

EASTERN SHORE ALTERNATIVE TRANSPORTATION MODE STUDY FOR DISABLED, ELDERLY, LOW-INCOME, AND YOUTH POPULATION



Accomack-Norhampton Planning District Commission
Eastern Shore of Virginia Transportation
Technical Advisory Committee

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Prepared in cooperation with the Virginia Department of transportation.

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INTRODUCTION

At the February 9, 2005 meeting of the Accomack-Northampton Planning District Commission Transportation Technical Advisory Committee, Abra Jacobs of the Center for Independent Living requested that the Committee consider transit service for persons with disabilities. In the ensuing discussion, the Committee considered this and other alternative transportation issues, adopting a motion to study these issues. At that time, a new state pilot program was available and the Committee obtained funding to conduct the study.

The study focuses on transportation needs for low-income, disabled, elderly and youth populations. Northampton and Accomack were studied in detail. Census information showing population characteristics was used to determine if neighborhoods were lacking private vehicles and needed alternative transportation resources. The population characteristics looked at were vehicle count information, carpooling information, disability, age, and poverty levels. Much of this Census data is quite broad and individual neighborhoods could not be correlated well with the counts. County GIS data was used to create neighborhood indicator maps showing areas where financial resources may pinpoint exact locations where alternative transportation is needed. An inventory of major destinations was also compiled. Most of this material is provided in the appendices.

Three public workshops were held and the results were used along with the study materials to make recommendations to improve transportation for elderly, youth and disabled populations in the counties. These recommendations endeavor to achieve transportation efficiency, as well as a high quality of life.

I. INVENTORY AND ANALYSIS

By far, the dominant form of transportation is the private vehicle. On average, according to the Department of Labor Statistics 2004 Consumer Expenditures Survey, Americans spend 18.0% of their incomes on transportation, mostly in car ownership. Only shelter is a larger share of American household spending at 18.4%.

Americans spend 17.0% of their incomes on car ownership while they spend on average just 1.0% on public transportation. This works out to an average cost of \$4,413 per vehicle per year. The survey also shows that, on average, 88% of American households have at least one car available.

Description of Activity	Percent of Income
Vehicle Purchase	7.8%
Gasoline and Motor Oil	3.7%
Other Vehicle Expenses	5.5%

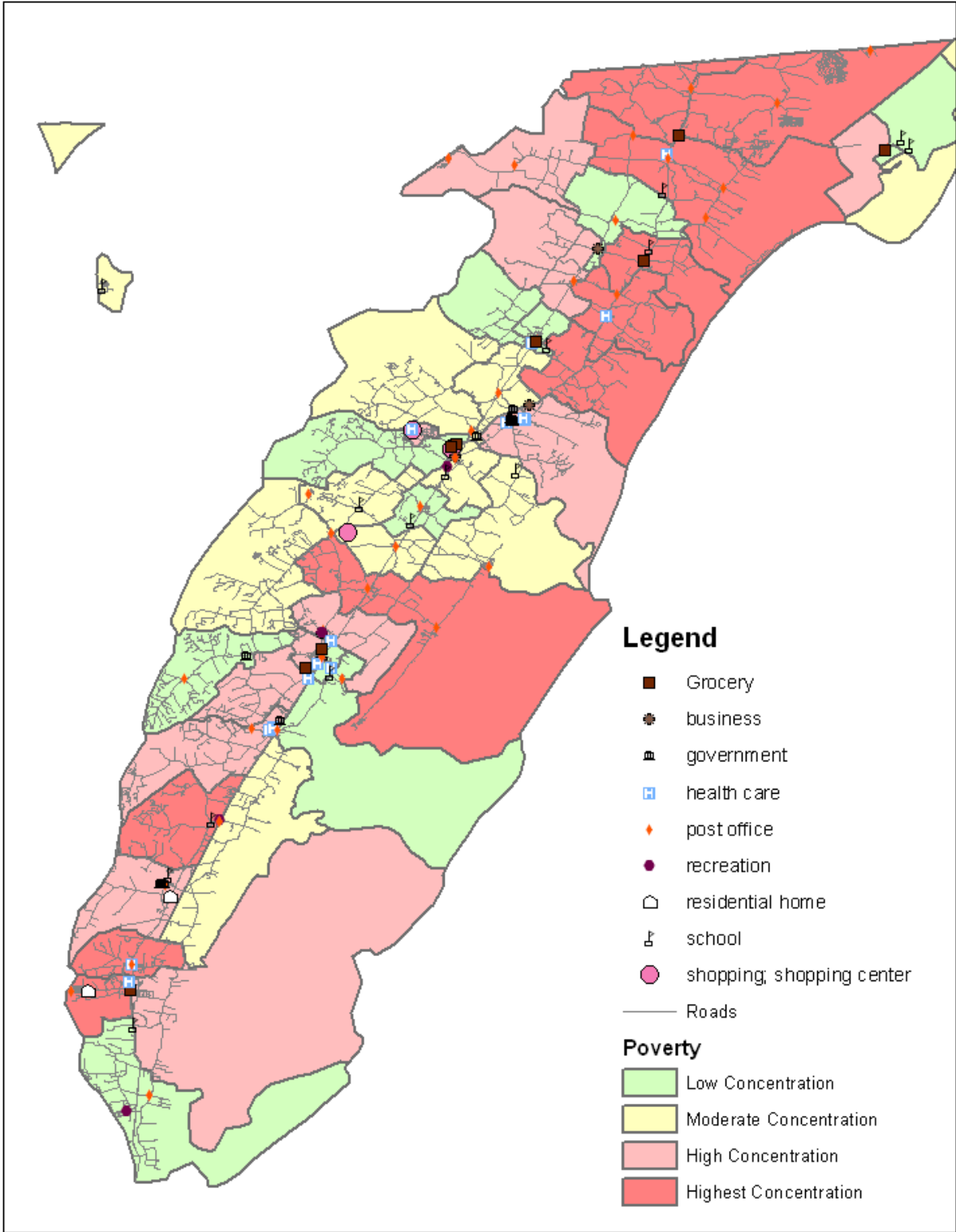
Source: U.S. Department of Labor Statistics, Consumer Expenditures Survey, 2004

