

Improving the Mobility of Non-Drivers

Neighborhood Gaps Analysis



T07-08

June 2007

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IMPROVING THE MOBILITY OF NON-DRIVERS: NEIGHBORHOOD GAPS ANALYSIS

**This report was included in the Work Program
for Fiscal Year 2006-2007, which was approved by the
Commission and the Metropolitan Planning Organization
at their meetings of March 15, 2006**



**PREPARED BY
HAMPTON ROADS PLANNING DISTRICT COMMISSION**

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Neighborhood Gaps Analysis

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ABSTRACT

HRPDC staff has conducted a multi-year study to determine ways to increase the mobility of non-drivers in Hampton Roads. The first two published reports investigated improving the mobility of non-drivers using the National Household Travel Survey (NHTS). The third report presented statistics on non-drivers in Hampton Roads from a local survey. In the fourth report, data from a local survey, augmented with geographic data, was used to determine ways to improve the mobility of non-drivers. In this latest report, knowledge gained from the previous reports was applied to three neighborhoods in Hampton Roads (Coliseum Central in Hampton, Wards Corner in Norfolk, and Hilltop In Virginia Beach). Not being a comparative report, these neighborhoods were analyzed separately in terms of gaps in accommodations for the non-drivers in their communities.

ACKNOWLEDGEMENTS

This report was prepared by the Hampton Roads Planning District Commission (HRPDC) in cooperation with the Virginia Department of Transportation (VDOT) and with assistance from the City of Virginia Beach, City of Hampton, and City of Norfolk staff. The PDC staff is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of VDOT or the HRPDC. This report does not constitute a standard, specification, or regulation.

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EXECUTIVE SUMMARY

This is the latest in a series of reports evaluating ways to improve the mobility of non-drivers in Hampton Roads. The previous reports in the series were:

- “Improving Elderly Transportation Using the NHTS”, June 2005
- “Improving the Mobility of Non-drivers Age 18 to 64 Using the NHTS”, November 2006
- “Snapshot of Non-drivers in Hampton Roads: Summary of HRPDC Non-driver Phone Survey”, June 2007
- “Improving the Mobility of Non-drivers Using Proximity to Destinations and Bus Routes”, June 2007

The previous studies progressed from the national level (with the first two reports) to conducting a Hampton Roads survey (the basis for the third and fourth reports). For this report, the localities of Hampton Roads were each given the opportunity to provide a neighborhood for analysis of its non-driver accommodations. Three neighborhoods were submitted:

- Coliseum Central in Hampton
- Wards Corner in Norfolk
- Hilltop in Virginia Beach

Using the extensive work of the previous non-driver studies as a general guide, the neighborhoods were analyzed for their friendliness towards non-drivers in the following areas:

- Transit service
- Pedestrian and bicycle accommodations
- Available activities

Recommendations are made regarding ways to fill the gaps identified. Comparisons between neighborhoods are not made, as this is not the purpose of the report.

Summary of Recommendations for Coliseum Central in Hampton

- There are approximately 7.2 miles of gaps in the sidewalk network along major streets in the Coliseum Central study area. The cost to complete the sidewalk network would be about \$790,000. Besides impacting pedestrian and cyclist travel, the gaps in the sidewalks could also have an impact on the attractiveness of the area's transit routes, as the lack of sidewalks at transit stops could be a deterrent to potential riders.
- Sidewalks in the area can also be used by cyclists. Besides experiencing the same gaps as pedestrians, cyclists have limited areas with racks for their bicycles. Bicycle racks costs range from approximately \$225 for a single rack to \$800 for a rack holding ten bicycles.

- The distance to transit stops is sufficient, with five transit lines serving the area. However, routes 102, 113, and 118 could be further examined for ways to increase their ridership per hour.
- Most of the Coliseum Central area does have sufficient proximity for non-drivers to activities. These areas, that are already conducive to non-driver mobility in terms of proximity to businesses, may be good candidates for future additional residential units.
- The area that was found to be less-conducive to non-driver mobility in terms of proximity to activities was the northeast section of the study area. Opportunities for increasing businesses in this area may be limited, however, by the existing landuse.
- The city and current business owners could consider the incorporation of paths across large parking lots for more desirable non-driver access.

The city could work with the residents in the Coliseum Central area to determine acceptable and affordable ways for mobility to be increased for non-drivers in the area and whether the above potential opportunities for increased mobility are desirable to the community.

Summary of Recommendations for Wards Corner in Norfolk

- Access to the commercial area along Little Creek Rd. at Granby St. could be intimidating for non-drivers wanting to make the trip by bicycle. The city could provide facilities (bike lanes, bike racks at shopping areas) for those wanting to make the trip by bicycle.
- The distance to transit stops is sufficient, with four transit lines serving the area. However, routes 5 and 61 could be further examined for ways to increase their ridership per hour such as increased frequency or modified stop locations.
- For those living west of Newport Ave., access to the commercial area to the east of Granby St. could be increased by providing amenities (crosswalks, bike lanes) for crossing Newport Ave. Newport Ave. currently has a posted speed of 25 mph but has very wide lanes and no stops for a mile-long stretch, making it easy for drivers to exceed the posted speed limit and potentially difficult for cyclists and pedestrians to cross. The city may find traffic calming methods to be warranted.
- Mobility for those living at the northeast corner of Thole St. and Granby St. (between Suburban Pkwy and Granby Park to the north, and west of Suburban Park Elementary School) could be increased with an additional bicycle / pedestrian access point to the local street network to the north. This would provide a more direct route to the commercial area and increase connectivity to what is currently an area that is separated from the rest of Wards Corner. However, implementation of such a route would require the acquisition of an appropriate right-of-way, with additional financial costs and possible wetland impacts.
- Just over half of the Wards Corner area does have sufficient proximity for non-drivers to activities. These areas, that are already conducive to non-driver

mobility in terms of proximity to businesses, may be good candidates for future additional residential units.

- The areas that were found to be less-conducive to non-driver mobility in terms of proximity to activities were the western and southern borders of the study area. These areas may be good candidates for new businesses, if the city and the neighborhood desire to increase walking and bicycling opportunities for non-drivers and others.
- The city and current business owners could consider the incorporation of paths across large parking lots for more desirable non-driver access.

The city could coordinate with the residents in the Wards Corner area to determine acceptable and affordable ways for increasing non-driver mobility in the area, using the above potential opportunities for increased mobility as a starting point.

Summary of Recommendations for Hilltop in Virginia Beach

- There are about 2.4 miles of gaps in the sidewalk network along major streets in the Hilltop study area. The cost to complete the sidewalk network would be about \$265,000. Besides impacting pedestrian and cyclist travel, the gaps in the sidewalks could also have an impact on the attractiveness of the area's transit routes, as the lack of sidewalks at transit stops could be a deterrent to potential riders.
- Sidewalks in the area can also be used by cyclists. In addition to experiencing the same gaps as pedestrians, cyclists have limited areas with racks for their bicycles. Bicycle racks costs range from approximately \$225 for a single rack to \$800 for a rack holding ten bicycles.
- Non-driver access to Hilltop from the residential area to the north could be improved through the inclusion of a walkway from Laurel Lane.
- The distance to transit stops is sufficient, with three transit lines serving the area. However, routes 24 and 29 could be further examined for ways to increase their ridership per hour, such as increased frequency or modification of stop locations. Also, three of the routes (24, 29, and the Wave) do not have racks for bicycles, an exception in the HRT fleet.
- Most of the Hilltop area does have sufficient proximity for non-drivers to activities. These areas, that are already conducive to non-driver mobility in terms of proximity to businesses, may be good candidates for future additional residential units.
- The area that was found to be less-conducive to non-driver mobility in terms of proximity to activities was the residential area just east of Winwood Dr. This area may be a good candidate for new neighborhood-scale businesses in the area, if the city and the neighborhood desire to increase walking opportunities for non-drivers and others.
- The city and current business owners could consider the incorporation of paths across large parking lots for more desirable non-driver access.

The city could coordinate with the residents in the Hilltop area to determine acceptable and affordable ways for increasing non-driver mobility in the area, using the above potential opportunities for increased mobility as a starting point.

REVIEW OF PREVIOUS NON-DRIVER REPORTS

This is the latest in a series of reports evaluating ways to improve the mobility of non-drivers in Hampton Roads. The previous reports in the series were:

- “Improving Elderly Transportation Using the NHTS”, June 2005
- “Improving the Mobility of Non-drivers Age 18 to 64 Using the NHTS”, November 2006
- “Snapshot of Non-drivers in Hampton Roads: Summary of HRPDC Non-driver Phone Survey”, June 2007
- “Improving the Mobility of Non-drivers Using Proximity to Destinations and Bus Routes”, June 2007

Some of the findings and recommendations of the previous reports are listed below.

Findings Regarding Non-drivers from Previous Reports

- The elderly are more likely to be non-drivers, and non-drivers travel half as much as drivers.
- Only one-third of elderly non-drivers leave home on a given day. Two-thirds of younger non-drivers leave home on a given day.
- Personal vehicle travel is the mode used for the majority of non-driver trips. Non-drivers choose bus and walk modes equally for the remaining trips.
- One-third of older non-drivers live within walking distance of frequented places. Two-thirds of younger non-drivers live within walking distance of such places.
- Half of elderly non-drivers have fair to poor health.
- Half of elderly non-drivers live in a household with no vehicle.
- Half of elderly non-drivers have difficulty walking.
- The majority of non-drivers appear to have low incomes.
- Mobility is a significant problem for non-drivers, particularly older ones.
- Non-drivers achieve most of their mobility from persons with personal vehicles.
- Bus and walk are also important modes for non-driver mobility.
- For lesser-walking non-drivers, the odds of getting out of the home on a given day increase for each additional bus stop within a 5-mile radius of their home.
- For better-walking non-drivers, living within one mile of a bus stop doubles the odds of getting out of the home.
- Living within a half-mile of destinations increases non-driver mobility. Better-walking non-drivers living in High Activity Locations in Hampton Roads have odds of leaving home five times higher than those living away from activities. Mobility increases significantly for those with greater than 2,000 activity location units (“alu’s”) within a half-mile radius of their home; this concept will be explained later in this report.

Recommendations from Previous Reports

- Local governments can take steps to improve the mobility of 18-64 non-drivers, via zoning and infrastructure. A local government in Hampton Roads can use its zoning authority to promote the development of areas where residences are near destinations, either by adding residences, business / shopping destinations, or both to an area.
- Local governments can locate government facilities (rec. centers, libraries, etc.) in areas where many residences already exist. And localities can invest in improvements to pedestrian and transit infrastructure, particularly in those areas where destinations are near residences.
- Radical changes would have to be made to taxi, handi-ride, and medical transport systems for them to significantly impact non-driver mobility.
- Mobility improvements for older non-drivers must include consideration of the significant sub-population of older non-drivers with poor health.
- Mobility improvements for non-drivers of any age must include consideration of the low income of these persons.

The previous studies progressed from the national level (with the first two reports) to conducting a Hampton Roads survey (the basis for the third and fourth reports). For this report, the localities of Hampton Roads were each given the opportunity to provide a neighborhood for analysis of its non-driver accommodations. Three neighborhoods were submitted, their location in the region shown on a map on the following page.

- Coliseum Central in Hampton
- Wards Corner in Norfolk
- Hilltop in Virginia Beach

Using the extensive work of the previous non-driver studies as a general guide, the neighborhoods were analyzed for their friendliness towards non-drivers in the following areas:

- Transit service
- Pedestrian and bicycle accommodations
- Available activities

Recommendations are made regarding ways to fill the gaps identified. Comparisons between neighborhoods are not made, as this is not the purpose of the report.

Location of Neighborhoods Analyzed



overview2.jpg

COLISEUM CENTRAL (Hampton)

STUDY AREA OVERVIEW

The Coliseum Central area being reviewed for this study is roughly bounded east to west by Armistead Ave. to I-64/Magruder Blvd., and north to south by Hampton Roads Center Parkway to Mercury Blvd.¹ It is an area that is rapidly changing, with the Coliseum Mall having been razed for the purpose of new developments. See map on the following page for the location of the study area. It is approximately 1.5 miles across and 1.4 miles tall and has a land area of 1,069 acres, or 1.67 square miles.



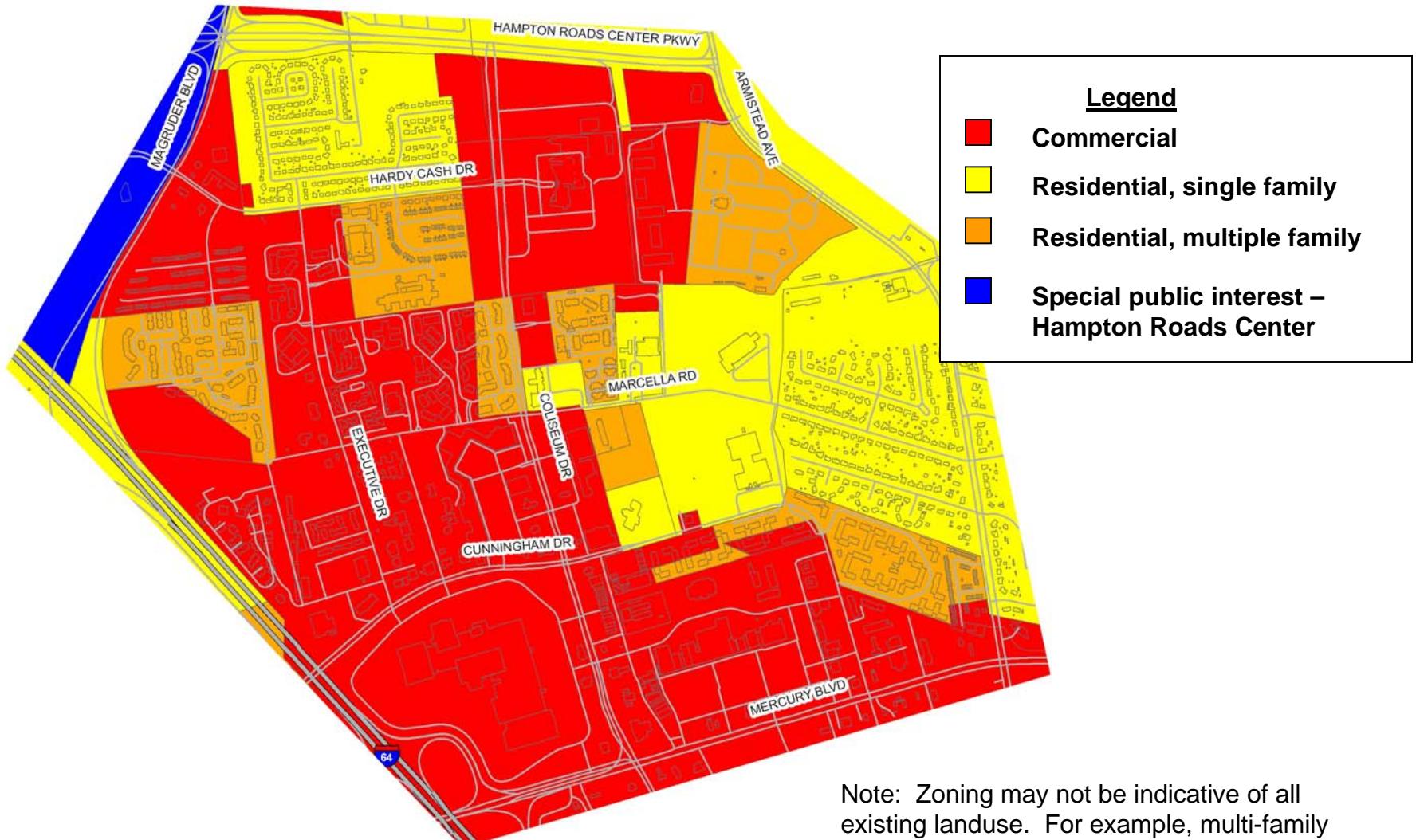
Signs of change in the Coliseum Central area. (left) A ceremony on June 4, 2007 for the closing of the Coliseum Central Flyover, built in 1973. (right) Redevelopment at the Coliseum Mall.

Residential Data

According to the 2000 Census, there were approximately 6,423 persons living in 3,265 households in the study area in 2000. Coliseum Central had a mean age of 34.1, with 12% of its population age 65 and up. Half of its population was black, 43% white, and 3% Asian. Like the rest of Hampton, almost 80% (77.9%) of commuters drove alone to get to work. The Coliseum study area did, however, have a higher carpool rate (17.8%) than the city of Hampton as a whole (12.9%).

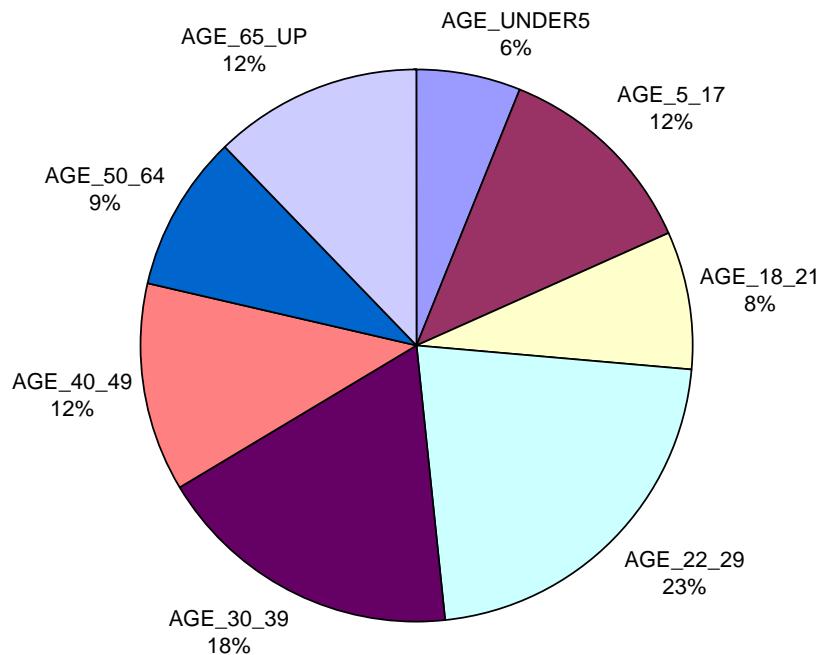
¹ The study area in this report is a part of the greater Coliseum Central district, which extends south of Mercury Blvd. and west of I-64. Additional developments located in the Coliseum Central district include the Hampton Roads Convention Center, numerous hotels, and the Power Plant shopping area.

