may need to be updated during the six-year planning period to reflect funding availability. This TDP will need to be formally adopted by the Accomack-Northampton Transportation District Commission.

This chapter describes the processes that are recommended to periodically monitor and evaluate the progress that STAR Transit has made in implementing the TDP. Such processes include integrating TDP projects with relevant planning documents, monitoring service performance, and submitting an annual update to DRPT. Monitoring and evaluation efforts are particularly important to ensure that

STAR Transit is meeting the goals, objectives, and standards that were described in Chapter 2.

COORDINATION WITH OTHER PLANS AND PROGRAMS

Chapter 3 included the review of various transportation and land use plans developed by Accomack and Northampton Counties, and the Accomack-Northampton PDC. The purpose of this review was to ensure that the TDP is consistent with local and regional transportation goals and efforts. Likewise, should relevant plans be updated in the coming years, STAR Transit staff should seek to participate in such efforts to ensure that projects recommended in this TDP are included in these area plans and studies, where fitting.

The formation of a formal TAC is recommended as a means to provide a mechanism to ensure that the projects incorporated within this TDP are included in internal and external plans in the Accomack-Northampton region and statewide (where appropriate). As mentioned in previous chapters, at the state level, STAR Transit should ensure that the recommended projects from this TDP are incorporated into the public transportation element of the DRPT State Transportation Improvement Program (STIP).

SERVICE PERFORMANCE MONITORING

Chapter 2 included a number of proposed service standards for STAR Transit, the purpose of which was to develop some objective measurements that the system can use to monitor transit service performance in the future and make performance-based service planning decisions. It is recommended that the STAR Transit monitor performance monthly, comparing performance to the same month of the previous year (to account for seasonal variations), and comparing trends in monthly data to address all performance standards outlined in Table 2-1. STAR Transit should also determine annual performance measures to include in the update to DRPT.

Should any services fail to meet the performance standards for two consecutive quarters, STAR Transit should review the specific route or service and identify strategies to improve performance, or update the performance standards as warranted by changes in circumstance. It is recommended that STAR Transit develop different performance standards if it implements new types of service, which perform considerably differently than its deviated fixed route service.

The results of this regular monitoring should be shared with the future TAC when it meets, with the ANTDC at least annually, and with DRPT through the annual TDP update.

ANNUAL TDP MONITORING

This TDP recommends that STAR Transit engage in several different monitoring activities on an annual basis, which will be reported to DRPT in an annual TDP update. Whereas the service performance monitoring described above helps STAR Transit determine whether it is meeting its goals to deliver service that is cost-effective and safe, it is also important to evaluate the extent to which STAR Transit is meeting its goals to provide service that is reliable and user-friendly and enables Accomack and Northampton County residents to be independent and engaged in the community. Effective approaches to collect data for such monitoring efforts include conducting public meetings and surveys on an annual basis.

DRPT guidance currently requires that grantees submit an annual TDP update letter that describes the progress that has been made toward implementing the adopted TDP. While the TDP has planned for the implementation of service improvements in particular years, the actual implementation may slip to future years if the proposed funding arrangements do not come to fruition or community priorities change. This TDP may need to be updated during the six-year planning period to reflect such changes. STAR Transit's annual update to DRPT should document the results of the activities described above and include the following elements:

- Operating statistics for the 12-month period, including the ridership attributed to any new proposals implemented as a result of the TDP.
- Any changes to system goals, objectives, or service standards.
- A description of any service or facility improvements that have been implemented during the 12-month period.
- An update to the TDP recommendations to identify additional projects, deferment of projects to later years, or elimination of projects.
- Updates to the financial plan to more accurately reflect current funding scenarios.