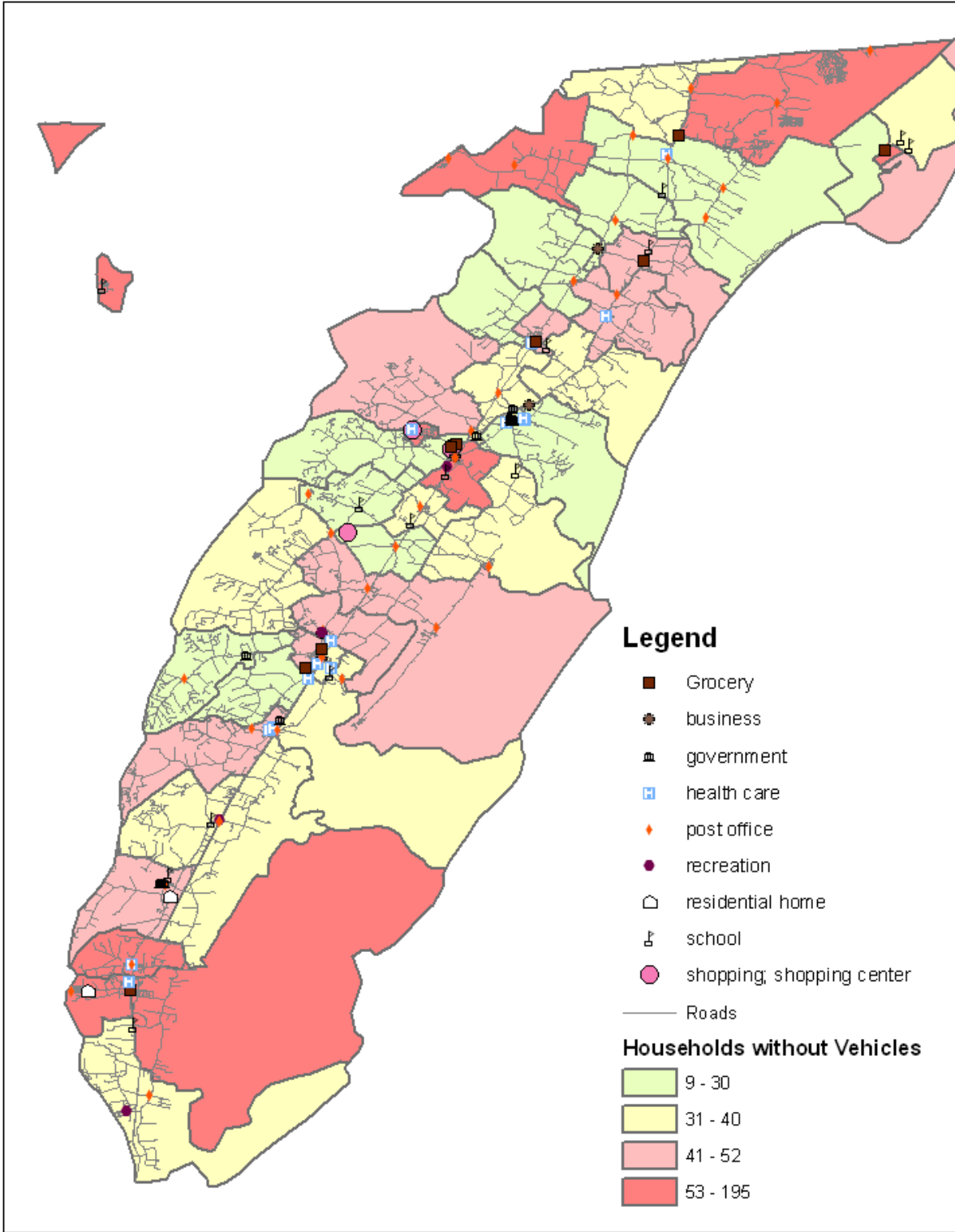
The private vehicle is the most convenient mode of transportation in use on the Eastern Shore. However, it is not available to all people. The 2000 Census shows that 90.5% of Accomack County households have at least one car available; in Northampton County the figure is 87.4%. Alternative modes of transportation will always be needed.

Transportation Workshops

The Accomack-Northampton Planning District Commission held three public workshops on alternative transportation. They were held in the Accomack County on March 14, 2006, the Town of Chincoteague on April 8, 2006, and in Northampton County on April 19, 2006. Participants identified specific transportation needs on the Eastern Shore. Most of the needs focused on STAR Transit. Needs included building bus shelters in some areas, adding a demand response route to Northampton County, increasing the demand response area in Accomack County, improving connections between the buses, having longer hours of service and adding weekend service, and adding a connection across the Chesapeake Bay to Hampton Roads. Chincoteague residents added that bus service needed to be advertised on the Island.

In addition to the public workshop, A-NPDC staff met with STAR Transit's manager and staff to discuss the public's concerns. Ms. Ardolino, Transit Manager, explained that there is a demand response for Northampton County called the Ruby Express but its currently not in service since there is no driver for the route. Ms. Ardolino also explained that a connection from the Eastern Shore to Hampton Roads was available for two years but the passenger numbers never made the link viable. It cost STAR Transit \$60,000 a year in tolls to get across the Chesapeake Bay Bridge Tunnel three times a day. Virginia's Department of Rail and Public Transit will not subsidize that route again





unless Northampton County puts up 30-32% of the cost of the route. Operational issues also create difficulties for alternative transportation consumers including: lack of STAR Transit drivers, significant delays in fixed route bus pickup due to call in activity, and long load times for persons in wheelchairs also leading to delay in fixed route bus pickup. Lack of destinations also reduces demand. After the local K-Mart closed, bus trips declined drastically.

Other issues were identified during the Workshops including a problem with underage driving of three wheeled mopeds on Chincoteague Island, and the need for more bicycle paths on the Eastern Shore.

Inventory

Staff members completed an inventory of major employers, housing facilities, major shopping facilities, schools, and recreation. Excluding post offices, there are approximately 4,100 buildings within a quarter of a mile radius of the major destinations. A quarter of a mile radius is the distance people will choose to walk instead of driving a car so long as there is a safe and convenient pathway. Including post offices there are approximately 7,700 buildings within a quarter mile of these major destinations.

The inventory shows that the major concentrations of destinations are in Exmore, the Onancock-Onley-Accomack area, and Chincoteague. A new major destination is expected in Onley. This new store will likely serve as a hub of the community. Approximately 30% of all the major destinations are located in the Onley-Onancock-Accomack area. Over 5,500 people live in these Towns or within one mile of them. This represents 15% of the population of Accomack County and 11% of the population of the entire Eastern Shore. Over 4,300 live on Chincoteague Island representing 11% of Accomack County’s population and a little over 8% of the population of the entire Eastern Shore. The Town of Exmore sits along the border of Accomack and Northampton County. Over 2,700 people live in the Town or within one mile. This represents 5% of the Eastern Shore’s population but taking out Accomack County residents almost 17% of the population of Northampton County live in this area.