ZONING IN COLISEUM CENTRAL



Note: Zoning may not be indicative of all existing landuse. For example, multi-family housing may be located in a commercially zoned area.

Coliseum Central, 2000 Age Distribution



Gaps data inventory.xls

With 12% of its population age 65 and up, Coliseum Central has a slightly higher percentage elderly than Hampton as a whole, which had 10.4% of its population age 65 and over in 2000. There are approximately 780 persons age 65 and up in the Coliseum area.

Zero-vehicle households

Hampton as a whole had 8.7% of its households with no vehicles in 2000. Coliseum had a higher than average percentage at 12%. About 375 households in the Coliseum area have no vehicle.

Business activity

The businesses in the study area are listed on the following page. The Coliseum Central area has approximately 6,200 employees, of which 30% are in retail. This is

higher than the 11% retail for Hampton in 2005. There are approximately 340 businesses in the Coliseum study area.

2005 Employment Data for Coliseum Central

NAICS	NAICS Title	Employees	%	Businesses	%
44/45	Retail Trade	1,823	30%	88	26%
62	Health Care and Social Assistance	1,717	28%	96	29%
72	Accommodation and Food Services	1,103	18%	38	11%
54	Professional, Scientific, and Technical Services	463	8%	30	9%
53	Real Estate and Rental and Leasing	257	4%	16	5%
81	Other Services (except Public Administration)	198	3%	15	4%
56	Administrative and Support and Waste Management and Remediation Services	197	3%	9	3%
52	Finance and Insurance	178	3%	24	7%
61	Educational Services	72	1%	5	1%
51	Information	70	1%	3	1%
55	Management of Companies and Enterprises	50	1%	3	1%
23	Construction	20	0%	4	1%
31	Manufacturing	4	0%	1	0%
92	Public Administration	3	0%	1	0%
48	Transportation and Warehousing	2	0%	2	1%
42	Wholesale Trade	1	0%	1	0%
		6,158	100%	336	100%

gaps data inventory.xls

Summary of Coliseum Central Study Area Demographics

Land area	1,069 acres; 1.67 sq. mi.
Dimensions	1.5 mi. x 1.4 mi.
2000 population	6,423
2000 households	3,265
Age 65+	782 (12% of pop)
Zero-veh. households	375 (12% of hh's)
% Carpool commuters	17.8% of workers
% Transit commuters	2.1% of workers
% Bike or walk commuters	1.7% of workers
2005 Businesses	336
2005 Employment	6,158
2005 Retail %	30% of employees

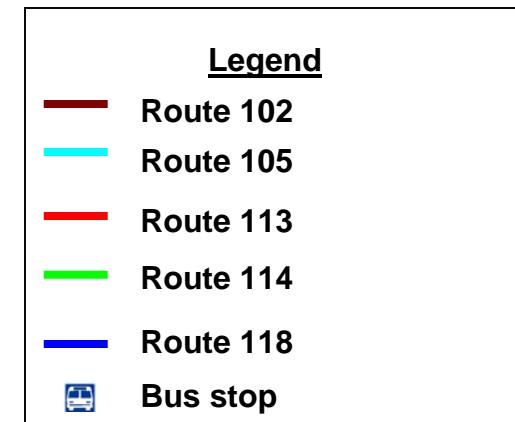
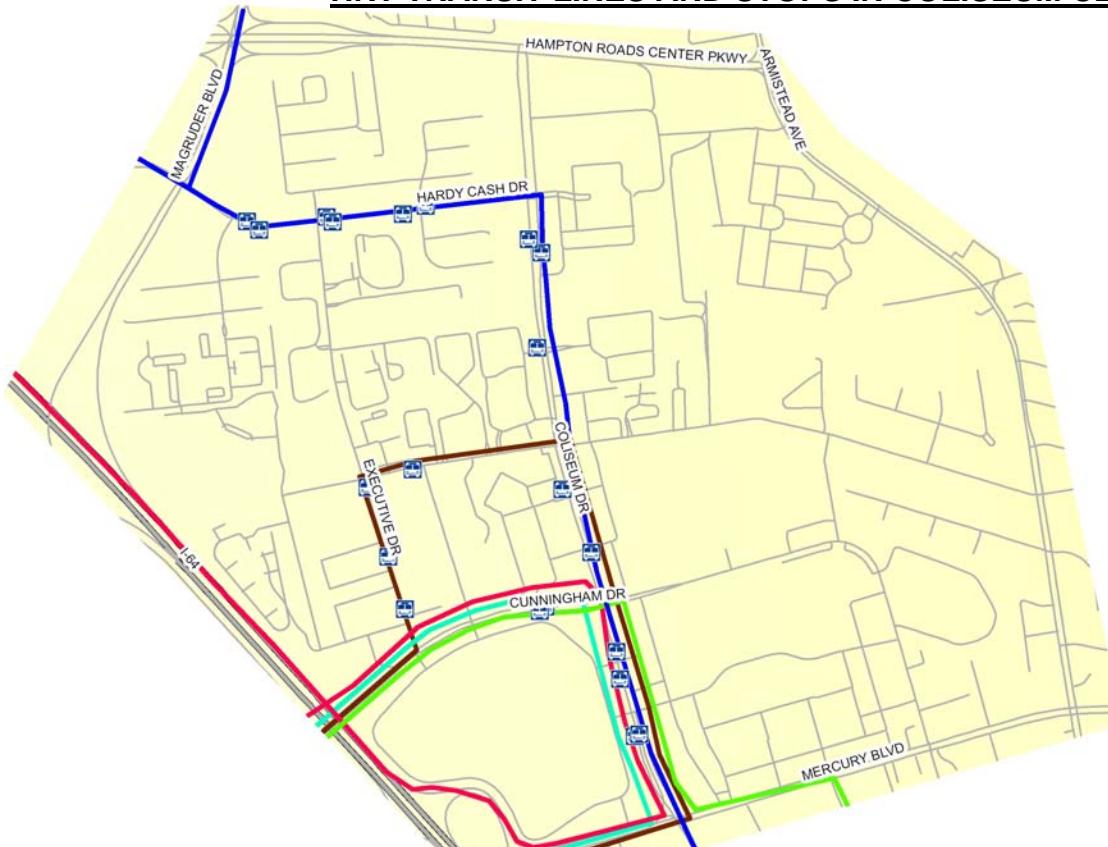
gaps data inventory.xls

ANALYSIS OF MOBILITY FACTORS

Transit

There are currently five transit lines (routes 102, 105, 113, 114, and 118) operated by Hampton Roads Transit serving the Coliseum Central study area. Their locations and a summary of their schedules are shown on the following map. Detailed transit schedules are in Appendix A.

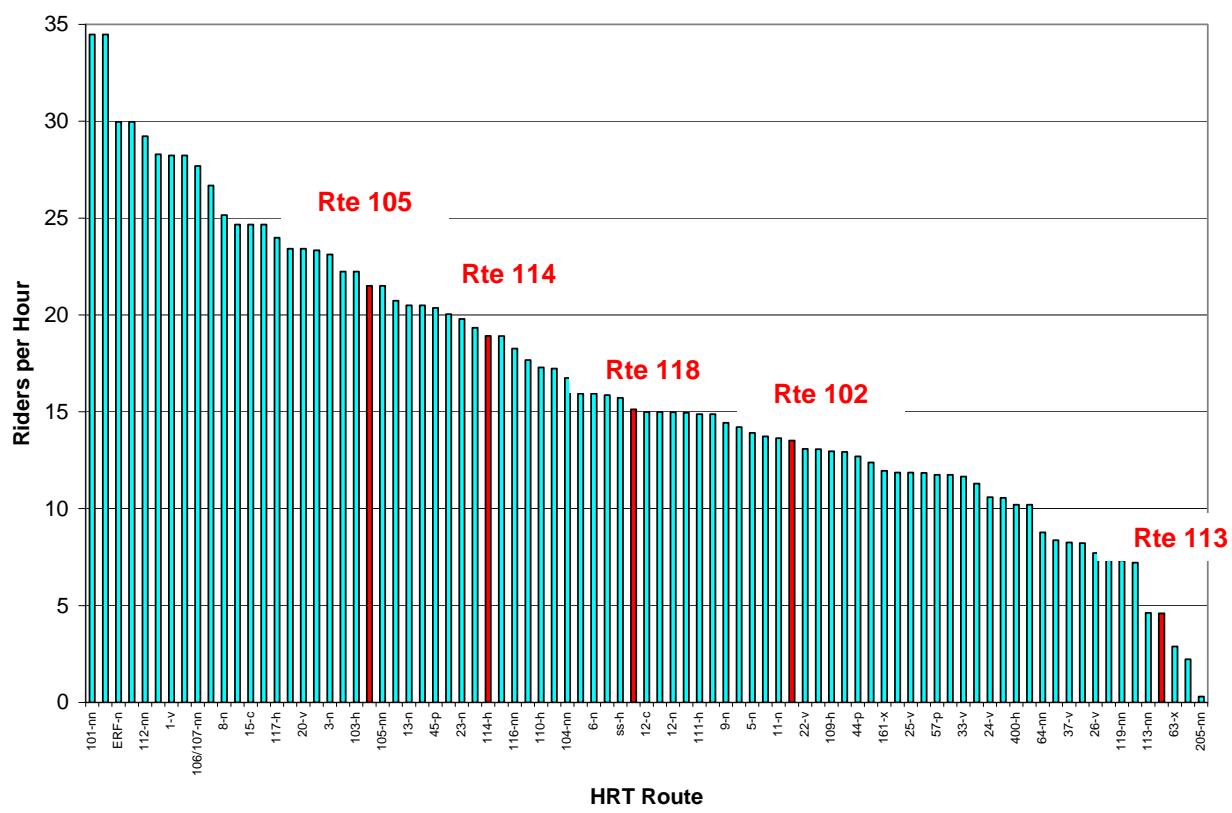
HRT TRANSIT LINES AND STOPS IN COLISEUM CENTRAL



ROUTE	BIKE RACKS	WHEEL-CHAIR	WEEKDAYS		SCHEDULE SUMMARY	
			Start-End	Freq.	Start-End	Freq.
102 <i>Peninsula Town Center/Downtown Hampton</i>	Y	Y	7:50am-11:50pm	60 min all day	Sat: 7:50am-11:50pm Sun: 8:50am-7:50pm	Sat and Sun: 60 min all day
105 <i>Maple Ave&27th St/Peninsula Town Center</i>	Y	Y	7:10am-12:15am	60 min all day	Sat: 7:10am-12:15am Sun: 9:10am-7:15pm	Sat and Sun: 60 min all day
113 <i>Peninsula Town Center/Fort Eustis Express</i>	Y	Y	6:29pm-11:29pm (Fridays only)	60 min all day	Sat: 12:29pm-11:29pm Sun: 12:29pm-6:29pm	Sat and Sun: 60 min all day
114 <i>Newmarket/Downtown Hampton</i>	Y	Y	6:10am-12:15am	30 min until 7pm 60 min after 7pm	Sat: 6:10am-12:15am Sun: 7:10am-7:15pm	Sat: 30 min until 7pm; 60 min after 7pm Sun: 60 min all day
118 <i>Langley/Semple Farm Road</i>	Y	Y	6:35am-11:47pm	60 min all day	Sat: 6:35am-11:47pm Sun: 8:35am-7:47pm	Sat and Sun: 60 min all day

As noted earlier, one of the main findings of the previous studies in this series was that the mobility of better-walking non-drivers doubles by being within one mile of a bus stop and the mobility of lesser-walking non-drivers increases for each bus stop within a 5-mile radius of their home. Therefore, given the size of the study area (1.5 miles by 1.4 miles), and the transit lines bisecting the area, the residents of Coliseum Central have sufficient transit stops available to them. However, looking at the ranking of ridership per hour of these routes (compared to all other HRT routes in February 2007), the performance of routes 102 (Peninsula Town Center / Downtown Hampton), 113 (Peninsula Town Center / Fort Eustis Express), and 118 (Langley / Semple Farm Rd.) fell in the bottom half (see chart below). Note that Route 113 had limited availability for the month, with only twenty hours of service in Hampton on Fridays, Saturdays, and Sundays. There may be opportunities to increase the attractiveness of these routes, such as increased frequency or modified stop locations.

February 2007 Transit Ridership per Hour



Source: Hampton Roads Transit

Pedestrian and Bicycle Accommodations

Sidewalks

Sidewalk data was gathered for the major streets in the Coliseum study area. See the map on the following page. There are about 7.2 miles of gaps in the sidewalk network along major roads in the area. Mercury Blvd., one of the major routes to Coliseum Central, has no sidewalks. Coliseum Dr., Cunningham Dr., and Marcella Rd. have critical gaps in sidewalks that, if improved, would provide a great benefit for pedestrians in the area. The gaps in sidewalks along Magruder Blvd. between I-64 and Hampton Roads Center Pkwy. are not included in the 7.2 miles, as Magruder Blvd. is primarily a ramp for I-64 and may not be suitable for sidewalks in this section. Completing the entire sidewalk network in the area would cost about \$790,000.² This investment would benefit the bicyclists in the area as well, as discussed below. Besides impacting pedestrian and cyclist travel, the gaps in the sidewalks could also have an impact on the attractiveness of the area's transit routes, as the lack of sidewalks at transit stops could be a deterrent to potential riders.

Special note should be made regarding the primary gateway to the Coliseum Central area, at the intersection of Mercury Blvd. and Coliseum Dr. Non-drivers crossing Mercury Blvd. at this location are required to cross ten lanes of traffic at a high-volume intersection.³ Incorporating the needs of non-drivers through items such as pedestrian and cyclist-friendly signal timings, easily accessible pedestrian call buttons, and well-marked crosswalks should be considered at this critical intersection.

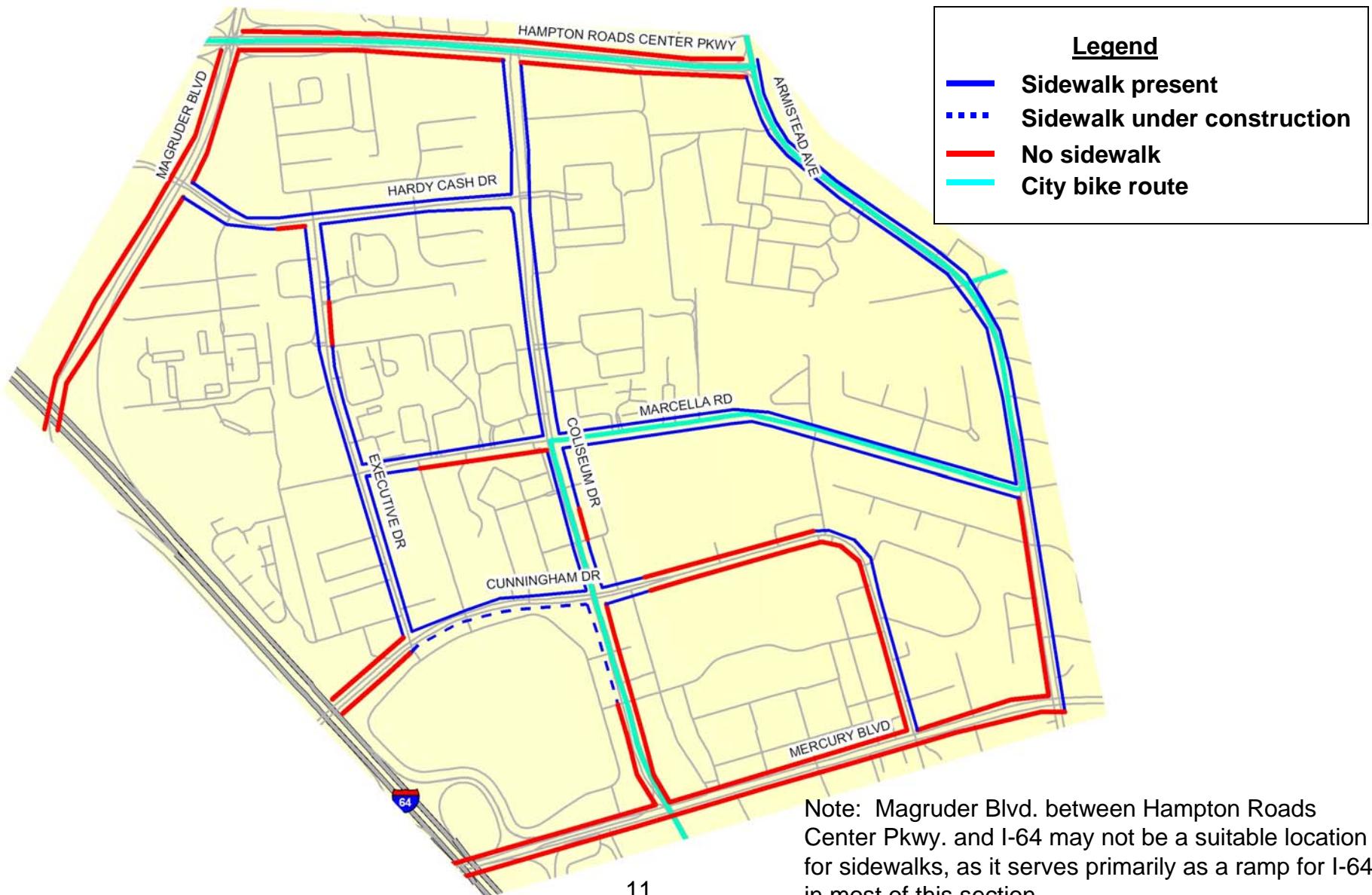


Crossing Mercury Blvd. at Coliseum Dr. could be a large undertaking for a cyclist or pedestrian (left). Despite gaps in its sidewalk network, demand remains for non-drivers wanting to use Coliseum Dr. (right).

² Based on a VDOT generalized cost estimate of \$110,000/mile for a 5 foot sidewalk.

³ Coliseum Dr. between Mercury Blvd. and Marcella Dr. had a 2006 count of 21,909 vehicles per day (vpd). Mercury Blvd. had 2005 counts of 45,469 vpd from I-64 to Coliseum Dr., 40,164 vpd between Coliseum Dr. and Cunningham Dr., and 51,167 vpd from Cunningham Dr. to Armistead Ave. Note that construction along I-64 may have influenced Mercury Blvd. counts.

SIDEWALKS ALONG MAJOR ROADS IN COLISEUM CENTRAL



Bicycle facilities

Hampton does allow bicycles on sidewalks in the Coliseum area (see Appendix B for portions of city code). Therefore, the sidewalks in the area serve both pedestrians and cyclists. Again, as noted above, there are almost nine miles of gaps in the sidewalk network in the Coliseum area. There is a system of numbered bicycle routes throughout the city. In the Coliseum area, the routes include portions of Coliseum Dr. south of Marcella Rd. that have gaps in the sidewalks, leaving cyclists to ride in the street. Other bicycle amenities, such as bicycle racks, were not present in the Coliseum area. An expansion of the availability of bike racks might increase the trips made to the commercial area for non-drivers, at a cost of approximately \$225 for a single “inverted U” rack to \$800 for a rack holding ten bicycles.⁴

Additional Pedestrian and Bicycle Connectivity Improvements

The Coliseum Central study area has commercial developments of various scales, with the larger developments being located along Coliseum Dr. between Marcella Rd. and Mercury Blvd. Sidewalks to these properties may not be enough to encourage non-drivers to shop at these establishments, as there can be large parking lots to navigate beyond the center’s driveway. These parking lots can be an additional tenth of a mile in length in some cases, making for a precarious walk or bicycle trip in an environment designed for vehicles. This last leg of a non-driver’s trip can be made safer and more desirable by providing a well-defined path exclusively for walkers or cyclists, from the sidewalk along the major street to the shopping center.



Access from the surrounding major streets to a shopping center’s front door can be a significant distance for walkers or cyclists through an area designed for vehicles. Incorporating paths for non-drivers can aid their access to these businesses.

⁴ Bicycle rack costs can vary greatly based on their capacity. Cited racks costs are based on costs from the “Pedestrian and Bicycling Information Center” website, www.bicyclinginfo.org.

Available Activities

As noted earlier, one of the findings of the previous studies was that living within a half-mile of destinations increases non-driver mobility. Better-walking non-drivers living in High Activity Locations in Hampton Roads have odds of leaving home five times higher than those living away from activities. Mobility increases for those with 2,000 or more activity location units ("alu's") within a half-mile radius of their home.

Activity location units are a way of measuring the quantity of business activity in an area. The equation is:

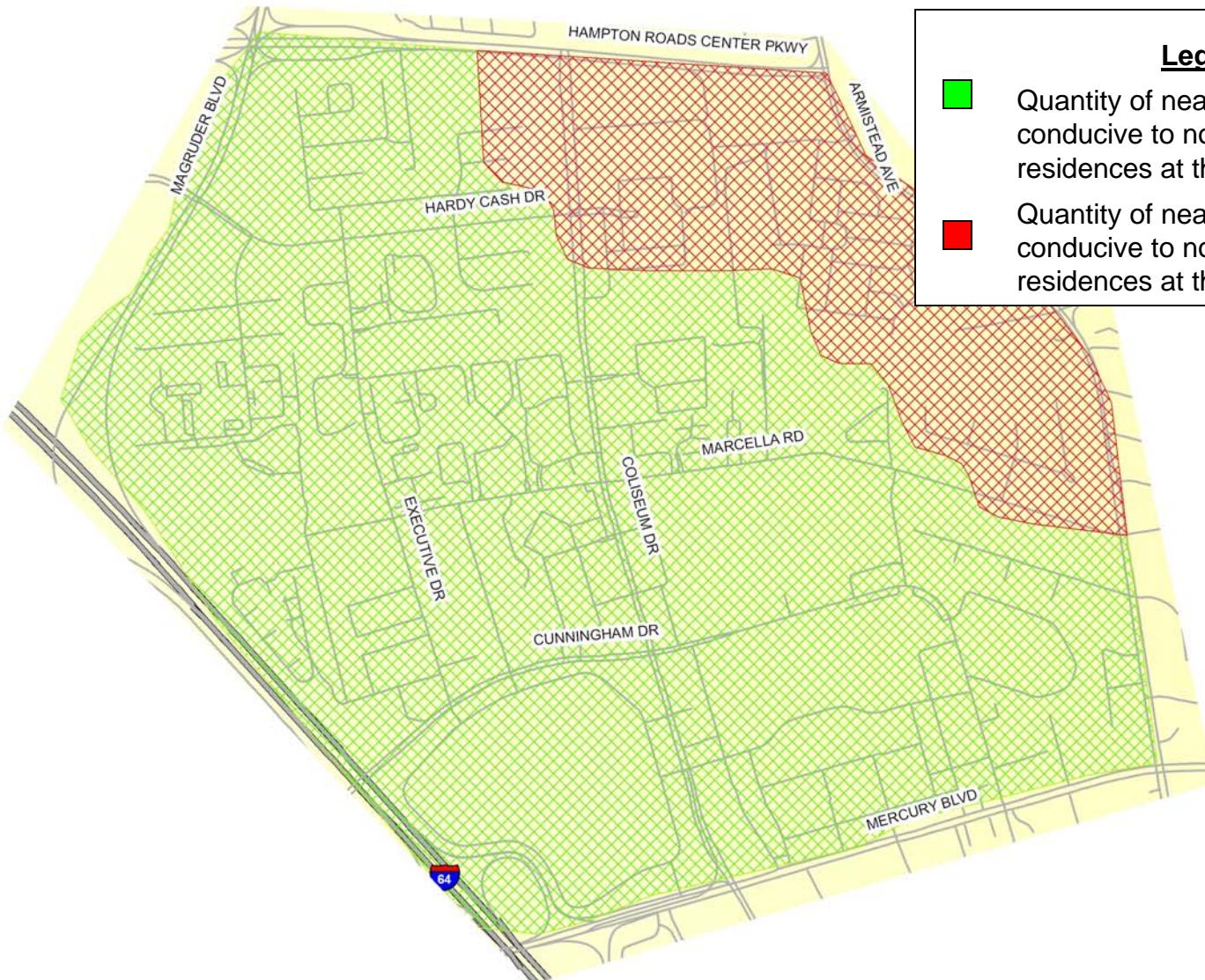
$$\text{Activity location units} = (3 * \# \text{ of retail employees}) + (1 * \# \text{ of non-retail employees})$$

The number of retail employees are multiplied by three to account for the increased number of trips to retail establishments.

The Coliseum study area was divided into a grid (of 200 meter spacing) and the quantity of activities within a half-mile (as measured by the "activity location units") were mapped to show locations in the area that could be desirable residential locations for non-drivers and therefore may be candidates for future additional residential units. Likewise, those areas that aren't currently conducive to non-driver mobility (based on proximity to activities) may be candidates for new businesses in the area. See the following map.

A large majority of the Coliseum Central land area (81%) and households (97%) do have sufficient activities within a half-mile of non-drivers. The only area that was found to be less-conducive to non-driver mobility was a band stretching from the intersection of Coliseum Dr. at Hampton Roads Center Pkwy. to Marcella Rd. at Armistead Ave. While there may be some opportunity within this band for new development, a sizable portion of it is consumed by the Parklawn Memorial Cemetery. The city and interested parties of the Coliseum Central area can determine if the inclusion of more commercial businesses in this area is desirable, considering serving non-drivers in the area and other community goals.

PROXIMITY TO ACTIVITIES IN COLISEUM CENTRAL



Legend

- Quantity of nearby activities is more conducive to non-driver mobility for residences at this location.
- Quantity of nearby activities is less conducive to non-driver mobility for residences at this location.

Residential locations with greater than 2,000 activity location units within one-half mile are conducive to non-driver mobility.

Activity location units = 3*Retail employment + Non-retail employment

REVIEW OF OTHER CITY PLANS

There are two documents from the city of Hampton that are the most relevant to non-driver mobility in the Coliseum Central area. They are reviewed below. While all of the recommendations made in this non-driver study are not contained in these documents, the goal of increasing non-driver mobility at Coliseum is consistent among the reports.

“The City of Hampton Community Plan” (adopted February 2006) calls for targeted revitalization efforts in a number of strategic city neighborhoods, district and corridors. The Coliseum Central district is one of six strategic investment areas identified in the plan. The “Coliseum Central Master Plan” (adopted Sept. 22, 2004) envisions increased development densities and mixed-use neighborhoods designed in a manner that supports pedestrian activity and social interaction for the area. Policies suggested in the Master Plan relating to non-driver mobility include:

- Developing and connecting open space and natural areas. New Market Creek, Tide Mill Creek, schools, parks, and plazas would be connected through a network of sidewalks, trails, bike routes, and walkways.
- Creating new public streets with sidewalks in order to reduce the scale of blocks and reduce the need for main arterials for local movement. The improvement of transit service is an essential component. Improvements to bus stops at major activity centers and expanding the internal shuttle service during event days are recommended.
- The Master Plan also designates “Initiative Areas”, including north Coliseum Drive, Coliseum Crossroads, and the Sentara complex. A variety of redevelopment recommendations for these areas are provided, all designed to expand development opportunities and/or increase pedestrian activity.

SUMMARY OF RECOMMENDATIONS

- There are approximately 7.2 miles of gaps in the sidewalk network along major streets in the Coliseum Central study area. The cost to complete the sidewalk network would be about \$790,000. Besides impacting pedestrian and cyclist travel, the gaps in the sidewalks could also have an impact on the attractiveness of the area’s transit routes, as the lack of sidewalks at transit stops could be a deterrent to potential riders.
- Sidewalks in the area can also be used by cyclists. Besides experiencing the same gaps as pedestrians, cyclists have limited areas with racks for their bicycles. Bicycle racks costs range from approximately \$225 for a single rack to \$800 for a rack holding ten bicycles.
- The distance to transit stops is sufficient, with five transit lines serving the area. However, routes 102, 113, and 118 could be further examined for ways to increase their ridership per hour.
- Most of the Coliseum Central area does have sufficient proximity for non-drivers to activities. These areas, that are already conducive to non-driver mobility in

terms of proximity to businesses, may be good candidates for future additional residential units.

- The area that was found to be less-conducive to non-driver mobility in terms of proximity to activities was the northeast section of the study area. Opportunities for increasing businesses in this area may be limited, however, by the existing landuse.
- The city and current business owners could consider the incorporation of paths across large parking lots for more desirable non-driver access.

The city could work with the residents in the Coliseum Central area to determine acceptable and affordable ways for mobility to be increased for non-drivers in the area and whether the above potential opportunities for increased mobility are desirable to the community.

WARDS CORNER (Norfolk)

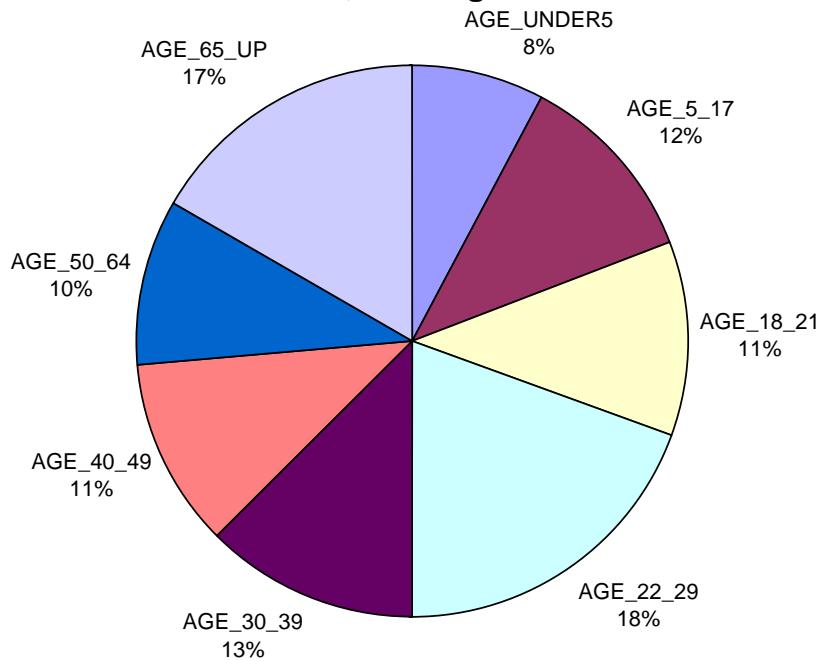
STUDY AREA OVERVIEW

The Wards Corner neighborhood being reviewed for this study is roughly bounded east to west by I-64 to Ruthven Rd., and north to south by Terminal Blvd / I-564 to Thole St. See map below for the location of the study area. It is approximately 1.5 miles by 1.0 miles, and has a land area of 744 acres, or 1.16 square miles.

Residential Data

According to the 2000 Census, there were approximately 6,635 persons living in 3,281 households in Wards Corner in 2000. Wards Corner had a mean age of 35, with 17% of its population age 65 and up. Sixty-three percent of the population was white and 29% black. The Wards Corner study area had a higher rate of driving alone to get to work (74.6%) than Norfolk as a whole (66.8%). The study area also had a lower percentage of workers biking or walking to work (1.9%) than Norfolk as a whole (7.2%).

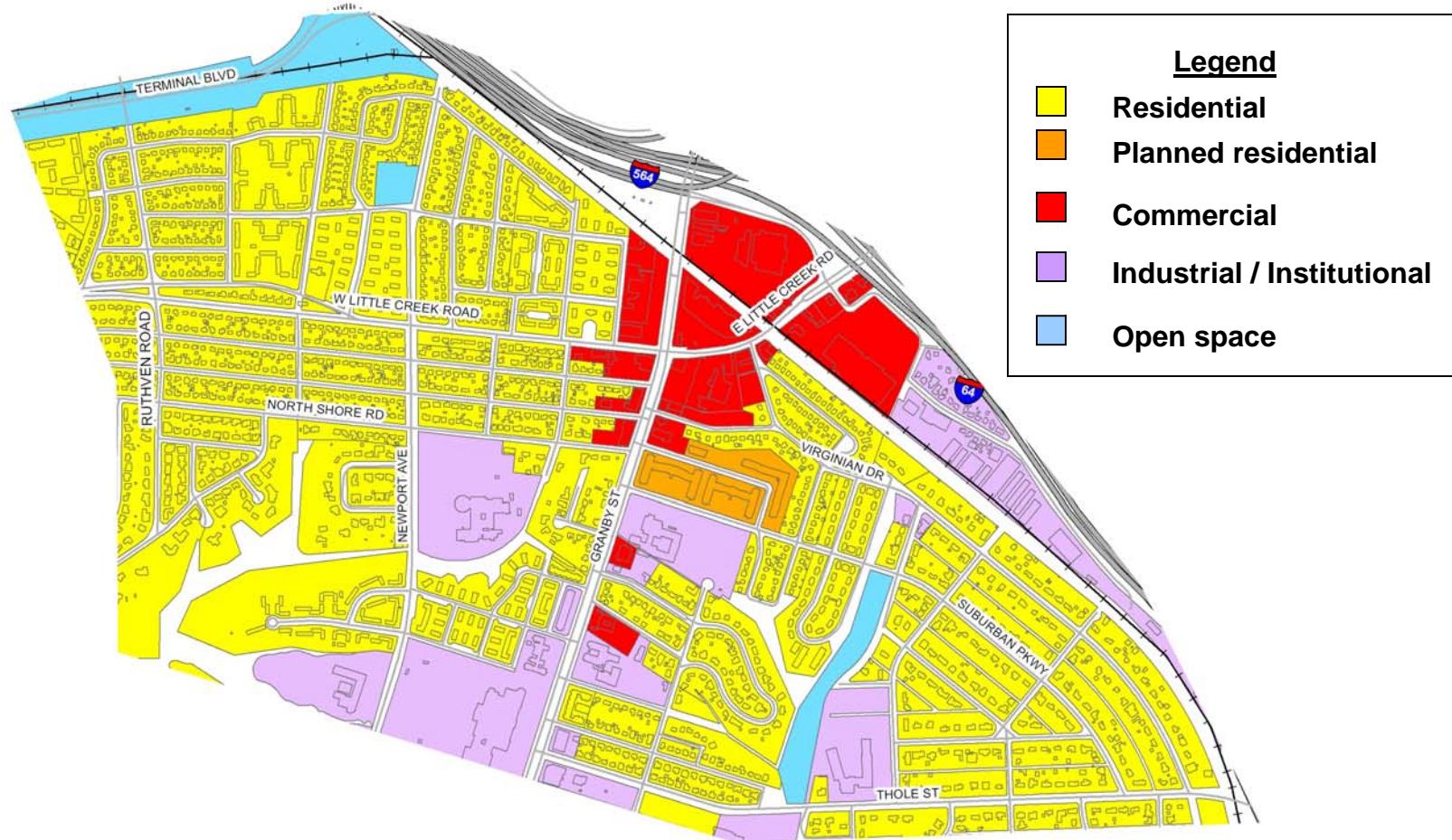
Wards Corner, 2000 Age Distribution



Gaps data inventory.xls

With 17% of its population age 65 and up, Wards Corner has a higher percentage elderly than Norfolk as a whole, which had 11% of its population age 65 and over in 2000. There are about 1,128 persons age 65 and up in the Wards Corner area.

ZONING IN WARDS CORNER



Zero-vehicle households

Norfolk as a whole had 17% of its households with no vehicles in 2000. Wards Corner had a higher than average percentage at 21%. About 678 households in the Wards Corner area have no vehicle.

Business activity

The businesses in the study area are listed below. The Wards Corner area has about 2,300 employees, of which 28% are in retail. This is higher than the 7% retail for Norfolk in 2005. There are almost 150 businesses in the Wards Corner area. The map on the previous page shows the location of businesses and population in the area according to the area's zoning. The businesses are concentrated along Little Creek Rd. and Granby St.