Patterns of Transportation Use

Based on commuter data, private vehicles are used for 77% of trips in Accomack and 71% of trips in Northampton. Carpooling, the second most common commuter option, makes up another 14% in Accomack and 16% in Northampton. The remaining choices make up 9% in Accomack and 13% in Northampton.

Means	Accomack Co.	Percentage	Northampton Co.	Percentage
Private Vehicle	12,503	77%	3,603	71%
Carpooling	2,336	14%	816	16%
Work at home	454	3%	238	5%
Walk	422	3%	200	4%
Bus	256	2%	109	2%
Bicycle	100	1%	15	0%

Source: 2000 Census, Commuting Data

The data shows that the most viable alternatives to private vehicles are working at home, walking,

riding the bus or riding a bike. In all these cases, proximity to employment and shopping centers is critical.

Carpooling. There were 3,152 people reliant on a carpool to get to work in 2000. Detailed Census information for Accomack County shows 552 people, 24% of all carpoolers, were using a carpool that held 3 or more workers. That information also shows that in Northampton County 239, 29% of all carpoolers, were using a carpool of 3 or more workers. The Homeless Intervention Program and the Housing Choice Voucher Program have both seen clients or applicants that lost their jobs due to unreliable transportation. In some cases, the cause of the problem was the driver of their carpool was sick, quit, or was unreliable.

Working at Home, Walking, Bicycling. There were 1,429 people working at home, walking, or bicycling to work. These are all dependent on proximity to work. According to Goodridge¹, bicycling to work is most beneficial for those people without cars who have to travel over ½ mile to get to work. Yet according to Eno Transportation Foundation research, the average bicycle commute is 3.5 miles and takes 16 minutes. This indicates that if a commute is under ½ mile the worker, without a car, will choose to walk. Informal paths exist across and along parts of U.S. Route 13. People walk along these to local destinations. Some that were identified are along Route 13 in Nassawadox on the west side of the road. Several Route 13 crossings exist, generally these are at places where there is residential housing on one side of the road and a convenience or general store on the other side.

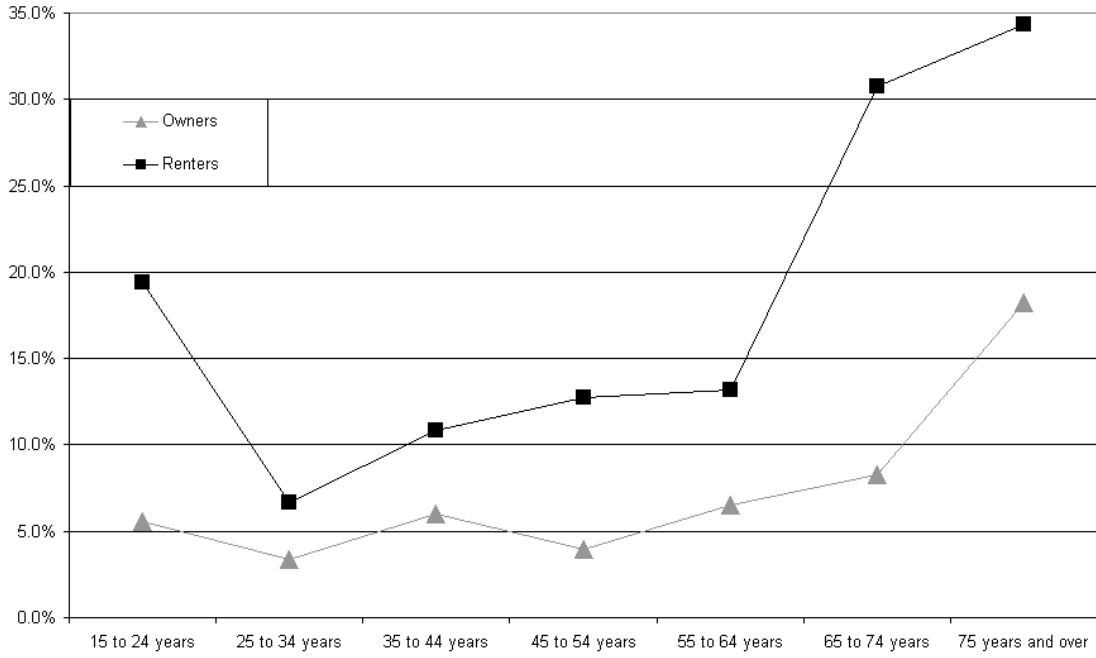
Bus Transit Service. STAR Transit is the only year-round bus line available in Accomack and Northampton Counties. Using the Census 2000 data, 365 people say they used a bus to get to work. STAR Transit ridership for the year 1999, the year people were asked about, shows that the average ridership per month was 3,295 trips. If 365 full-time workers used STAR Transit in 1999 for fifty weeks, the average trips per month should be around 15,000. This may indicate that the workers were using STAR Transit but were part-time, or were only employed part of the year, or they may be using a private bus, or they may only use STAR Transit one way.

Transportation Consumers

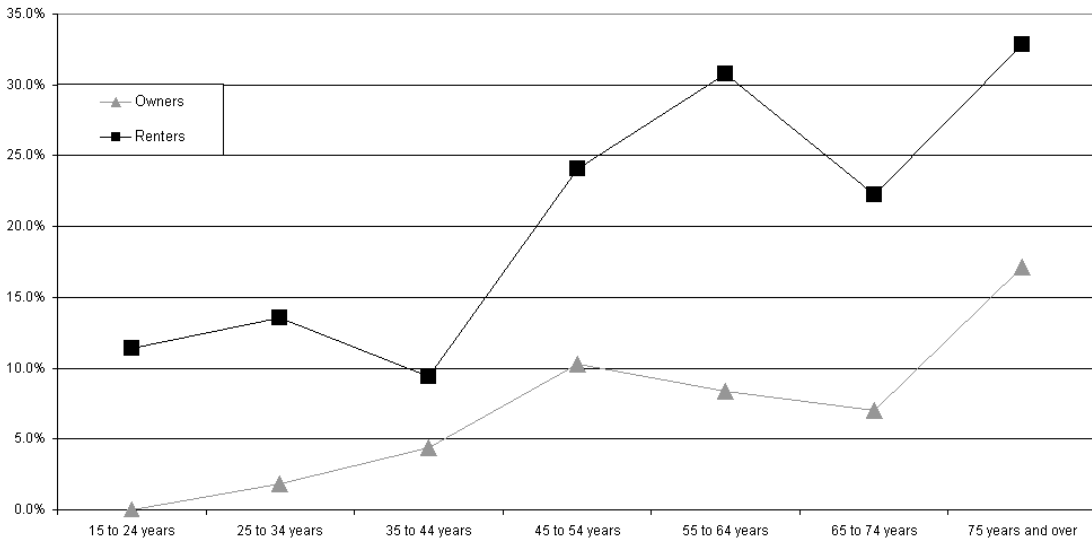
Transportation consumers who need alternative transportation are varied but the younger and older you are the less likely a car is available. Households that rent their dwelling and minority households are less likely to have a car available. Persons with certain disabilities also need alternative transportation.