2005 Employment Data for Wards Corner

NAICS	NAICS Title	Employees	%	Businesses	%	Avg. Emp.
44/45	Retail Trade	643	28%	35	24%	18
72	Accommodation and Food Services	347	15%	17	12%	20
62	Health Care and Social Assistance	332	14%	23	16%	14
81	Other Services (except Public Administration)	279	12%	11	8%	25
56	Administrative and Support and Waste Management and Remediation Services	209	9%	4	3%	52
61	Educational Services	159	7%	1	1%	159
52	Finance and Insurance	134	6%	20	14%	7
54	Professional, Scientific, and Technical Services	88	4%	10	7%	9
53	Real Estate and Rental and Leasing	73	3%	12	8%	6
23	Construction	14	1%	6	4%	2
49	Transportation and Warehousing	12	1%	1	1%	12
71	Arts, Entertainment, and Recreation	11	0%	1	1%	11
32/33	Manufacturing	3	0%	2	1%	2
42	Wholesale Trade	3	0%	2	1%	2
51	Information	1	0%	1	1%	1
		2,308	100%	146	100%	16

gaps data inventory.xls

Summary of Wards Corner Study Area Demographics

Land area	744 acres; 1.16 sq. mi.
Dimensions	1.5 mi x 1.0 mi.
2000 population	6,635
2000 households	3,281
Age 65+	1,128 (17% of pop)
Zero-veh. households	678 (21% of hh's)
% Carpool commuters	14.2% of workers
% Transit commuters	4.5% of workers
% Bike or walk commuters	1.9% of workers
2005 Businesses	146
2005 Employment	2,308
2005 Retail %	28% of employees

gaps data inventory.xls

ANALYSIS OF MOBILITY FACTORS

Transit



HRT operates a large transfer station at the north end of Wards Corner.

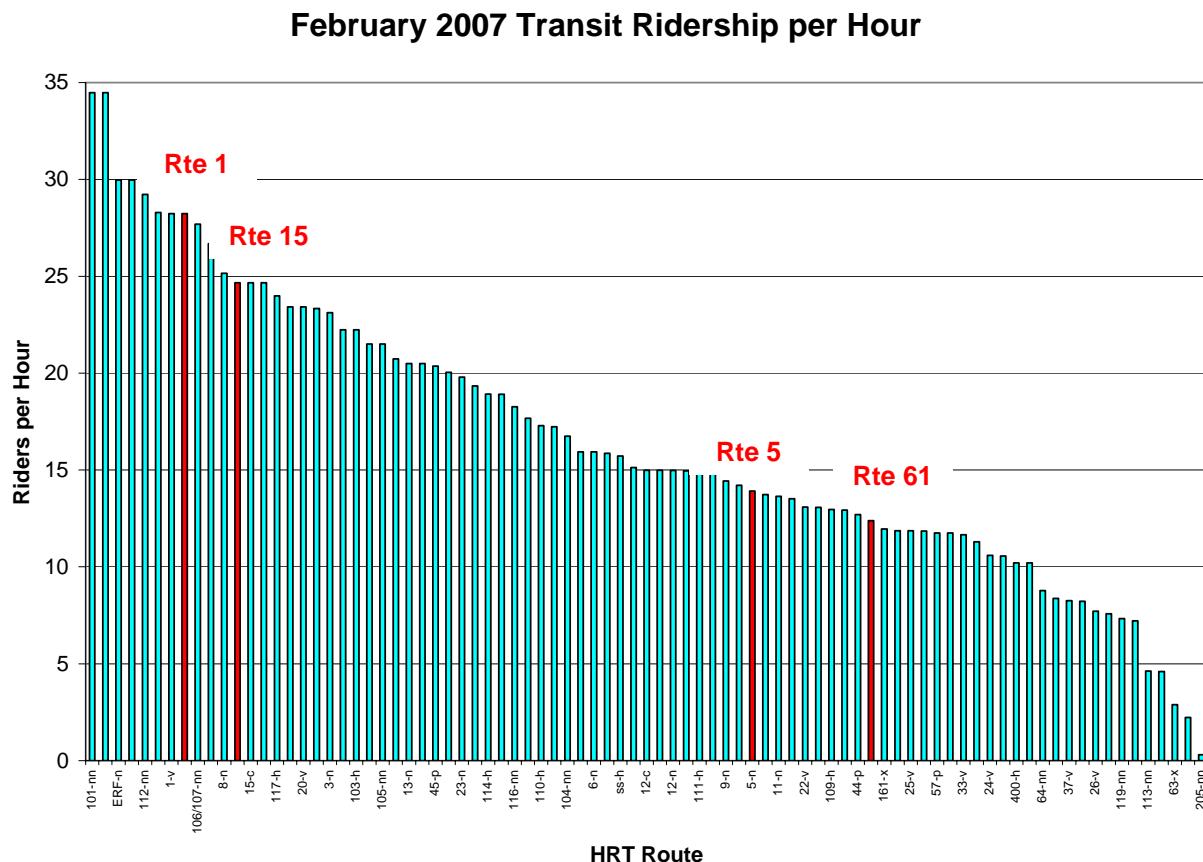
There are currently four transit lines (routes 1, 5, 15, and 61) operated by Hampton Roads Transit serving the Wards Corner area. Their locations and a summary of their schedules are shown on the following map.

As noted earlier, one of the main findings of the previous studies in this series was that the mobility of better-walking non-drivers doubles by being within 1 mile of a bus stop and the mobility of lesser-walking non-drivers increases for each bus stop within a 5-mile radius of their home. Therefore, given the size of the study area (1.5 miles by 1.0 miles) and the presence of bus routes bisecting the study area, the residents of Wards Corner have sufficient transit stops available to them. However, looking at the ranking of ridership per hour of these routes (compared to all other HRT routes in February 2007), routes 5 (Wards Corner / Willoughby) and 61 (Crossroads / Peninsula / Southside) were below the 50th percentile, at 41st and 31st percentile respectively. There may be opportunities to improve the attractiveness of these routes, such as increased frequency or modified stop locations.

HRT TRANSIT LINES AND STOPS IN WARDS CORNER



ROUTE	BIKE RACKS	WHEEL-CHAIR	SCHEDULE SUMMARY		
			Start-End	WEEKDAYS Freq.	Start-End
1 <i>Downtown Norfolk / Pembroke East</i>	Y	Y	5:30am-2:00am	AM pk: 15 min PM pk: 15 min midday: 30 min evening: 60 min	Sat: 5:00am-2:00am Sun: 6:00am-1:00am
5 <i>Wards Corner/Willoughby</i>	Y	Y	6:00am-6:00pm	60 min all day	Sat: 6:00am-6:00pm Sun: no service
15 <i>Naval Station Norfolk/Robert Hall Blvd</i>	Y	Y	5:30am-1:30pm	AM pk: 18 and 12 min PM pk: 15 min midday: 30 min evening: 60 min	5:30am-1:30pm
61 <i>Crossroads Route/Peninsula/Southside</i>	Y	Y	5:35am-7:52pm	AM pk: 16 and 40 min PM pk: 6 min and 40 min midday: 60 min evening: 60 min	Sat: 5:35am-7:38pm Sun: 8:38am-7:38pm
					Sat: < 30 min peaks, 60 min midday Sun: 60 min all day



Source: Hampton Roads Transit

Pedestrian and Bicycle Accommodations

Sidewalks

Sidewalk coverage is excellent in the Wards Corner area. Major streets were observed to have sidewalks on both sides of the street.

Bicycle facilities

Bicycle facilities, however, are lacking. There are no bicycle lanes or paths in the study area, nor are there any bicycle racks at the many shopping malls along Little Creek Rd. Norfolk city code does not allow the riding of bicycles on sidewalks in business districts or if age 15 or over (see Appendix B for relevant portions of the code), leaving non-driver cyclists to ride in the street. Fortunately, Wards Corner has a fairly tight grid of residential low-volume, low-speed roads with narrow widths and on-street parking (exceptions being Granby St., Little Creek Rd., Thole St., and Newport Ave.). These low-volume streets are conducive to bicycling, however, they do not provide access for all residents to the shopping destinations along Little Creek Rd. and Granby St. Little

Creek Rd. and Granby St. are high-volume roads⁵ with no bicycle facilities, an intimidating ride for most cyclists.



*Granby St. heading north to Wards Corner.
Adult cyclists must ride in the street without the benefit of bicycle facilities.*

Additional Pedestrian and Bicycle Connectivity Improvements

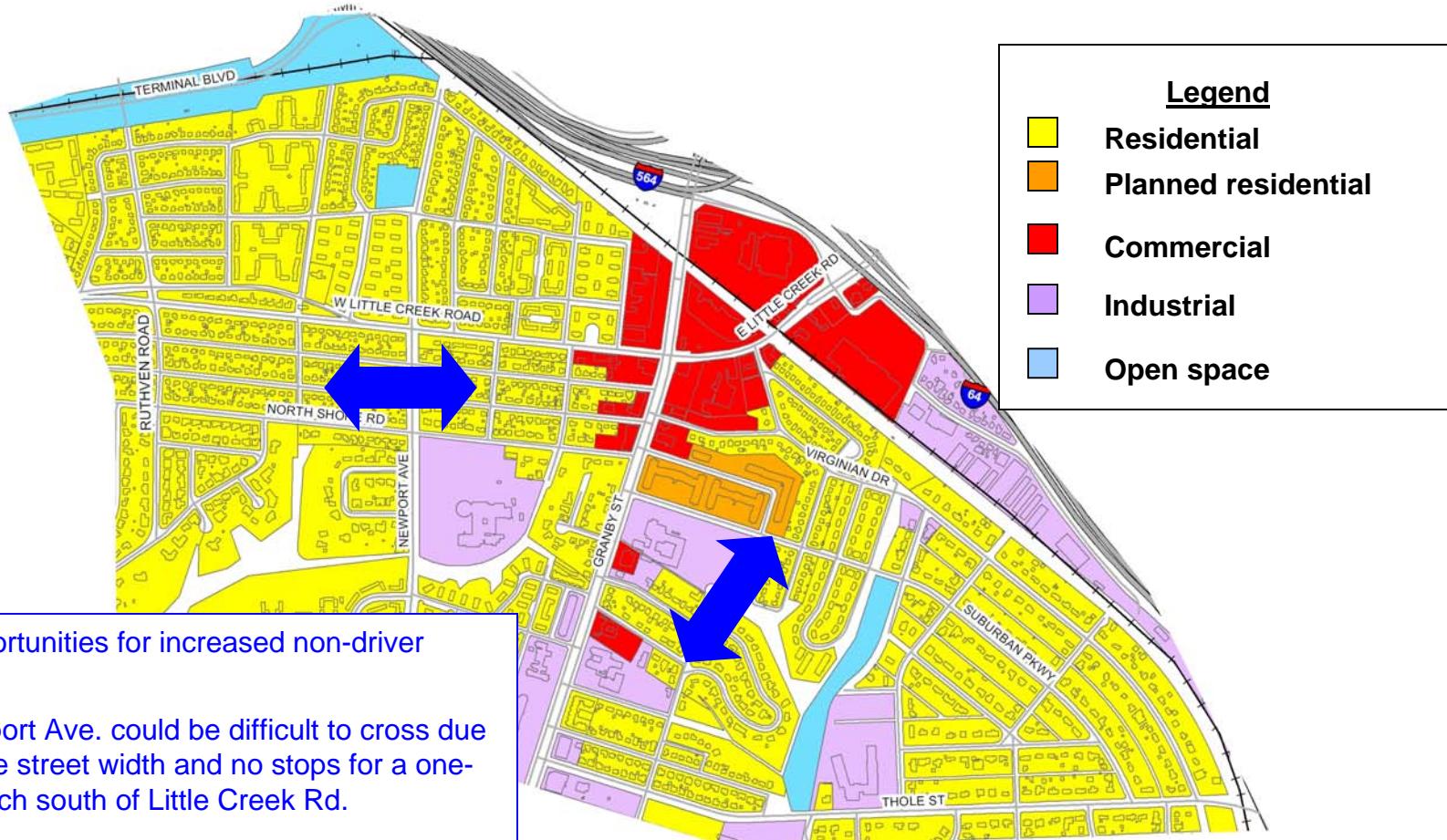
There are also additional opportunities for increased mobility for non-drivers in the area relating to pedestrians and cyclists. See the following map for their location.

One potential opportunity is the crossing of Newport Avenue. Newport Ave. to the south of Little Creek Rd. is a two-lane road serving residential traffic, two schools at its midpoint (Granby high-school and elementary school), and DePaul Hospital at its southern end. The lane width is very wide (about 15.5 feet per lane) with no stops required for the entire 1.1 mile length (except at the beginning and end of the school day). The posted speed limit of 25 mph is easily surpassed under these conditions, with most vehicles traveling at an observed 30 to 35 mph.⁶ Crossing Newport Ave. to access the commercial areas of Wards Corner could be an intimidating prospect for non-drivers of all walking abilities. The city may find traffic calming methods to be warranted. Approximately 1,000 people live south of Little Creek Rd., between Newport Ave. and Ruthven Rd.

⁵ Little Creek Rd. had a 2006 daily count of 25,121 vehicles between Hampton Blvd. and Granby St, and 30,631 from Granby St. to I-64. Granby St. had a 2006 count of 32,967 from Thole St. to Little Creek Rd., and 28,418 from Little Creek Rd. to I-564.

⁶ Data collected in a separate effort by the city of Norfolk in June 2007 show a 15th percentile speed of 26mph, a 50th percentile of 31 mph, and an 85th percentile of 35 mph. See Appendix C for detailed data.

OPPORTUNITIES FOR INCREASED MOBILITY UNIQUE TO WARDS CORNER



Two opportunities for increased non-driver mobility:

- 1 – Newport Ave. could be difficult to cross due to its wide street width and no stops for a one-mile stretch south of Little Creek Rd.
- 2 – Residents living immediately to the northeast of the intersection of Thole St. and Granby St. could benefit from a bike/ped access trail to the street network to the north of them.



Newport Ave. has very wide lanes and no stops south of Little Creek Rd., making it easy for traffic to speed and potentially difficult to cross for pedestrians.

Another opportunity available is additional access to the local street network for the approximately 350 residents (about 5% of the area's population) living in the northeast quadrant of the corner of the Thole St. and Granby St. intersection (Granby Park, Glen Echo, and Chelsea neighborhoods).⁷ An access point to Suburban Pkwy. and points north would be beneficial to non-drivers in this area. It would provide a more direct route to the commercial area and to friends and neighbors to the north by providing these residents a route other than Granby St. However, implementation of such a route would require the acquisition of an appropriate right-of-way, with additional financial costs and possible wetland impacts.

The Wards Corner area in general has shopping centers that are close to the surrounding major roads, providing easy access for pedestrians and cyclists. However, the area does have some shopping centers that have significant set-backs. In these cases, sidewalks to the property may not be enough to encourage non-drivers to shop at these establishments, as there can be large parking lots to navigate beyond the center's driveway. These parking lots can be an additional tenth of a mile in length in some cases, making for a precarious walk or bicycle trip in an environment designed for vehicles. This last leg of a non-driver's trip can be made safer and more desirable by providing a well-defined path exclusively for walkers or cyclists, from the sidewalk along the major street to the shopping center.

⁷ between Suburban Pkwy and Granby Park to the north, and west of Suburban Park Elementary School.



Access from the surrounding major streets to a shopping center's front door can be a significant distance for walkers or cyclists through an area designed for vehicles. Incorporating paths for non-drivers can aid their access to these businesses

Available Activities

As noted earlier, one of the findings of the previous non-driver studies was that living within a half-mile of destinations increases non-driver mobility. Better-walking non-drivers living in High Activity Locations in Hampton Roads have odds of leaving home five times higher than those living away from activities. Mobility increases significantly for those with 2,000 or more activity location units ("alu's") within a half-mile radius of their home.

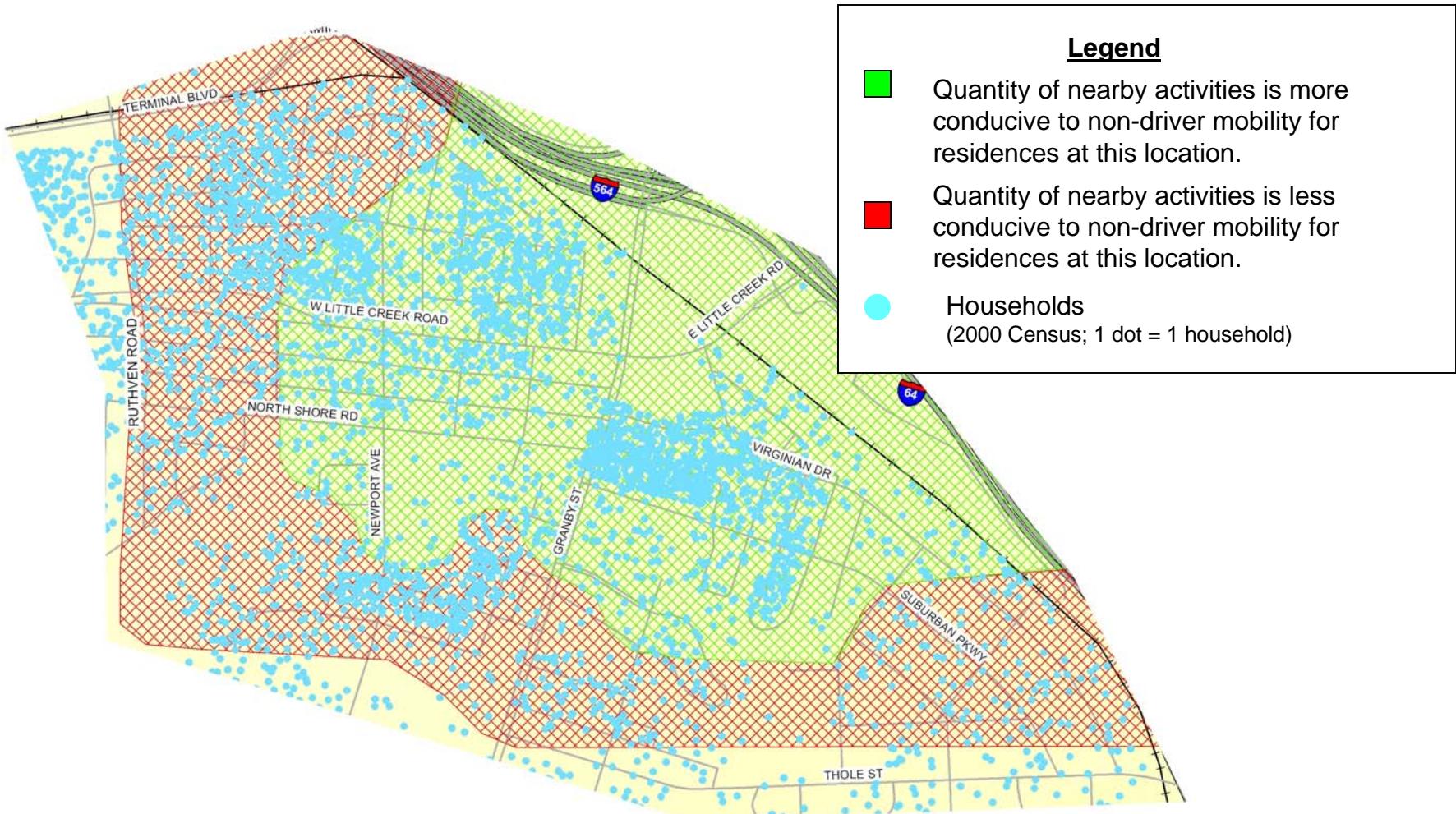
Activity location units are a way of measuring the quantity of business activity in an area. The equation is:

$$\text{Activity location units} = (3 * \# \text{ of retail employees}) + (\# \text{ of non-retail employees})$$

The number of retail employees are multiplied by three to account for the increased number of trips to retail establishments.

The Wards Corner study area was divided into a grid (of 200 meter spacing) and the quantity of activities within a half-mile (as measured by the "activity location units") were mapped to show locations in the area that could be desirable residential locations for non-drivers and therefore may be candidates for future additional residential units. Likewise, those areas that aren't currently conducive to non-driver mobility (based on proximity to activities) may be candidates for new businesses in the area. See the following map.

PROXIMITY TO ACTIVITIES IN WARDS CORNER



Residential locations with greater than 2,000 activity location units within one-half mile are conducive to non-driver mobility.

Activity location units = $3 \times$ Retail employment + Non-retail employment

Just over half (53%) the land area and 60% (1,900) of the households in the Wards Corner study area do have sufficient activities nearby to support non-driver mobility, leaving just under half the land area and approximately 40% of the households (1,400) without sufficient proximity to activities. The areas that were found to be less conducive towards non-driver mobility were the western and southern borders of the study area, to the west of Newport Ave. and just north of Thole St. These areas may be good candidates for new businesses, if the city and the neighborhood desire to increase walking and bicycling opportunities for non-drivers and others.

REVIEW OF OTHER CITY PLANS

Comparison between the findings of this study and those of the “Greater Wards Corner Comprehensive Plan” (adopted Dec. 21, 2004) were made to assess whether the findings were consistent with previous plans. The principles and goals of the Wards Corner Plan do state the importance of accommodating non-drivers. The following are the primary principles and goals as in the “Greater Wards Corner Comprehensive Plan”, relating to non-driver mobility in the study area.

- Create a vibrant mixed-use landscape with quality retail, entertainment and local services.
- At Wards Corner itself, the plan suggests that the current strip of shopping centers along Granby Street and Little Creek Road be redeveloped as mid-rise apartments built around private courtyards, with retail on the ground floor.
- Wards Corner offers a clear opportunity to create a third major retail node within the City limits.
- Encourage diversification of housing, with quality higher density housing mixed together with retail to generate an active pedestrian environment.
- Encourage a pedestrian-oriented environment.
- Enhance vehicular and pedestrian travel patterns along Little Creek Road and other highway corridors.
- Improve and enhance public facilities and parks.
- Enhance streetscapes at key locations with high pedestrian activity.
- The 1992 “General Plan for the City of Norfolk” indicates a bicycle plan for the city that shows future bicycle routes being designated and constructed within the study area. Specifically, these will be located on Granby Street, Little Creek Road, and Hampton Boulevard as well as on several neighborhood streets within the area.
- Make vehicular and pedestrian circulation safer and more pleasant by traffic calming and street designs which enhance pedestrian safety.

SUMMARY OF RECOMMENDATIONS FOR WARDS CORNER

- Access to the commercial area along Little Creek Rd. at Granby St. could be intimidating for non-drivers wanting to make the trip by bicycle. The city could provide facilities (bike lanes, bike racks at shopping areas) for those wanting to make the trip by bicycle.
- The distance to transit stops is sufficient, with four transit lines serving the area. However, routes 5 and 61 could be further examined for ways to increase their ridership per hour such as increased frequency or modified stop locations.
- For those living west of Newport Ave., access to the commercial area to the east of Granby St. could be increased by providing amenities (crosswalks, bike lanes) for crossing Newport Ave. Newport Ave. currently has a posted speed of 25 mph but has very wide lanes and no stops for a mile-long stretch, making it easy for drivers to exceed the posted speed limit and potentially difficult for cyclists and pedestrians to cross. The city may find traffic calming methods to be warranted.
- Mobility for those living at the northeast corner of Thole St. and Granby St. (between Suburban Pkwy and Granby Park to the north, and west of Suburban Park Elementary School) could be increased with an additional bicycle / pedestrian access point to the local street network to the north. This would provide a more direct route to the commercial area and increase connectivity to what is currently an area that is separated from the rest of Wards Corner. However, implementation of such a route would require the acquisition of an appropriate right-of-way, with additional financial costs and possible wetland impacts.
- Just over half of the Wards Corner area does have sufficient proximity for non-drivers to activities. These areas, that are already conducive to non-driver mobility in terms of proximity to businesses, may be good candidates for future additional residential units.
- The areas that were found to be less-conducive to non-driver mobility in terms of proximity to activities were the western and southern borders of the study area. These areas may be good candidates for new businesses, if the city and the neighborhood desire to increase walking and bicycling opportunities for non-drivers and others.
- The city and current business owners could consider the incorporation of paths across large parking lots for more desirable non-driver access.

The city could coordinate with the residents in the Wards Corner area to determine acceptable and affordable ways for increasing non-driver mobility in the area, using the above potential opportunities for increased mobility as a starting point.

HILLTOP (Virginia Beach)

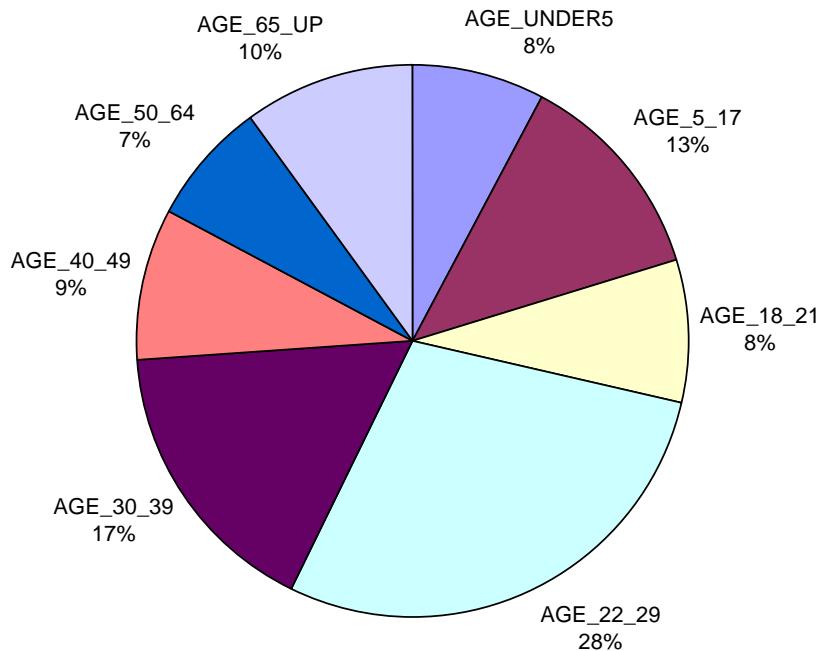
STUDY AREA OVERVIEW

The Hilltop neighborhood being reviewed for this study is bounded east to west by Fremac Rd. to Regency Dr., and north to south by Wolfsnare Rd. to I-264. See map below for the location of the study area. It is approximately 1.4 miles by 0.7 miles and has a land area of 617 acres, or 0.96 square miles.

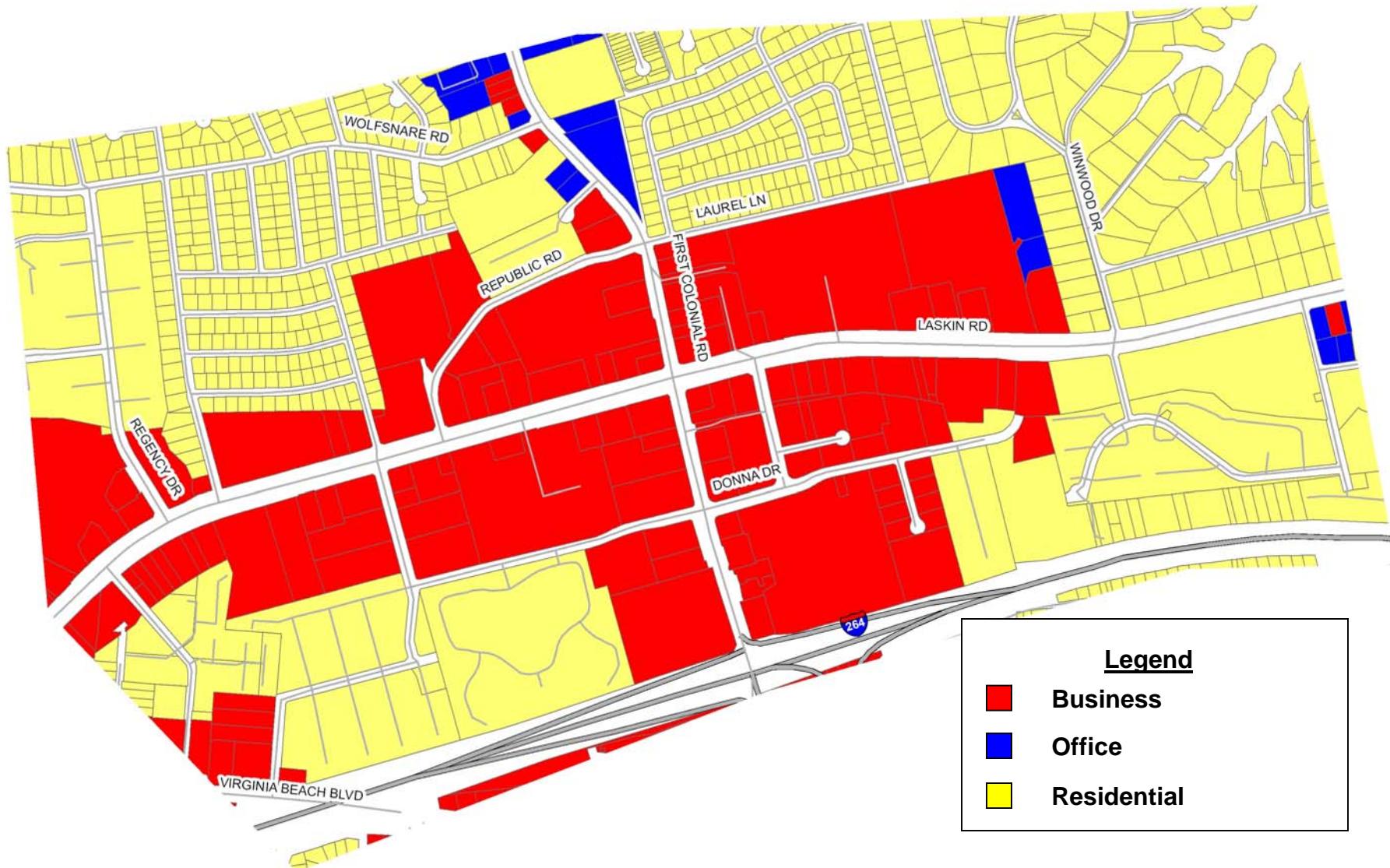
Residential Data

According to the 2000 Census, there were approximately 5,318 persons living in 2,488 households in Hilltop in 2000. Hilltop had a mean age of 31, with 28% of its population age 22 to 29 and 10% of its population age 65 and up. Three-fourths of its population was white, 16% is black, and 3% Asian. The Hilltop study area had a lower percentage of workers driving alone (79.6%) than did Virginia Beach as a whole (82.0%). The study area did, however, have a higher percentage of workers commuting by carpool (13.1%) than Virginia Beach as a whole (10.8%).

Hilltop, 2000 Age Distribution



ZONING IN HILLTOP



With 10% of its population age 65 and up, Hilltop has a slightly higher percentage elderly than Virginia Beach as a whole, which had 8.4% of its population age 65 and over in 2000. There are about 529 persons age 65 and up in the Hilltop area.

Zero-vehicle households

Virginia Beach as a whole had 4.6% of its households with no vehicles in 2000. Hilltop had a higher than average percentage at 11%. Approximately 275 households in the Hilltop Study area have no vehicle.

Business activity

The businesses in the study area are listed below. The Hilltop area employs approximately 4,100 people, of which 36% are in retail. This is higher than the 12% retail for Virginia Beach in 2005. There are almost 300 businesses in the Hilltop area. The map on the previous page shows the generalized zoning by parcel for the area. The businesses are located at the center of the area, at the intersection of First Colonial Rd. and Laskin Rd.

2005 Employment Data for Hilltop

NAICS	NAICS Title	Employees	%	Businesses	%
44/45	Retail Trade	1,498	36%	102	35%
72	Accommodation and Food Services	1,062	26%	43	15%
62	Health Care and Social Assistance	288	7%	18	6%
81	Other Services (except Public Administration)	283	7%	28	9%
23	Construction	196	5%	19	6%
22	Utilities	147	4%	1	0%
54	Professional, Scientific, and Technical Services	139	3%	20	7%
52	Finance and Insurance	107	3%	17	6%
53	Real Estate and Rental and Leasing	102	2%	11	4%
42	Wholesale Trade	80	2%	10	3%
56	Administrative and Support and Waste Management and Remediation Services	73	2%	10	3%
71	Arts, Entertainment, and Recreation	66	2%	3	1%
61	Educational Services	36	1%	4	1%
55	Management of Companies and Enterprises	22	1%	2	1%
31/33	Manufacturing	14	0%	3	1%
51	Information	10	0%	2	1%
48/49	Transportation and Warehousing	9	0%	2	1%
		4,132	100%	295	100%

gaps data inventory.xls

Summary of Hilltop Study Area Demographics

Land area	617 acres; 0.96 sq. mi.
Dimensions	1.4 mi. x 0.7 mi.
2000 population	5,318
2000 households	2,488
Age 65+	529 (10% of pop)
Zero-veh. Households	275 (11% of hh's)
% Carpool commuters	13.1% of workers
% Transit commuters	1.3% of workers
% Bike or walk commuters	2.9% of workers
2005 Businesses	295
2005 Employment	4,132
2005 Retail %	36% of employees

gaps data inventory.xls

ANALYSIS OF MOBILITY FACTORS

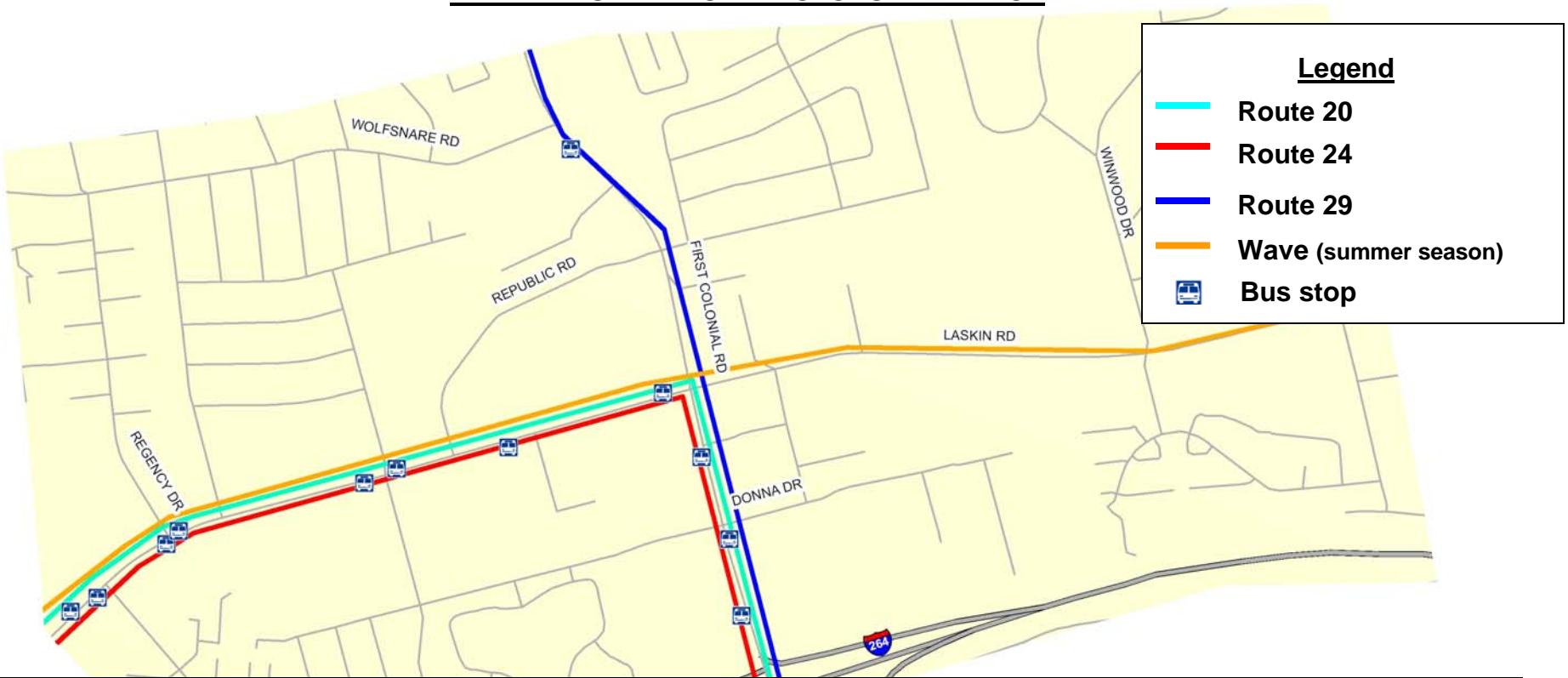
Transit

There are currently four transit lines (routes 20, 24, 29, and the Wave) operated by Hampton Roads Transit serving the Hilltop area. Their locations and a summary of their schedules are shown on the following map. Detailed transit schedules are in Appendix A.