¹ Land-Use, Climatic, Demographic, and Cultural Issues Affecting Utilitarian Bicycle Travel in the Triangle, Steven Goodridge, Cary Planning and Zoning Board, 2001, www.humantransport.org/bicycledriving/cyclinguse.htm 12/11/06

Accomack County
Percentage of Households with No Vehicle Available



Northampton County
Percentage of Households with No Vehicle Available



Young Transportation Consumers

Accomack County. Persons between the ages of 15 and 24 made up 12.4% of the population in 2000. Virginia Employment Commission Population Projections for the county have this age group staying relatively stable as a percentage of population over the next 30 years. Projections indicate that this age group will make up 12.9% in 2010, 11.9% in 2020, and 12.2% in 2030. Since the population in the county is projected to grow for the next 30 years young transportation consumers will increase from 4,760 in 2000 to 5,324 in 2010, decrease to 5,311 in 2020, and increase to 5,690 in 2030.

Heads of households that are under the age of 25 have a median household income of \$19,688 in Accomack County. This means that half of all these households make less than \$19,688 while the other half make more. This age group has the second lowest median income. The 2000 Census shows that there were 595 households in the County that were in this group and 20.2% make less than \$10,000. The 2000 Census shows that 13.8% of these households have no car available.

Northampton County. In 2000, there were 1,503 people between the ages of 15 and 24, representing 11.5% of the population. This age group is projected to remain generally flat at 1,522 (12.3%) in 2010, decrease to 1,304 (10.7%) in 2020, and recover to 1,435 (12.0%) in 2030.

Within the county, households headed by persons under the age of 25 have the second lowest median household income at \$23,875. The 2000 Census shows that there were 121 households in the County that were in this group and 10.4% make less than \$10,000. The 2000 Census shows that 8.2% of these households have no car available.

Senior Transportation Consumers

As people age, they need more transportation options. With age comes increased disability and decreased income, both factors make private vehicle transportation difficult. In both counties, the population is aging. There are 9,160 people over the age of 65 by 2030 there will be 14,638.

Accomack County. Persons over the age of 65 made up 16.7% of the population in 2000. This amounted to 6,389 people. The population projection for Accomack in 2010 swells the numbers to 7,570 (18.3%) in 2010, 9,338 (21.0%) in 2020, and 11,519 (24.8%) in 2030.

Householder Age	Median Income	Owners without a Car	Percentage without a Car	Renters without a Car	Percentage without a Car
15-24	\$19,688	11	5.6%	57	19.4%
25-34	\$30,882	31	3.3%	59	6.7%

35-44	\$34,241	114	6.0%	113	10.8%
45-54	\$38,317	91	4.0%	76	12.8%
55-64	\$28,934	139	6.5%	52	13.2%
65-74	\$25,226	192	8.3%	99	30.7%
75+	\$17,386	314	18.2%	99	34.4%

Source: 2000 Census, Accomack County

Northampton County. According to the 2000 Census, there were 2,771 persons (21.2%) over the age of 65. The population projection shows that at first the older population will decline to 2,441 (19.7%) in 2010, then increase to 2,794 (22.9%) in 2020, and increase to 3,119 (26.0%) in 2030.

Householder Age	Median Income	Owners without a Car	Percentage without a Car	Renters without a Car	Percentage without a Car
15-24	\$28,276	0	0%	9	11.4%
25-34	\$23,875	3	1.8%	44	13.5%
35-44	\$25,469	25	4.4%	34	9.4%
45-54	\$33,523	70	10.3%	65	24.1%
55-64	\$33,333	51	8.4%	64	30.8%
65-74	\$27,802	59	7.0%	49	22.3%
75+	\$16,000	132	17.2%	67	32.8%

Source: 2000 Census, Northampton County

Persons with a Disability

According to the Virginia Board for People with Disabilities, 30% of people with disabilities work while 82% of people without disabilities work. Of those persons with a disability that do not work, 26% say that they would need accessible parking or a transportation stop to work.

Accomack County. The 2000 Census shows that there were 7,608 people in Accomack County with a disability. This represents 21% of the entire population. Using demographic projections from the Virginia Employment Commission and current rates of disability, the disabled population is expected to increase to 8,700 in 2010, 9,600 in 2020 and 10,400 in 2030. By 2030, people with disabilities will make up 22% of the entire population.

Age Groups	Percentage that have at least One Disability
5-15	6%
16-20	13%
21-64	21%
65-74	32%

75+	54%
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Source: 2000 Census, Accomack County

Northampton County. The 2000 Census shows that there were 3,148 people in Northampton County with a disability. This represents 25% of the entire population. Using demographic projections from the Virginia Employment Commission and current rates of disability, the disabled population is expected to remain steady throughout the next two decades increasing to 3,600 in 2030. According to the Virginia Employment Commission, the County will lose population across all three decades. By 2030, people with disabilities will increase to 30% of the entire population.

Age Groups	Percentage that have at least One Disability
5-15	7%
16-20	10%
21-64	25%
65-74	37%
75+	57%

Source: 2000 Census, Northampton County

Low-income Consumers

According to the 2000 Census, the poverty line starts at \$7,990 for a single person over the age of 65 with no family. A married couple with two children must make more than \$16,895 to stay above the poverty line. Car ownership is not feasible for most families living in poverty. Owning and maintaining a car is a drain of crucial financial resources for all families living in poverty. Since the average cost of owning a vehicle is \$4,413 per year and the cost of maintaining a house is similar, many families have to choose between transportation and shelter. For this reason, a reliable and affordable public transit system can open opportunities to families to improve their circumstances.