As noted earlier, one of the main findings of the previous studies in this series was that the mobility of better-walking non-drivers doubles by being within one mile of a bus stop and the mobility of lesser-walking non-drivers increases for each bus stop within a 5-mile radius of their home. Therefore, given the size of the study area (1.4 miles by 0.7 miles) and the transit lines bisecting the area, the residents of Hilltop have sufficient transit stops available to them. However, looking at the ranking of ridership per hour of these routes (compared to all other HRT routes in February 2007), routes 24 (Downtown Norfolk / Fort Story) and 29 (Pleasure House Rd / TCC Va. Beach) were below the 50th percentile, at 20th and 40th percentile respectively. There may be opportunities to increase the attractiveness of these routes, such as increased frequency or modification of stop locations. Additionally, Routes 24, 29, and the Wave do not have bicycle racks.⁸

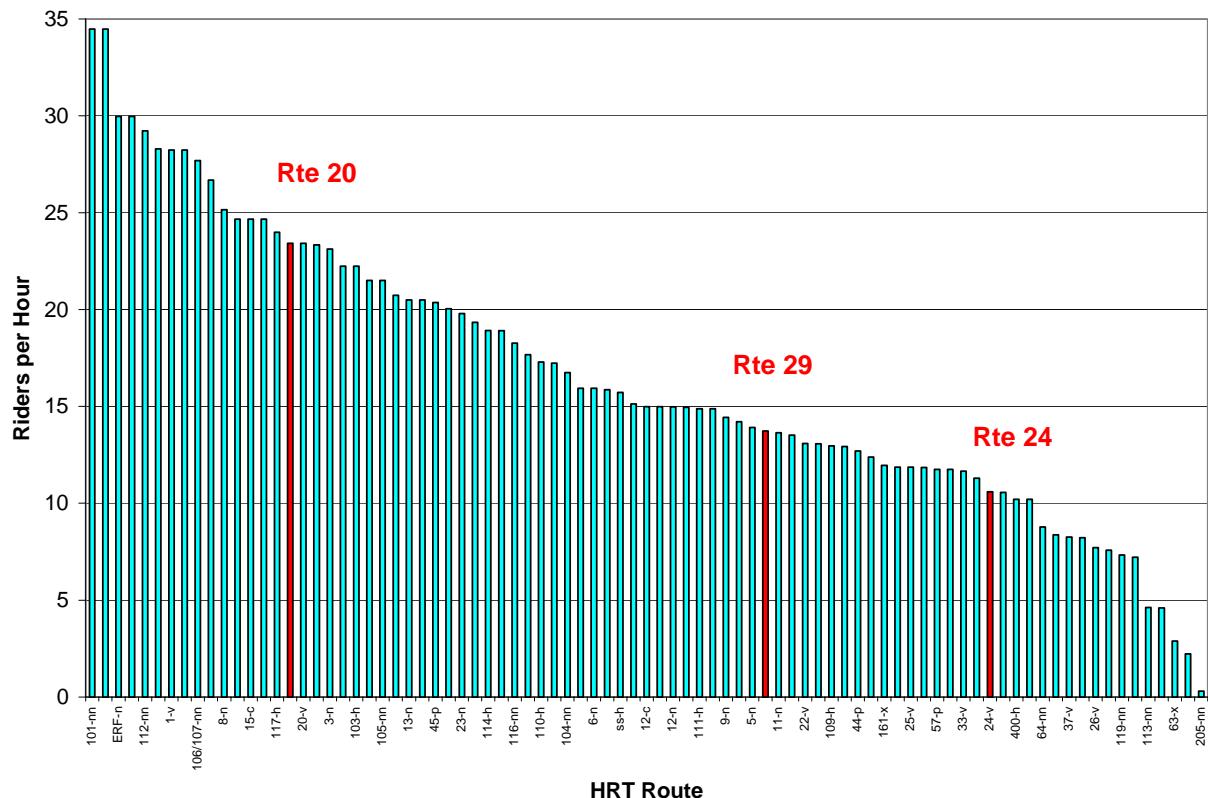
⁸ There are a total of nine HRT routes in the region without bicycle racks (routes 24, 25, 26, 27, 29, 49, 85, Wave, and NET). There are, however, proposed plans for replacing the trolleys (routes 29 and the Wave) and the NET electric bus with universal shuttles, which would include bike racks.

HRT TRANSIT LINES AND STOPS IN HILLTOP



ROUTE	BIKE RACKS	WHEEL-CHAIR	SCHEDULE SUMMARY		
			Start-End	WEEKDAYS Freq.	WEEKENDS Freq.
20 <i>Downtown Norfolk/Va Beach Oceanfront</i>	Y	Y	5:44am-12:45am	AM pk: 30 min PM pk: 30 min midday: 30 min evening: 30 min and 60 min	Sat: 6:45am-12:45am Sun: 7:45am-12:45am Sat and Sun: 60 min all day
24 <i>Downtown Norfolk/Fort Story</i>	N	Y	Winter: 7:38am-4:56pm Summer: 7:38am-4:56pm	4x daily (7:38am, 8:38am, 3:36pm, 4:56pm) 6x daily (7:38am, 8:28am, 8:38am, 3:36pm, 3:46pm, 4:56pm)	Winter: Sat: 7:42am-4:56pm Sun: 8:35am-4:56pm Sat: 2x daily (7:42am and 4:56pm) Sun: 2x daily (8:35am and 4:56pm) Summer: Sat: 7:42am-4:56pm Sun: 8:35am-4:56pm Sat: 5x daily (7:42am, 7:52am, 3:46pm, 3:56pm, 4:56pm) Sun: 5x daily (8:35am, 8:45am, 3:46pm, 3:56pm, 4:56pm)
29 <i>Pleasure House Rd/TCC Va Beach</i>	N	Y	6:15am-7:15pm	60 min all day	Sat: 6:15am-7:15pm Sun: no service Sat: 60 min all day
Wave Shopper's Express (Route 32) <i>Oceanfront/Hilltop/Lynnhaven</i>	N	Y	Memorial Day to Labor Day: 10:00am-9:00pm	60 min. all day	Memorial Day to Labor Day: 10:00am-9:00pm 60 min. all day

February 2007 Transit Ridership per Hour



Source: Hampton Roads Transit

Pedestrian and Bicycle Accommodations

Sidewalks

Sidewalk data was gathered for the major streets in the Hilltop study area. See the map below. There are about 2.4 miles of gaps in the sidewalk network along major roads in the area. Laskin Rd. in particular is an important piece to a successful bicycle network, as the commercial area is centered at the intersection of Laskin Rd. and First Colonial Rd. Laskin Rd.'s sidewalk network is spotted with portions with no sidewalks. First Colonial Rd., however, has a complete sidewalk system, with sidewalks on both sides of the street. These links are vital to providing access for non-drivers to the commercial destinations of Hilltop. Completing the sidewalk network in the area would cost about

\$265,000.⁹ This investment would benefit the bicyclists in the area as well, as discussed below. Besides impacting pedestrian and cyclist travel, the gaps in the sidewalks could also have an impact on the attractiveness of the area's transit routes, as the lack of sidewalks at transit stops could be a deterrent to potential riders.

Additional consideration should also be given to the crossing of the intersection of Laskin Rd. and First Colonial Rd. by non-drivers. These roads are the primary gateways to the area and are therefore high-volume roads.¹⁰ Incorporating the needs of non-drivers through such items as pedestrian and cyclist-friendly signal timings, easily accessible pedestrian call buttons, and well-marked crosswalks should be considered at this critical intersection.

Bicycle facilities

Virginia Beach does allow bicycles on sidewalks in the Hilltop area (see Appendix B for portions of city code). Therefore, the sidewalks in the area serve both pedestrians and cyclists. Again, as noted above, there are about two miles of gaps in the sidewalk network in the Hilltop area. There are no bike lanes or trails that are for the exclusive use of bicyclists. Other bicycle amenities, such as bicycle racks, are located in scattered locations throughout the Hilltop area. An expansion of the availability of bike racks might increase the trips made to the commercial area for non-drivers, at a cost of approximately \$225 for a single "inverted U" rack to \$800 for a rack holding ten bicycles.¹¹



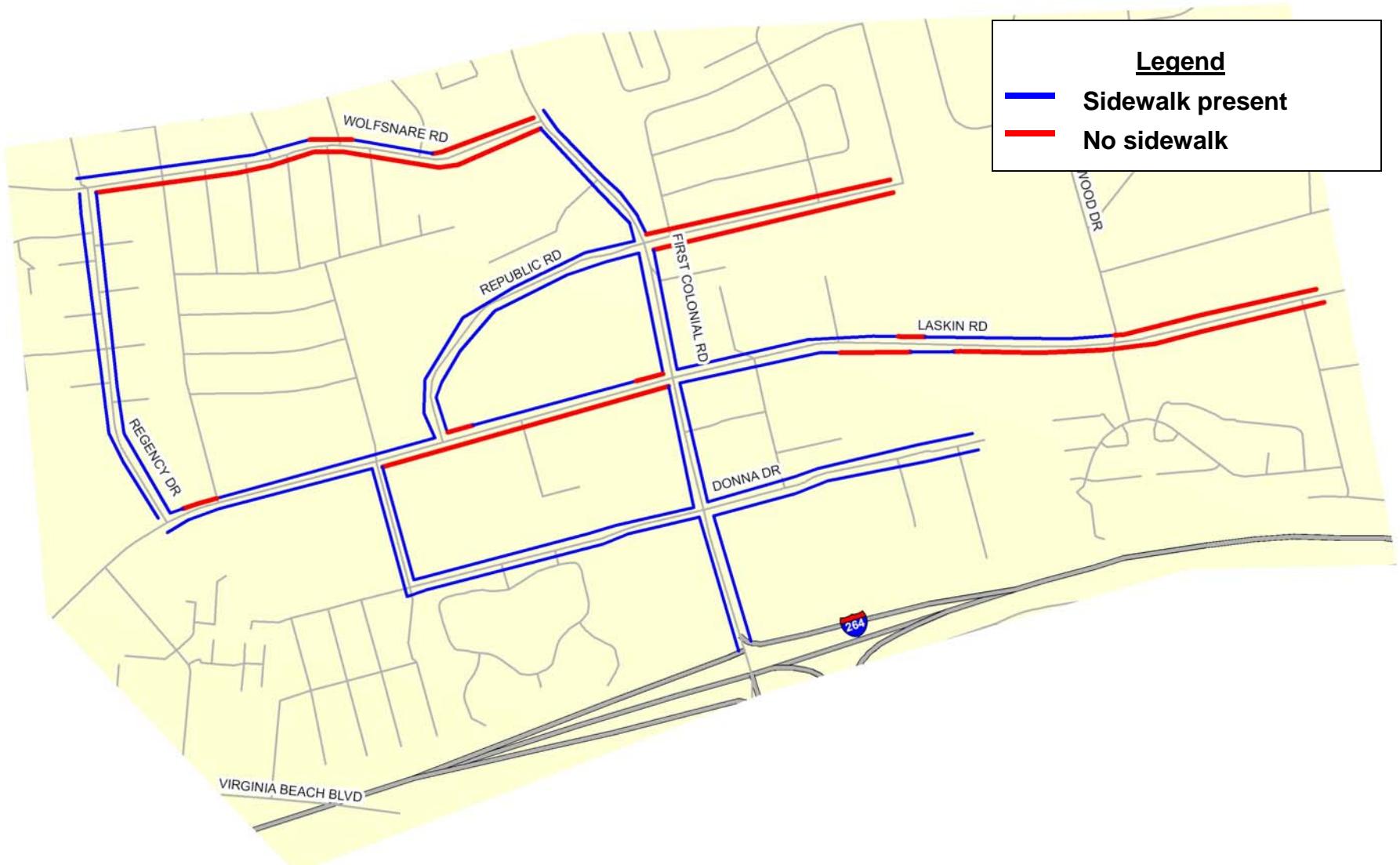
Bicycle racks are present in the Hilltop commercial area, but in limited locations.

⁹ Based on a VDOT generalized cost estimate of \$110,000/mile for a 5 foot sidewalk.

¹⁰ First Colonial Rd. had a 2006 daily count of 40,930 between I-264 and Laskin Rd. Laskin Rd. had 2006 counts of 30,459 from Va. Beach Blvd. to First Colonial Rd., and 29,177 from First Colonial Rd. to Winwood Dr.

¹¹ Bicycle rack costs can vary greatly based on their capacity. Cited racks costs are based on costs from the "Pedestrian and Bicycling Information Center" website, www.bicyclinginfo.org.

SIDEWALKS ALONG MAJOR ROADS IN HILLTOP





There remains a demand for trips by foot or bicycle along Laskin Rd. despite the gaps in the sidewalk network.

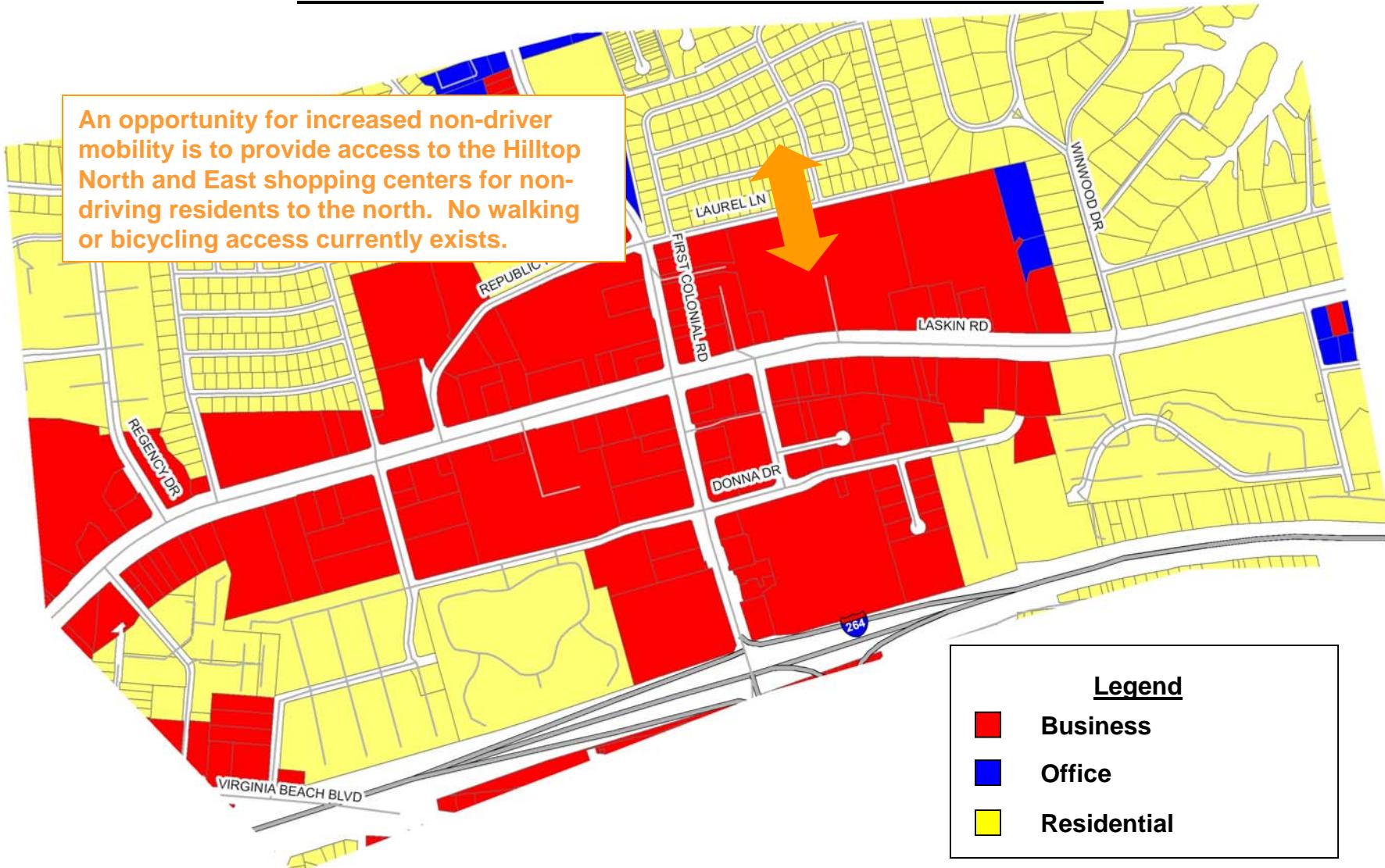
Additional Pedestrian and Bicycle Connectivity Improvements

The design of Hilltop North and Hilltop East is such that those residents living in the Laurel Manor neighborhood to the north do not have access to the shopping centers. Approximately 400 residents live in the neighborhood between Wolfsnare Rd. and Laurel Ln. Laurel Ln. has no sidewalks and access to Hilltop North is additionally discouraged by a thick row of trees and bushes. However, as shown in the photos below, breaks in the foliage have been created over the years, indicating a desire for access on foot or bicycle. Therefore, there is an opportunity to serve the non-driving residents of the neighborhood by providing access with sidewalks along Laurel Ln. and paths from Laurel Ln. to the shopping centers. See the map on the following page.



Access along Laurel Ln. to Hilltop is discouraged by the thick foliage and lack of sidewalks, despite evidence of a desire for access by pedestrians and cyclists.

OPPORTUNITIES FOR INCREASED MOBILITY UNIQUE TO HILLTOP



Each of the quadrants of the Hilltop area, as formed by the intersection of Laskin Rd. and First Colonial Rd., has one or more large shopping centers. Sidewalks to the property may not be enough to encourage non-drivers to shop at these establishments, as there can be large parking lots to navigate upon reaching the property. These parking lots can be an additional tenth of a mile in length in some cases, making for a precarious walk or bicycle trip in an environment designed for vehicles. This last leg of a non-driver's trip can be made safer and more desirable by providing a well-defined path exclusively for walkers or cyclists, from the sidewalk along the major street to the shopping center.



Access from the surrounding major streets to a shopping center's front door can be a significant distance for walkers or cyclists through an area designed for vehicles. Incorporating paths for non-drivers can aid their access to these businesses.

Available Activities

As noted earlier, one of the findings of the previous studies was that living within a half-mile of destinations increases non-driver mobility. Better-walking non-drivers living in High Activity Locations in Hampton Roads have odds of leaving home five times higher than those living away from activities. Mobility increases significantly for those with 2,000 or more activity location units ("alu's") within a half-mile radius of their home.

Activity location units are a way of measuring the quantity of business activity in an area. The equation is:

$$\text{Activity location units} = (3 * \# \text{ of retail employees}) + (\# \text{ of non-retail employees})$$

The number of retail employees are multiplied by three to account for the increased number of trips to retail establishments.

The Hilltop study area was divided into a grid (of 200 meter spacing) and the quantity of activities within a half-mile (as measured by the “activity location units”) were mapped to show locations in the area that could be desirable residential locations for non-drivers and therefore may be candidates for future additional residential units. Likewise, those areas that aren’t currently conducive to non-driver mobility (based on proximity to activities) may be candidates for new businesses in the area. See the map on the following page.

A large majority of the Hilltop land area (87%) and households (92%) do have sufficient proximity to activities to support non-driver mobility. The only area that was found to be less conducive towards non-driver mobility was the Linlier residential area just east of Winwood Dr. This area may be a good candidate for new neighborhood-scale businesses in the area, if the city and the neighborhood desire to increase walking opportunities for non-drivers and others.

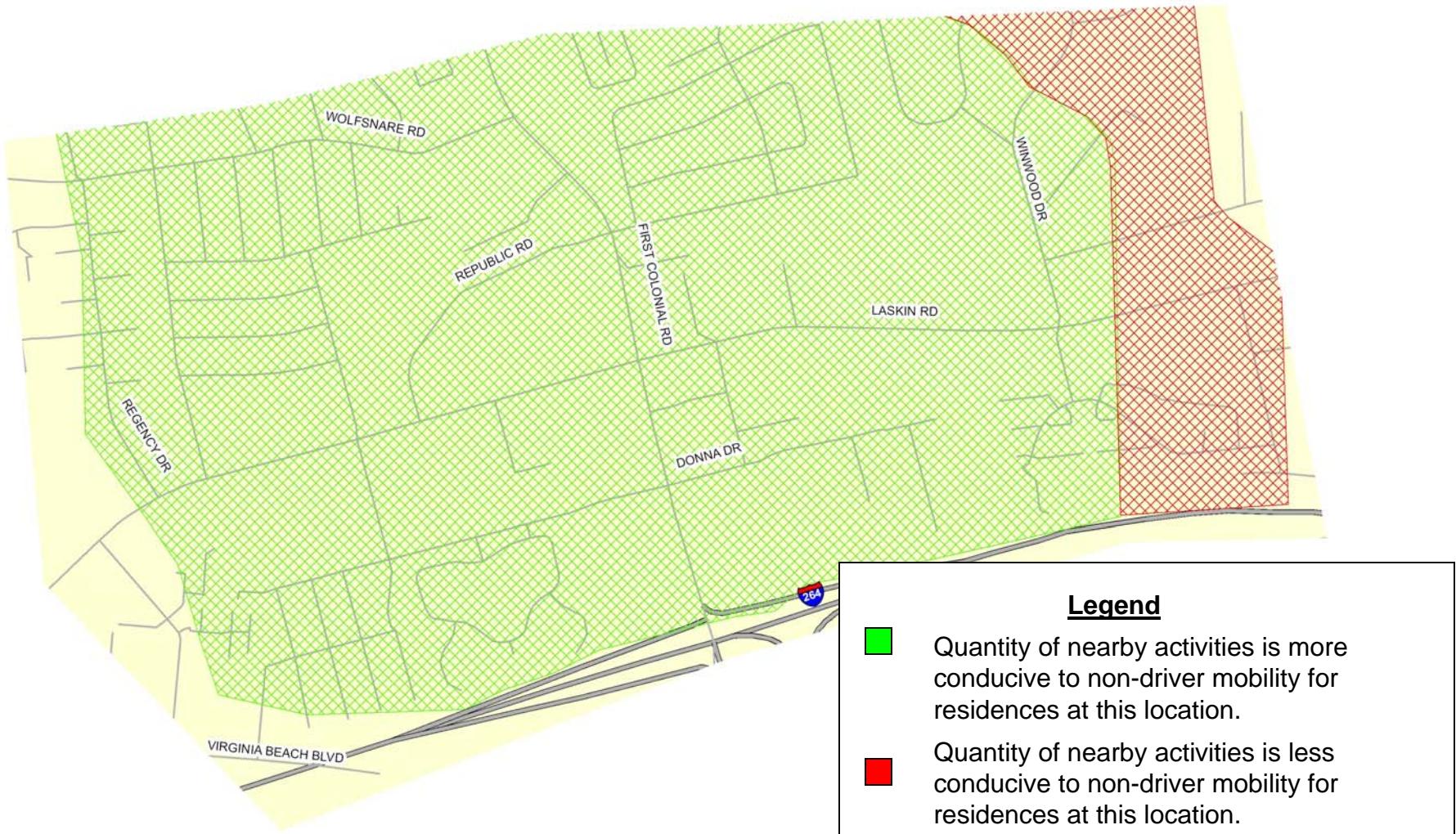
REVIEW OF OTHER CITY PLANS

There are two documents from the city of Virginia Beach that are relevant to non-driver mobility in the Hilltop area. While the exact recommendations made in this non-driver study are not contained in these documents, the goal of increasing non-driver mobility at Hilltop is consistent among the reports.

The first document is the city’s 2003 Comprehensive Plan. One component of the city’s vision is to reduce dependence on the automobile, and they plan to accomplish this by focusing development on Strategic Growth Areas, Hilltop being one of the areas. In these growth areas, the city will rely more on pedestrian-friendly, compact development.

The other document is the “Laskin Road Corridor Plan”, adopted June 27, 2000. Increasing pedestrian accessibility in this area through a sidewalk system that is safe, attractive, and convenient is recommended. The Plan recommends removal of all service roads along Laskin Road due to the resulting traffic patterns being confusing and congested, raising safety issues for pedestrians and bicyclists. Further, Phase I of the Laskin Road project recommends the construction of a continuous sidewalk system and bike path along both sides of Laskin Road. The Plan also recommends the addition of painted and paved crosswalks at key intersections as well as signalized pedestrian traffic signals in order to provide safe pedestrian movements. In selected areas, median widths will be expanded in an effort to create a ‘way station’ for crossing pedestrians.

PROXIMITY TO ACTIVITIES IN HILLTOP



Residential locations with greater than 2,000 activity location units within one-half mile are conducive to non-driver mobility.

Activity location units = 3*Retail employment + Non-retail employment

SUMMARY OF RECOMMENDATIONS

- There are approximately 2.4 miles of gaps in the sidewalk network along major streets in the Hilltop area. The cost to complete the sidewalk network would be about \$265,000. Besides impacting pedestrian and cyclist travel, the gaps in the sidewalks could also have an impact on the attractiveness of the area's transit routes, as the lack of sidewalks at transit stops could be a deterrent to potential riders.
- Sidewalks in the area can also be used by cyclists. In addition to experiencing the same gaps as pedestrians, cyclists have limited areas with racks for their bicycles. Bicycle racks costs range from approximately \$225 for a single rack to \$800 for a rack holding ten bicycles.
- Non-driver access to Hilltop from the residential area to the north could be improved through the inclusion of a walkway from Laurel Ave.
- The distance to transit stops is sufficient, with three transit lines serving the area. However, routes 24 and 29 could be further examined for ways to increase their ridership per hour, such as increased frequency or modification of stop locations. Also, three of the routes (24, 29, and the Wave) do not have racks for bicycles, an exception in the HRT fleet.
- Most of the Hilltop area does have sufficient proximity for non-drivers to activities. These areas, that are already conducive to non-driver mobility in terms of proximity to businesses, may be good candidates for future additional residential units.
- The area that was found to be less-conducive to non-driver mobility in terms of proximity to activities was the residential area just east of Winwood Dr. This area may be a good candidate for new neighborhood-scale businesses in the area, if the city and the neighborhood desire to increase walking opportunities for non-drivers and others.
- The city and current business owners could consider the incorporation of paths across large parking lots for more desirable non-driver access.

The city could coordinate with the residents in the Hilltop area to determine acceptable and affordable ways for increasing non-driver mobility in the area, using the above potential opportunities for increased mobility as a starting point.

APPENDICES

APPENDIX A
TRANSIT RIDERSHIP AND ROUTE SCHEDULES

SERVICE HOURS AND RIDERSHIP BY ROUTE
Excluding Paratransit Service
For the month ending February 28, 2007

SINGLE CITY ROUTES	February 2006		February 2006		February 2007		February 2007	
	Hours	Ridership	Hours	Riders/Hr	Hours	Ridership	Hours	Riders/Hr
Crossroads & Congestion Relief								
61 Crossroads Southside	560	6,300	11.25	557	6,897	12.38		
161 Crossroads Northside	736	8,353	11.35	736	8,795	11.95		
261 Crossroads	212	473	2.23	212	2,512	11.85		
63 Norfolk Naval Station	118	718	6.08	120	347	2.89		
76 Norfolk Naval Station	-	-	-	701	5,768	8.23		
77 Norfolk Naval Station	-	-	-	164	1,853	11.30		
65 Boomerang	-	-	-	-	-	-		
66 Boomerang	-	-	-	-	-	-		
Crossroads & Congestion Relief Total	1,626	15,844	9.74	2,490	26,172	10.51		
Chesapeake								
6 Downtown Norfolk/South Norfolk/Robert Hall Blvd.	443	7,718	17.42	443	7,063	15.94		
12 South Norfolk/TCC-Virginia Beach	94	1,465	15.59	94	1,409	14.99		
13 Downtown Norfolk/Robert Hall Blvd./TCC-Ches.	770	15,931	20.69	770	15,782	20.50		
15 Naval Station Norfolk/Robert Hall Blvd.	370	9,059	24.48	370	9,127	24.67		
22 Naval Station/Greenbrier-Indian River P&R Lot	65	1,150	17.69	65	850	13.08		
57 Robert Hall Blvd/Camelot (Rt Dev 10/6/02)	405	4,505	11.12	405	4,757	11.75		
58 South Norfolk/Bainbridge Blvd.	323	5,723	17.72	323	5,122	15.86		
Chesapeake Total	2,470	45,551	18.44	2,470	44,110	17.86		
Norfolk								
1 Downtown Norfolk/Pembroke East	2,096	56,244	26.83	2,085	58,883	28.24		
2 Naval Station Norfolk/Hampton Blvd.	1,357	24,527	18.07	1,355	26,214	19.35		
3 Downtown Norfolk/Virginia Beach	2,154	49,643	23.05	2,153	49,779	23.12		
4 Norfolk General Hospital/ODU/Downtown Norfolk	778	8,308	10.68	778	8,217	10.56		
5 Wards Corner/Willioughby (new Feb 19, 2003)	310	4,039	13.03	310	4,313	13.91		
6 Downtown Norfolk/South Norfolk/Robert Hall Blvd.	654	11,395	17.42	653	10,410	15.94		
7 Naval Station Norfolk/Tour	23	159	6.91	23	79	3.43		
8 Downtown Norfolk/Little Creek Amphib. Base	1,350	32,958	24.41	1,350	33,958	25.15		
9 Downtown Norfolk/Chesterfield	1,434	19,969	13.93	1,429	20,627	14.43		
11 Downtown Norfolk/Colonial Place	665	9,004	13.54	665	9,073	13.64		
12 South Norfolk/TCC-Virginia Beach	59	920	15.59	59	884	14.98		
13 Downtown Norfolk/Robert Hall Blvd./TCC-Ches.	769	15,910	20.69	769	15,762	20.50		
15 Naval Station Norfolk/Robert Hall Blvd.	2,768	67,772	24.48	2,748	67,788	24.67		
16 Naval Base Shuttle	-	-	-	-	-	-		
18 Downtown Norfolk/Ballantine Blvd.	372	6,217	16.71	374	2,834	7.58		
20 Downtown Norfolk/VA Beach Oceanfront	1,737	41,857	24.10	1,737	40,674	23.42		
23 Medical Tower/Military Circle/Feb/AF	1,650	33,357	20.22	1,650	32,652	19.79		
14 Norfolk Destination Tour (seasonal)	-	-	-	-	-	-		
25 Newtown	285	3,204	11.24	285	3,380	11.86		
35 Special Services (Tours)	-	-	-	-	-	-		
Norfolk Electric Transit	1,439	30,221	21.00	1,429	24,632	17.24		
Elizabeth River Ferry	206	6,018	29.21	206	6,173	29.97		
Harbor Park Ferry	-	-	-	-	-	-		
Norfolk Total	20,106	421,722	20.97	20,058	416,332	20.76		

SERVICE HOURS AND RIDERSHIP BY ROUTE
Excluding Paratransit Service
For the month ending February 28, 2007

	February 2006 Hours	February 2006 Ridership	February 2006		February 2007		February 2007 Riders/Hr
			Hours	Riders/Hr	Hours	Riders/Hr	
Portsmouth							
41 Downtown Portsmouth/Cradock	771	10,455	13.56	648	8,378	12.93	
44 Norfolk General Hospital/Midtown Portsmouth	880	13,229	15.03	878	11,152	12.70	
45 Downtown Norfolk/Fortsmouth	1,524	31,312	20.55	1,523	31,005	20.36	
47 Downtown Portsmouth/Churchland	622	17,914	28.80	622	16,594	26.68	
49 Park & Sail	92	30	0.33	92	205	2.23	
50 Academy Park/Victory Crossing	335	6,805	20.31	335	5,923	17.68	
57 Robert Hall Blvd./Camelot (Rt Dev 10/6/02)	213	2,369	11.12	213	2,502	11.75	
42 Portsmouth Olde Town tour	-	-	-	-	-	-	
85 Town Point Road/Churchland (Trolley)	260	3,818	14.68	258	3,667	14.21	
Elizabeth River Ferry	206	6,018	29.21	206	6,173	29.97	
Harbor Park Ferry	-	-	-	-	-	-	
Portsmouth Total	4,903	91,950	18.75	4,775	85,599	17.93	
Suffolk							
Suffolk Provided Service	960	7,379	7.69	931	7,794	8.37	
Suffolk Total	960	7,379	7.69	931	7,794	8.37	
Virginia Beach							
1 Downtown Norfolk/Pembroke East	373	10,009	26.83	373	10,534	28.24	
12 South Norfolk/TCC-Virginia Beach	444	6,921	15.59	444	6,655	14.99	
15 Naval Station Norfolk/Robert Hall Blvd.	167	4,089	24.49	165	4,070	24.67	
19 Naval Station Norfolk/Silverleaf	226	3,961	17.53	228	4,569	20.04	
20 Downtown Norfolk/V/A Beach Oceanfront	1,930	46,507	24.10	1,925	45,076	23.42	
22 Naval Station/Greenbrier-Indian River P&R Lot	130	2,301	17.70	130	1,701	13.08	
24 Downtown Norfolk/Fort Story	196	2,240	11.43	189	2,003	10.60	
36 Holland	399	10,075	25.25	400	9,336	23.34	
37 Dam Neck/Oceanfront/Lynnhaven Mall	107	1,251	11.69	105	867	8.26	
34 Naval Air Station Oceana Tour	-	-	-	-	155	-	
25 Newtown	226	2,541	11.24	228	2,704	11.86	
26 International Pkwy./TCC Virginia Beach	292	2,126	7.28	290	2,239	7.72	
27 Pleasure House Rd/Military Circle	302	5,020	16.62	305	4,562	14.96	
29 Lynnhaven	646	10,002	15.48	648	8,897	13.73	
30 Atlantic Ave (seasonal)	-	-	-	-	-	-	
31 Museum Exp (seasonal)	-	-	-	-	-	-	
32 Shoppers Express (seasonal)	-	-	-	-	-	-	
33 General Booth	603	6,727	11.16	602	7,016	11.65	
33 General Booth - Amphitheatre	-	-	-	-	-	-	
35 Special Services (Tours)	-	-	-	-	-	-	
Virginia Beach Total	6,041	113,770	18.83	6,032	110,384	18.30	

SERVICE HOURS AND RIDERSHIP BY ROUTE
Excluding Paratransit Service
For the month ending February 28, 2007

	February 2006			February 2007		
	Hours	Ridership	Riders/Hr	Hours	Ridership	Riders/Hr
Hampton						
101 Kecoughtan	491	19,966	40.66	489	16,858	34.47
102 Coliseum	464	7,072	15.24	463	6,258	13.52
103 Shell Rd.	797	16,513	20.72	795	17,679	22.24
105 Briarfield	238	5,795	24.35	237	5,098	21.51
109 Pembroke	381	6,218	16.32	380	4,927	12.97
110 Thomas Nelson	831	14,806	17.82	832	14,388	17.29
111 Denbigh	144	2,075	14.41	147	2,187	14.88
113 Ft. Eustis Express	20	273	13.65	20	92	4.60
114 Weaver Rd.	1,276	26,470	20.74	1,273	24,081	18.92
115 Fox Hill	807	14,451	17.91	815	16,900	20.74
117 Phoebus	229	8,096	35.35	229	5,493	23.99
118 Magruder	908	14,815	16.32	905	13,688	15.12
120 Mallory	329	6,609	20.09	328	9,281	28.30
400 Shipyard Express	270	3,062	11.34	223	2,277	10.21
Hampton Special Service	5,095	99,083	19.45	5,135	80,754	15.73
Hampton Total	12,280	245,304	19.98	12,271	219,961	17.93
Newport News						
101 Kecoughtan	351	14,273	40.66	351	12,101	34.48
103 Shell Rd.	533	11,044	20.72	533	11,853	22.24
104 Marshall	1,299	22,822	17.57	1,297	21,726	16.75
105 Briarfield	727	17,702	24.35	735	15,809	21.51
106/107 Warwick	2,431	65,925	27.12	2,422	67,082	27.70
111 Denbigh	816	11,758	14.41	816	12,140	14.88
112 Jefferson	1,644	46,161	28.08	1,644	48,037	29.22
113 Ft. Eustis Express	78	1,067	13.68	78	361	4.63
114 Weaver Rd.	333	6,908	20.74	333	6,299	18.92
116 Mall Hall (Rt. Dev 1/18/03)	964	18,450	19.14	962	17,572	18.27
119 Oyster Point	238	1,994	8.38	245	1,795	7.33
205 Oyster Point Shuttle -- CMAQ	-	-	-	343	103	0.30
64 Smithfield	220	1,279	5.81	220	1,931	8.78
121 Williamsburg	250	1,365	5.46	251	1,811	7.22
400 Shipyard Express	490	5,557	11.34	399	4,074	10.21
Newport News Total	10,374	226,305	21.81	10,629	222,694	20.95
ROUTE TOTALS	58,760	1,167,825	19.87	59,656	1,133,046	18.99
Note: total includes both single city routes and shared routes.						