Type of Household	Poverty Line in 2000 Census
Senior who lives alone	\$7,990
Married Senior Citizens	\$10,070
Single Person	\$8,667
Couple with 2 Children	\$16,895
Single Parent with 1 Child	\$11,483
Single Parent with 2 Children	\$13,423
Grandparent with 1 Grandchild	\$11,440

Accomack County. There are 6,788 people living in poverty in the County. Almost 36% of folks living in poverty have less than half of the poverty amount.

Northampton County. There are 2,633 people living in poverty in the County. Over 38% of folks living in poverty have less than half of the poverty amount.

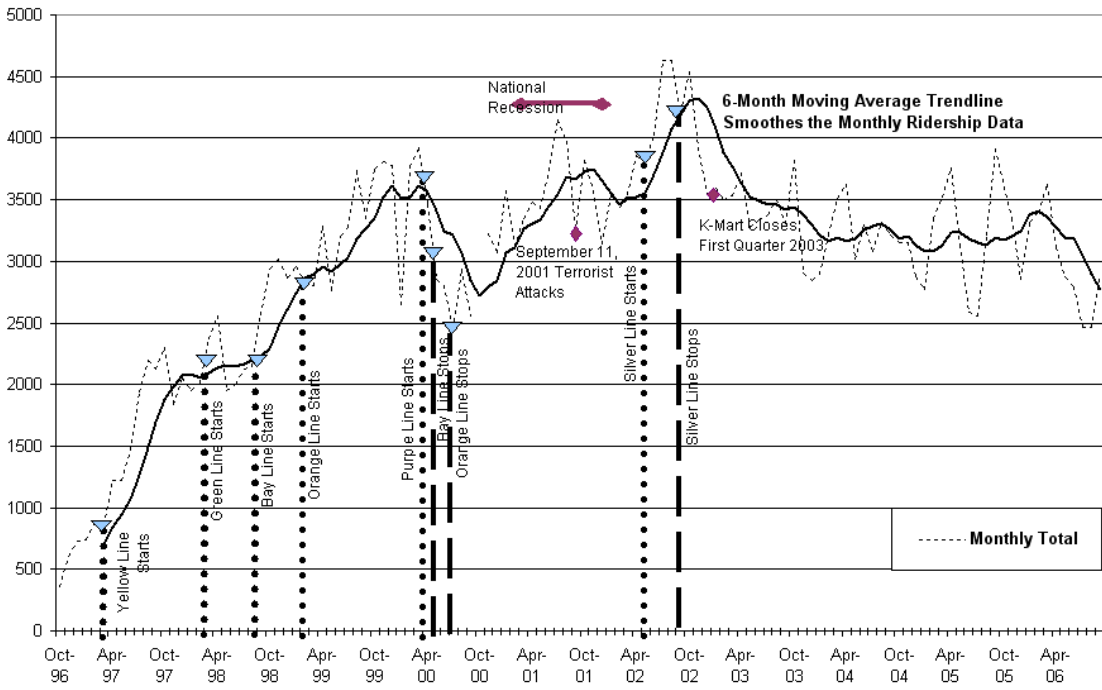
STAR Transit

STAR Transit carried its first passenger in October 1996. At the time there were two routes the red and blue and that first month, 363 trips were made on the STAR Transit buses. STAR Transit had a local high peak of 4,627 individual trips in August 2002, just months before the local K-Mart closed. Since K-Mart has closed, ridership has never recovered to levels seen before January of 2003. Currently, stores, the hospital, and the Eastern Shore Community College are the major destinations accessible by transit. The 2006 routes are presented in Appendix A and rider trip demand graphs for all the current routes are presented in Appendix B.

In October 2006, the Eastern Shore Community College stopped paying for transit rides on the Green Demand Response Route. The College is also suspending its program to pay for fixed routes in January 2007. Both of these decisions may reduce ridership.

STAR Transit has never recovered from K-Mart closing. Six-month moving averages show that ridership has declined to amounts not seen since the end of 2000. Operational issues hamper efforts to improve service. Specifically a lack of drivers keeps the demand response route in Northampton County from operating. Delays in bus pickup cause difficulties for transit riders dependent on the bus system. Among workers in both counties, 791 people are relying on a carpool of 3 or more people instead of the bus system.

Total STAR Transit Ridership Graphed Against Changes that Affect Ridership



II. NEEDS ASSESSMENT

Various needs were identified during the inventory and public workshops. Members of the public who took part in the public workshops wanted more access to employment and recreation. Many of their suggestions were to increase public transportation service on the Eastern Shore.

Build Bus Shelters. Transit officials and members of the public both wanted to see additional bus shelters added to the routes. The Town of Exmore downtown area was one specific site where a shelter is needed.

Increase Demand Response Area in Accomack County. At the public workshops, the demand response bus route in Accomack was praised as a key means to transport people from rural areas to their destinations. Participants wanted to see the demand response area in Accomack County grow in its reach.

Demand Response Route in Northampton County. The public workshops identified the need for a demand response route in Northampton County. Transit officials noted the lack of a driver to operate the route in the County.

Improve Connections between Bus Lines. In interviews with STAR Transit riders and the public workshops, participants want to see improved connections between bus routes and reduced waiting times for buses.

Longer Hours of Service and Weekend Service. Participants at the public workshops said that they cannot work a full workday and use the bus. It is also difficult to work and also use the bus to take care of shopping needs since the hours of service do not run outside of their regular working hours. Participants also indicated that their shopping needs could occur outside of the regular week if there were weekend service.

Across the Bay Service. In the past, this route was available. However, it was not successful and was canceled due to lack of ridership. Participants did request that it be considered at the public workshops for the primary purpose of entertainment and shopping in Hampton Roads. Transit officials stated that the cost of the route and its lack of riders means that Northampton County would need to subsidize the route before it would be reconsidered.

Advertise Bus Service on Chincoteague Island. Bus schedules and service were not widely advertised on the island. Since the public workshop that identified this need, local officials have put some of this information on the public access channel for the island.

Lack of STAR Transit Drivers. Transit officials noted that the lack of drivers has made expansion of the bus service difficult.

Delays in Fixed Routes. Bus schedules are delayed when someone calls in taking a bus off its usual fixed route. Interviews with STAR Transit riders indicated that this causes issues for persons

waiting along the scheduled route.

Long Load Time for Persons in Wheelchairs. Transit officials noted that bus routes are also delayed by excessive load times for persons in wheelchairs. The officials estimating it takes 30 minutes to load the person in the wheelchair.

Carpooling Issues. Seven hundred and ninety-one people are reliant on carpools of greater than three workers. When a driver is out sick or quits this causes major issues with other users of the carpool.

III. RECOMMENDATIONS

After meeting with consumers of alternative transportation, transportation agencies, and local officials the following recommendations are presented.

Land Use

The 2000 Census shows that the Shore has 1,904 families with no vehicle and also shows areas with concentrated poverty. These occur in both rural and more developed areas. The inventory shows that most services, shopping and employers are concentrated in the towns. Land use decisions can alter the economic situation of these areas. Concentrating services, shopping, and employment in local Towns will improve the lives of persons reliant on public transportation or other alternative transportation means.

Recommendation: Concentrate shopping, major employers and dense housing in areas that are already developed and can be served by public transportation.

Recommendation: Wherever possible, concentrate government services in the Towns.

Recommendation: Develop or redevelop school locations in close proximity to or within the Towns.

Bicycling and Walking

Based on the 2000 Census, 737 people walk or ride a bicycle to work. In Northampton County, the largest employers are located in the Towns of Exmore, Nassawadox, Eastville, and Cape Charles. In Accomack County, the largest employers are located in Accomac, Temperanceville, Onley, Oak Hall, and Wallops.

Recommendation: Implement the adopted Eastern Shore of Virginia Bicycle Plan.

Recommendation: Provide access to community properties for bicyclists and walkers. Develop bicycle facilities and sidewalks at government buildings and schools.

STAR Transit

Most areas of the Eastern Shore do not have enough demand to support a fixed bus route. Therefore, to get complete coverage, demand response routes are required. Generally, fixed routes are the most convenient. Promoting a fixed route connection between centers of population and major destinations will provide a good backbone for an increase in demand response coverage.

There are currently four fixed routes and one demand response route. A lack of drivers has kept another demand response route from coming online. The fixed routes currently have call-ins, which can cause the bus to depart its fixed route and pick up persons at selected locations. Most of these call-ins are not used frequently. New fixed routes have been developed and are presented in Appendix C along with a strategy to implement the recommended changes. These routes were developed using detailed neighborhood maps; some of these maps are presented in Appendix E.

Recommendation: STAR Transit commits to providing safe, dependable, efficient, and affordable public transportation to workers. Maintain a transit system that allows workers to

complete a full workday.

Recommendation: STAR Transit adopts a policy requiring all new fixed routes to arrive and depart at standard repeatable times so that connections can be maintained between bus routes.

Recommendation: Change the existing routes to cover distinct locations from each other. Make the routes short enough that they can be driven at standard repeatable times, create strong connections between the routes, and eliminate call-ins on fixed routes.

Recommendation: Once a strong backbone of fixed routes is in place increase demand response coverage to all areas of the counties.

Recommendation: Add all weather bus shelters at the transfer stops on the routes, Cape Charles, Exmore, Onley, Nelsonia and Chincoteague.

Recommendation: Add all weather shelters at the most popular stops on the routes.

APPENDIX A
STAR Transit Route Maps

APPENDIX B
STAR Transit Route Demand History – Existing Routes

APPENDIX C

Implementation Strategy for Improved STAR Transit Service

The best transit coverage of the Eastern Shore requires some fixed routes that connect major population centers and destinations with a support system of on-demand response areas.

Recommended System Benefits

The recommended system is based on the existing system with changes to improve service. It is designed to synch up every two hours and allow multiple repeating connections. This is to make the system more understandable to the riders. It is possible with the new system to not have a schedule and still know exactly when your bus will arrive. For example, a person who lives in Birdsnest will quickly realize that the bus going to Exmore will pass their home at 25 minutes past the odd hours, that is 7:25, 9:25, 11:25, 1:25, 3:25 and 5:25.

Other changes were made so that the buses could maintain time throughout the day. Departures are scheduled so that there will be times when the bus will need to sit at a location and wait for the departure time. This allows late buses to catch up and get back on schedule. Routes were broken apart so that a complete circuit could be completed in one hour or two. This allows the buses to come at standard repeatable times.

The routes were also tweaked to maximize the number of low-income households the bus will travel by. These were determined by looking at the neighborhood indicator maps presented in Appendix E and discussions with the Section 8 Housing Choice Voucher Program staff and A-NPDC staff working with Community Development Block Grant Programs.

Implementation Strategy

Transfer Pass Policy. Allow transfer passes between all fixed routes for riders who desire to go to destinations on other routes. Charge one fare for the use of the entire fixed route system.

Yellow Route Change. Since the Yellow Route is closest to its recommended course and two other routes also cover the same area, convert this route first. Eliminate all call-ins.

Driver Policy. STAR Transit institutes a driver program to increase the number of drivers available. Divide the routes up into shifts and allow the driver pool to select which shifts they will have for the next week. Veteran drivers have first choice followed by newer drivers. Advertise for people who want part-time work including college students. As soon as enough drivers are available, institute continuous service bus routes with extended evening hours and do away with the bus service breaks for lunch. Have a relief driver drive during any lunch times needed.

Northampton Demand Response Route and Red Route Change. Once the new store is built in Onley, use this location as the start and end points of the new Purple and Red routes. Start up the Northampton Demand Response Route and reroute the Red route.

Purple and Blue Route Changes. After the Red route and Yellow route connection is firmly established convert the Purple and Blue routes.

All Weather Stops. Look for opportunities to build all weather transit stops. These stops should be constructed at the Onley Wal-mart, Nelsonia, Chincoteague, Exmore and Cape Charles.

Additional Demand Response Coverage. Add additional demand response routes completing transit coverage of the Eastern Shore. Take care to use these routes to feed passengers to the fixed route system using major transit stops as destinations for passengers wherever possible.

Additional Fixed Route Service. Once all areas are served, if demand warrants it, consider adding two additional fixed routes one to the Saxis-Sanford-Hallwood-Mckemie Park-Withams area and a circular in northern Northampton County and southern Accomack County that moves off of Route 13 to communities that need alternative transportation options.

Weekend Service. Finally, once ridership has increased, the bus system is very efficient and funding is available consider operating the transit system during the weekend.

APPENDIX D

Transit Passenger Comparisons between Existing Routes and Recommended Routes

The following comparisons were chosen to show the equivalent difference in the two routes. The purpose of the three situations is to show how a passenger who is working with various constraints on their time would be able to use the routes. The three types of situations are relatively open-ended time frame such as a shopping trip, a flexible yet firm time frame such as an appointment, and a firm time frame such as a school class or a job.

Person who lives in Keller...

1) who needs to visit the A-NPDC for a half-hour applicant briefing

Using 2006 Routes, they have a 2:30 appointment

Purple Route (no call-ins)		Blue Route (no call-ins)	
<i>Keller 84 Lumber</i>	11:50 am	<i>Accomac - Courthouse</i>	3:58 pm
<i>Transfer to Blue at Onley</i>	12:25 pm	<i>Transfer to Red at Onley</i>	4:40 pm
<i>Accomac - Courthouse</i>	12:44 pm	<i>Keller Post Office</i>	5:00 pm
		Waiting Time:	0:28
Travel Time: 0:54		Travel Time:	1:02
1:46 minutes early for the appointment			
Cost: \$1.50		Cost: \$1.50	

Total Time Round Trip: *5 hours 10 minutes*

Or Call Green Route, Total roundtrip cost \$6.00

Using the Recommended Routes, they have a 2:30 appointment

Red Route		Purple Route	
<i>Keller 84 Lumber</i>	1:34 pm	<i>Accomac - Courthouse</i>	3:20 pm
<i>Transfer to Purple at Onley</i>	1:50 pm	<i>Transfer to Red at Onley</i>	3:41 pm
<i>Accomac - Courthouse</i>	2:08 pm	<i>Keller Post Office</i>	3:46 pm
		Waiting Time:	0:20
Travel Time: 0:34		Travel Time:	0:26
22 minutes early for the appointment			
Cost: \$1.50		Cost: \$1.50	

Total Time Round Trip: *2 hours 12 minutes*

2) who wants to shop at Fresh Pride in Onley

Using 2006 Routes

Red Route (no call-ins)		Route (no call-ins)	
<i>Keller 84 Lumber</i>	1:13 pm	<i>Onley</i>	2:45 pm
<i>Onley</i>	1:22 pm	<i>Keller Post Office</i>	2:50 pm
Shopping: 1:23			
Travel Time: 0:09		Travel Time:	0:05
Cost: \$1.50		Cost: \$1.50	

Total Time Round Trip: *1 hour 37 minutes*

Using the Recommended Routes

Red Route		Red Route	
<i>Keller 84 Lumber</i>	1:34 pm	<i>Onley</i>	2:41 am
<i>Onley</i>	1:41 pm	<i>Keller Post Office</i>	2:46 pm
Shopping: 1:00			
Travel Time: 0:09		Travel Time:	0:05
Cost: \$1.50		Cost: \$1.50	

Total Time Round Trip: *1 hour 12 minutes*

3) who works in Exmore at a 8 to 5 job

Using 2006 Routes

Purple Route

Keller Post Office 6:55 am

Exmore Town Office 7:07 am

Travel Time: 0:12

53 minutes early

Cost: \$1.50

Total Time Round Trip: *10 hours 22 minutes*

Purple Route

Exmore Town Office Call in 5:04 pm

Keller 84 Lumber 5:17 pm

Travel Time: 0:13

Cost: \$1.50

Using the Recommended Routes

Red Route

Keller Post Office 7:46 am

Exmore Town Office 7:58 am

Travel Time: 0:12

2 minutes early

Cost: \$1.50

Total Time Round Trip: *9 hours 48 minutes*

Red Route

Exmore Town Office 5:15 pm

Keller 84 Lumber 5:34 pm

Travel Time: 0:19

Cost: \$1.50

Person who lives in Exmore...

1) who needs to visit the Hospital

Using 2006 Routes, they choose a 9:00 one-hour appointment

Red Route (no call-ins)

Exmore Town Office 8:42 am

Nassawadox Hospital 8:55 am

Travel Time: 0:13

5 minutes early for the appointment

Cost: \$1.50

Total Time Round Trip: 2 hours 53 minutes

Yellow Route (no call-ins)

Nassawadox Hospital 11:09 am

Exmore Town Office 11:35 am

Waiting Time: 1:09

Travel Time: 0:26

Cost: \$1.50

Using the Recommended Routes, they choose a 9:30 one-hour appointment

Red Route

Exmore Town Office 8:58 am

Exmore Shore Plaza

for Transfer to

Yellow Route 9:10 am

Nassawadox Hospital 9:19 am

Travel Time: 0:21

11 minutes early for appointment

Cost: \$1.50

Total Time Round Trip: 2 hours 17 minutes

Nassawadox Hospital 10:52 am

Shore Plaza Transfer

to Red Route 11:10 am

Exmore Town Office 11:15 am

Waiting Time: 0:22

Travel Time: 0:23

Cost: \$1.50

2) who wants to shop at Wal-Mart (not yet built)

Using 2006 Routes

Purple Route (no call-ins)

Exmore Town Office 8:55 am

Wal-Mart ~9:10 am

Shopping: 1:35

Travel Time: 0:15

Cost: \$1.50

Total Time Round Trip: 2 hours 2 minutes

Purple Route (no call-ins)

Wal-Mart ~10:45 am

Exmore Town Office 10:57 am

Travel Time: 0:12

Cost: \$1.50

Using the Recommended Routes

Red Route

Exmore Town Office 9:15 am

Wal-Mart ~9:38 am

Shopping: 1:03

Travel Time: 0:23

Cost: \$1.50

Total Time Round Trip: 1 hour 43 minutes

Wal-Mart ~10:41 am

Exmore Town Office 10:58 am

Travel Time: 0:17

Cost: \$1.50

3) who works an 8 to 5 job in Onley

Using 2006 Routes

Red Route (no call-ins)

Exmore Town Office 7:17 am

Onley Fresh Pride 7:45 am

Travel Time: 0:28

15 minutes early

Cost: \$1.50

Total Time Round Trip: *9 hours 56 minutes*

Red Route (no call-ins, last run)

Onley Fresh Pride 4:40 pm

Exmore Town Office 5:13 pm

Travel Time: 0:26

Leave 20+ min early every day

Cost: \$1.50

Using the Recommended Routes

Red Route

Exmore Town Office 7:15 am

Onley Fresh Pride 7:41 am

Travel Time: 0:26

19 minutes early

Cost: \$1.50

Total Time Round Trip: *10 hours 43 minutes*

Onley Fresh Pride 5:41 pm

Exmore Town Office 5:58 pm

Travel Time: 0:17

Waiting Time: 0:41

Cost: \$1.50

Person who lives in Chincoteague...

1) who needs to visit the A-NPDC

Using 2006 Routes, they choose a 11:30 half-hour appointment

Blue Route (no call-ins)		Blue Route (no call-ins)	
Chincoteague Parking Lot	10:05 am	Accomac - Courthouse	12:44 am
Accomac - Courthouse	11:21 am	Chincoteague Parking Lot	1:46 pm

Travel Time: 1:16
9 minutes early for the appointment
Cost: \$1.50

Waiting Time: 0:44
Travel Time: 1:02

Cost: \$1.50

Total Time Round Trip: 3 hours 41 minutes

Using the Recommended Routes, they choose a 9:30 half-hour appointment

Blue Route		Purple Route	
Chincoteague Parking Lot	7:45 am	Accomac - Courthouse	10:08 am
Transfer to Purple at Nelsonia	8:50 am	Transfer to Blue at Nelsonia	10:50 am
Accomac - Courthouse	9:20 am	Chincoteague Parking Lot	11:45

Travel Time: 1:35
11 minutes early for the appointment
Cost: \$1.50

Waiting Time: 0:08
Travel Time: 1:37

Cost: \$1.50

Total Time Round Trip: 4 hours 0 minutes

2) who wants to shop at Food Lion Plaza in Oak Hall

Using 2006 Routes

Blue Route (no call-ins)		Blue Route (no call-ins)	
Chincoteague Parking Lot	10:05 am	Oak Hall - T's Corner	1:30 pm
Oak Hall - T's Corner	10:22 am	Chincoteague Parking Lot	1:46 pm

Shopping: 3:08
Travel Time: 0:17
Cost: \$1.50

Travel Time: 0:16
Cost: \$1.50

Total Time Round Trip: 3 hours 41 minutes

Using the Recommended Routes

Blue Route		Blue Route	
Chincoteague Parking Lot	1:45 pm	Oak Hall - T's Corner	3:17 pm
Oak Hall - T's Corner	2:17 pm	Chincoteague	3:40 pm

Shopping: 1:00
Travel Time: 0:32
Cost: \$1.50

Travel Time: 0:23
Cost: \$1.50

Total Time Round Trip: 1 hour 55 minutes

3) who goes to ESCC for classes

Using 2006 Routes, in time for 9 am classes

Blue Route (no call-ins)

Chincoteague Parking Lot 6:10 am

Transfer to Green at Onley 8:15 am

or Red if it allows dropoffs

Melfa- ESCC 8:25 am

School Time: 6:30

Travel Time: 2:15

5 minutes early

Cost: \$4.50

Total Time Round Trip: *11 hours 56 minutes*

Green Route (call-in) Classes ending at 3:45

Call In to get Green to get to Onley by 4:45 pm

Transfer to Blue at Onley 4:45

Call In Chincoteague Parking Lot 6:06

Travel Time: 2:21

Cost: \$4.50

Using the Recommended Routes, in time for 8 am classes

Blue Route

Chincoteague Parking Lot 5:45 am

Transfer to Purple at Nelsonia 6:50 am

Transfer to Red at Onley 7:41 am

ESCC 7:44 am

School Time: 7:30

Travel Time: 1:59

16 minutes early

Cost: \$1.50

Total Time Round Trip: *11 hours 55 minutes*

Classes ending at 3:30

ESCC 3:38 pm

Transfer to Purple at Onley 3:50 pm

Transfer to Blue at Nelsonia 5:40 pm

Chincoteague Parking Lot 5:40 pm

Travel Time: 2:02

Cost: \$1.50

Person who lives in Cape Charles...

1) who needs to visit the Northampton Social Services

Using 2006 Routes, they choose a 8:30 half-hour appointment

Purple Route (no call-ins)

Cape Charles 8:10 am

Eastville – Social Services 8:32 am

Red Route (no call-ins)

Eastville – Social Services 9:12 am

Cape Charles 9:32 am

Waiting Time: 0:12

Travel Time: 0:20

Travel Time: 0:22

2 minutes late for the appointment

Cost: \$1.50

Cost: \$1.50

Total Time Round Trip: 1 hours 21 minutes

Using the Recommended Routes, they choose a 9:00 half-hour appointment

Yellow Route

Cape Charles 8:06 am

Eastville – Social Services 8:35 am

Yellow Route

Eastville – Social Services 9:34 am

Cape Charles 10:03 am

Waiting Time: 0:04

Travel Time: 0:29

Travel Time: 0:22

25 minutes early for the appointment

Cost: \$1.50

Cost: \$1.50

Total Time Round Trip: 1 hour 57 minutes

2) who wants to shop at Roses in Exmore

Using 2006 Routes

Purple Route (no call-ins)

Cape Charles 8:10 am

Exmore- Shore Plaza 8:50 am

Purple Route (no call-ins)

Exmore-Shore Plaza 11:03 am

Cape Charles 11:42 am

Shopping: 2:13

Travel Time: 0:40

Cost: \$1.50

Travel Time: 0:39

Cost: \$1.50

Total Time Round Trip: 3 hours 32 minutes

Using the Recommended Routes

Yellow Route

Cape Charles 8:06 am

Exmore- Shore Plaza 9:01 am

Yellow Route

Exmore-Shore Plaza 11:10 am

Cape Charles 12:03 pm

Shopping: 2:09

Travel Time: 0:56

Cost: \$1.50

Travel Time: 0:53

Cost: \$1.50

Total Time Round Trip: 3 hours 57 minutes

3) who works in Exmore at a 8 to 5 job

Using 2006 Routes

Red Route (no call-ins)

Cape Charles 6:30 am
Exmore- Shore Plaza 7:10 am

Travel Time: 0:40

50 minutes early

Cost: \$1.50

Total Time Round Trip: *11 hours 34 minutes*

Red Route (no call-ins)

Exmore-Shore Plaza 5:21 pm
Cape Charles 6:04 pm

Waiting Time: 0:21

Travel Time: 0:43

Cost: \$1.50

Using the Recommended Routes

Yellow Route

Cape Charles 6:06 am
Exmore- Shore Plaza 7:01 am

Travel Time: 0:55

59 minutes early

Cost: \$1.50

Total Time Round Trip: *11 hours 57 minutes*

Yellow Route

Exmore-Shore Plaza 5:10 pm
Cape Charles 6:03 pm

Waiting Time: 0:10

Travel Time: 0:53

Cost: \$1.50

APPENDIX E

Detailed Neighborhood Maps with Recommended STAR Transit Routes

The neighborhoods that were most likely to use the transit system are looked at in greater detail. Neighborhoods were selected by whether they had a concentration of houses without indoor plumbing and whether they had ever had a Community Development Block Grant Project. These communities generally have a large number of lower income residents. Information on the value of improvements was collected and the maps show parcels and lots where improvement value may indicate a family with limited means who may need access to transit service. The maps are ordered south to north. Cheapside is in the southern tip of Northampton County, Exmore marks the boundary between both counties, and Horntown is in northern Accomack County.