SERVICE HOURS AND RIDERSHIP BY ROUTE
Excluding Paratransit Service
For the month ending February 28, 2007

SHARED ROUTES	February 2006		February 2006		February 2007		February 2007	
	2006 Hours	2006 Ridership	2007 Hours	2007 Ridership	2007 Hours	2007 Ridership	2007 Hours	2007 Ridership
1 Downtown Norfolk/Pembroke East	2,469	66,253	26.83	2,458	69,417	28.24		
6 Downtown Norfolk/South Norfolk/Robert Hall Blvd.	1,097	19,113	17.42	1,096	17,473	15.94		
12 South Norfolk/TCC-Virginia Beach	597	9,306	15.59	597	8,948	14.99		
13 Downtown Norfolk/Robert Hall Blvd./TCC-Ches.	1,539	31,841	20.69	1,539	31,544	20.50		
15 Naval Station Norfolk/Robert Hall Blvd.	3,305	80,920	24.48	3,283	80,985	24.67		
20 Downtown Norfolk/A Beach Oceanfront	3,667	88,364	24.10	3,662	85,750	23.42		
22 Naval Station/Greenbrier-Indian River P&R Lot	195	3,451	17.70	195	2,551	13.08		
25 Newtown	511	5,745	11.24	513	6,084	11.86		
35 Special Services (Tours)	-	-	-	-	-	-		
57 Robert Hall Blvd./Camelot (Rt Dev 10/6/02)	618	6,874	11.12	618	7,259	11.75		
101 Kecoughtan	842	34,239	40.66	840	28,959	34.48		
103 Shell Rd.	1,330	27,557	20.72	1,328	29,532	22.24		
105 Briarfield	965	23,497	24.35	972	20,907	21.51		
111 Denbigh	960	13,833	14.41	963	14,327	14.88		
113 Ft. Eustis Express	98	1,340	13.67	98	453	4.62		
114 Weaver Rd.	1,609	33,378	20.74	1,606	30,380	18.92		
400 Shipyard Express	760	8,619	11.34	622	6,351	10.21		
Elizabeth River Ferry	412	12,036	29.21	412	12,346	29.97		
SHARED ROUTES TOTAL	20,974	466,366	22.24	20,802	453,266	21.79		
Note: total includes only shared routes								

ROUTE 1



BUS SCHEDULE

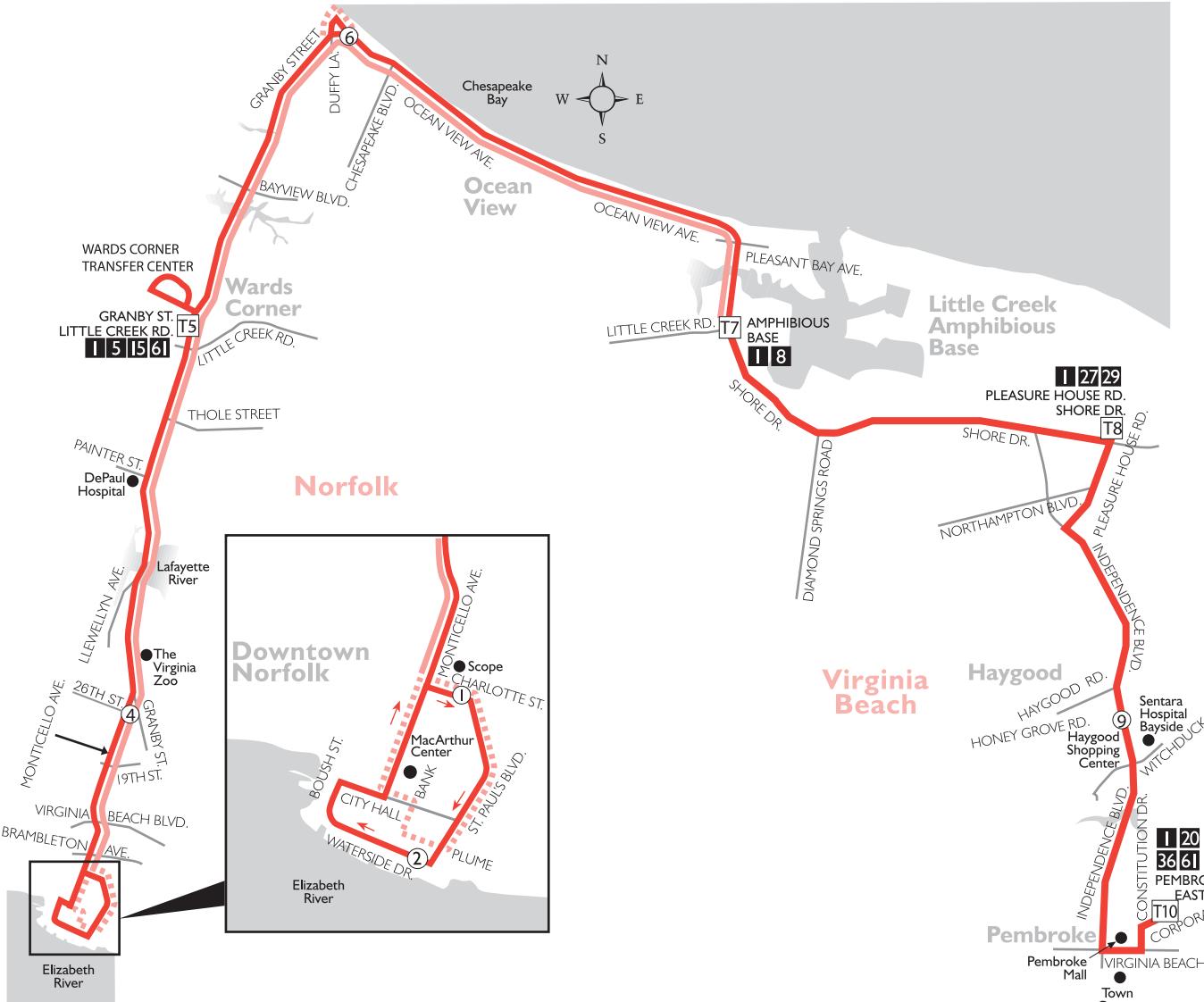


DOWNTOWN NORFOLK / PEMBROKE EAST ROUTE - Wheelchair Lift-Equipped & Bike Rack Equipped

█ Downtown Norfolk █ Granby St. █ Ocean View █ Shore Drive █ Independence Blvd. █ Pembroke
 Charlotte & Bank Monticello Avenue Granby Street Little Creek Amphibious Base Pleasure House Road
 Waterside Dr. Ocean View Avenue Shore Drive Pleasure House Road Haygood Shopping Center
 Little Creek Amphibious Base Pleasure House Road Haygood Shopping Center
 Pembroke Independence Blvd. Pembroke East

DOWNTOWN NORFOLK / PEMBROKE EAST ROUTE

EFFECTIVE DECEMBER 31, 2006



WEEKDAY From Pembroke East to Shore Drive to
Ocean View to Downtown Norfolk

Pembroke East	⑨	T8	T7	⑥	T5	③	①
				5:18 5:48	5:30 6:00 6:15	5:49 6:19 6:34	5:54 6:24 6:39
				6:00 6:05	6:18 6:23	6:49 To Naval 7:04	6:54 7:09
6:22	6:33	6:44	7:00	7:18	7:00 7:15 7:30	7:19 7:34 7:49	7:24 7:39
					7:12	7:45 8:04 8:19	7:49 8:09 8:24
					7:30	8:15 8:30 8:45	8:34 8:54 9:09
7:22	7:33	7:44	8:00	8:18	8:08 8:18 8:30 8:45	8:34 8:49 9:04	8:39 8:54 9:09
					8:30	9:00 9:15 9:30	9:19 9:34 9:54
8:22	8:33	8:44	9:00	9:18	9:00 9:18 9:30	9:15 9:34 9:49	9:24 9:39
					9:50 10:00 10:10 10:20	10:19 10:24 10:49 10:54	10:02 10:17 10:32 10:48
9:22	9:33	9:44	10:00	10:18	10:00 10:18 10:30 10:50	10:19 10:24 10:49 11:19	10:33 11:13 11:24
					10:50 11:00 11:10 11:20	11:19 11:24	11:33 11:45 11:55
10:22	10:33	10:44	11:00	11:18	11:00 11:18 12:00 12:18	11:30 11:49 12:19 12:49	10:45 11:22 11:32 11:43
					11:50 12:00 12:18 12:30	11:54 12:00 12:13 12:24	10:55 11:22 11:32 11:43
11:22	11:33	11:44	12:00	12:50	12:00 12:18 12:30	12:19 12:49	11:55 12:22 12:32 12:43
					12:48 1:00 1:18 1:30	12:48 1:19 1:49 1:54	12:43 1:13 1:23 1:33
12:22	12:33	12:44	1:00	1:48	1:00 1:18 2:00	1:19 1:49 2:19	1:45 1:55 2:24
					2:00 2:50 3:00 3:18	2:19 2:49 3:19 3:49	2:45 2:55 3:02
1:22	1:33	1:44	2:00	2:18	2:00 2:18 2:30	2:49 2:49	2:45 2:55 3:02
				2:54	2:50 3:00 3:18	3:24 3:24	2:45 2:55 3:02
2:22	2:33	2:44	3:00	3:30	3:00 3:48 4:00	3:19 3:49	3:45 3:55 4:02
				3:24	3:30 3:48 4:00	3:49 4:18 4:49	3:45 3:55 4:02
3:22	3:33	3:44	4:00	4:18	4:00 4:18 4:30	4:49 4:49 4:54	4:45 4:55 5:02
				4:09	4:30 5:00 5:18	4:43 5:09 5:34	
4:22	4:33	4:44	5:00	5:18	5:00 5:18 5:30	5:49 5:54 6:04	4:43 5:03
				5:24	5:18 6:00 6:18	5:54 6:09 6:19	5:03
5:22	5:33	5:44	6:00	6:18	5:18 6:30 6:50	6:34 6:49 7:00	5:55 6:09 7:02
				6:20	6:30 6:48 7:00	6:43 6:54 7:09	
6:22	6:33	6:44	7:00	7:18	6:18 7:30	7:50	
				7:33	7:48 8:00	8:20	
7:22	7:33	7:44	8:00	8:48	8:00 9:00	9:20	
				8:33	9:48 10:00	10:20	
8:22	8:33	8:44	9:00	9:33	9:48 10:00	10:20	
				10:33	10:48 11:00	11:20	
9:22	9:33	9:44	11:00	11:33	11:48 12:00	12:20	
				12:33	12:48 1:00	1:15	
				1:33	1:48 2:00	2:15	

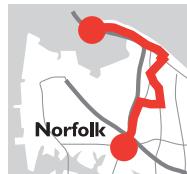
These times are in the PM

WEEKEND SCHEDULE IS ON THE BACK

WEEKDAY From Downtown Norfolk to Ocean View
to Shore Drive to Pembroke East

Charlotte St.	Bank St.	Waterside Dr.	Commercial Place	Monticello Ave.	18th St.	Granby St.	Ocean View Ave.	Amphibious Base	Shore Dr.	Pleasure House Rd.	Pembroke East
①	②	③	T5	⑥	T7	T8	T9	T10	T10	T10	T10
4:43	5:00	5:13	5:30	5:43	6:03	6:45	6:55	7:02	7:25	7:47	8:02
5:54	6:02	6:13	6:30	6:43	7:03	7:57	8:05	8:22	8:42	8:52	9:02
6:24	6:32	6:43	7:00	7:13	7:33	7:45	7:55	8:02			
6:39	6:47	6:58	7:15	7:30	7:43	8:03					
6:54	7:02	7:13	7:30	7:43	8:03						
7:09	7:17	7:28	7:45								
7:24	7:32	7:43	8:00	8:13	8:33	8:45	8:55	9:02			
7:39	7:47	7:58	8:15	9:13	9:33	9:45	9:55	10:02			
7:54	8:02	8:13	8:30	8:43	9:03						
8:09	8:17	8:28	8:45								
8:24	8:32	8:43	9:00	9:13	9:33	9:45	9:55	10:02			
8:39	8:47	8:58	9:15	9:30	9:43	10:00	10:13	10:22			
8:54	9:02	9:13	9:30	9:43	10:13	10:33	10:45	10:55	11:02		
9:24	9:32	9:43	10:00	10:13	10:33	10:45	10:55	11:02			
9:54	10:02	10:13	10:30	10:43							
10:24	10:32	10:43	11:00	11:13	11:33	11:45	11:55	12:02			
10:54	11:02	11:13	11:30	11:43							
11:24	11:32	11:43	12:00	12:13	12:33	12:45	12:55	1:02			
11:54	12:02	12:13	12:30	12:43	1:00	1:13	1:23	1:33	1:45	1:55	2:02
12:24	12:32	12:43			1:00	1:13	1:23	1:33	1:45	1:55	2:02
12:54	1:02	1:13	1:30	1:43	2:00	2:13	2:23	2:33	2:45	2:55	3:02
1:24	1:32	1:43	2:00	2:13	2:20	2:33	2:43	2:53	3:03	3:13	3:20
1:54	2:02	2:13	2:20	2:33	2:40	2:53	3:03	3:13	3:23	3:33	3:40
2:24	2:32	2:43	3:00	3:13	3:20	3:33	3:43	3:53	4:03	4:13	4:20
2:54	3:02	3:13	3:30	3:43	4:00	4:13	4:23	4:33	4:43	4:53	5:00
3:24	3:32	3:43	3:50	4:03	4:18	4:31	4:41	4:51	4:58	5:08	5:15
3:54	4:02	4:13	4:30	4:43	4:58	5:11	5:21	5:31	5:41	5:51	6:00
4:24	4:32	4:43	5:00	5:13	5:30	5:43	5:53	6:03	6:13	6:23	6:30
4:54	4:47	4:58	5:15	5:30	5:43						
5:09	5:17	5:28	5:45								
5:24	5:32	5:43	6:00	6:13	6:33	6:45	6:55	7:05	7:29		
5:39	5:47	5:58	6:15	6:30	6:43						
5:54	6:02	6:13	6:30	6:45	7:09						
6:20	6:28	6:39	6:56	7:09	7:29						
7:20	7:29		8:00	8:13	8:33						
8:20	8:29		9:00	9:13	9:33						
9:20	9:29		10:00	10:13	10:33						
10:20	10:29		11:00	11:13	11:33						
11:20	11:29		12:00	12:13	12:33						
12:20	12:29		1:00	1:13	1:33						

These times are in the PM

RT.5**HRT**
Hampton Roads Transit**WARDS CORNER / WILLOUGHBY ROUTE - Wheelchair Lift-Equipped
Bike Rack Equipped**

■ Wards Corner	■ Bay View Blvd.	■ Ocean View
Granby Street	Granby Street	Duffy Lane
Bay View Blvd.	Tidewater Drive	Ocean View Blvd.

WARDS CORNER / WILLOUGHBY ROUTE**EFFECTIVE MAY 21, 2006****MAP LEGEND**

Daily Route

Streets

① Time Point
Use these in conjunction with corresponding time points on timetables to determine when the bus arrives at this point on route.

② Time Point & Transfer Point Combined

③ Connecting Bus Route

MONDAY THRU SATURDAY

From Willoughby to Wards Corner

Willoughby	Ocean View Ave.	Granby Street	Tidewater Drive	Bay View Blvd.	Wards Corner	Transit Center
④	T3	②	T1			
5:32	5:45	5:51	6:00			
6:32	6:45	6:51	7:00			
7:32	7:45	7:51	8:00			
8:32	8:45	8:51	9:00			
9:32	9:45	9:51	10:00			
10:32	10:45	10:51	11:00			
11:32	11:45	11:51	12:00			
12:32	12:45	12:51	1:00			
1:32	1:45	1:51	2:00			
2:32	2:45	2:51	3:00			
3:32	3:45	3:51	4:00			
4:32	4:45	4:51	5:00			
5:32	5:45	5:51	6:00			

These times are in the PM

HOLIDAY SCHEDULE FOR ROUTE 5:

A Sunday schedule will be observed on Christmas, New Year's Day and Thanksgiving. A Saturday schedule will be observed on Independence Day, Labor Day, Martin Luther King Day, Memorial Day and the day after Thanksgiving.

MONDAY THRU SATURDAY

From Wards Corner to Willoughby

Wards Corner	Tidewater Center	Bay View Blvd.	Ocean View Ave.	Willoughby
T1	②	T3	④	
6:03	6:09	6:15	6:27	
7:03	7:09	7:15	7:27	
8:03	8:09	8:15	8:27	
9:03	9:09	9:15	9:27	
10:03	10:09	10:15	10:27	
11:03	11:09	11:15	11:27	
12:03	12:09	12:15	12:27	
1:03	1:09	1:15	1:27	
2:03	2:09	2:15	2:27	
3:03	3:09	3:15	3:27	
4:03	4:09	4:15	4:27	
5:03	5:09	5:15	5:27	
6:03	6:09	6:15	6:27	

These times are in the PM

When buses depart Southside Garage at 18th and Lindsay, customers are permitted to ride from this location to the starting place of that vehicle.

When buses pull into Southside Garage at 18th and Lindsay, customers are permitted to ride service from the last stop to 18th and Lindsay.

This service will operate express and no other stops will be made. For scheduled times please contact Customer Service at 222-6100.

TRANSFER LOCATIONS: ROUTE 5

At these junctures Route 5 connects with other routes.

T1 WARDS CORNER
Routes 1, 15

T3 OCEAN VIEW
Routes 1, 3

RT.15



HRT
Hampton Roads Transit

NAVAL STATION NORFOLK / ROBERT HALL BLVD. ROUTE - Wheelchair Lift-Equipped  Bike Rack Equipped 

- **Naval Station Norfolk**
Navy Exchange
S & S Pier
- **Little Creek Rd.**
Hampton Blvd.
Military Hwy.
- **N. Military Hwy.**
Janaf Shopping Center
Military Circle
- **Military Highway**
Poplar Hall Drive
College Park
- **Chesapeake**
Robert Hall Boulevard
Greenbrier Mall

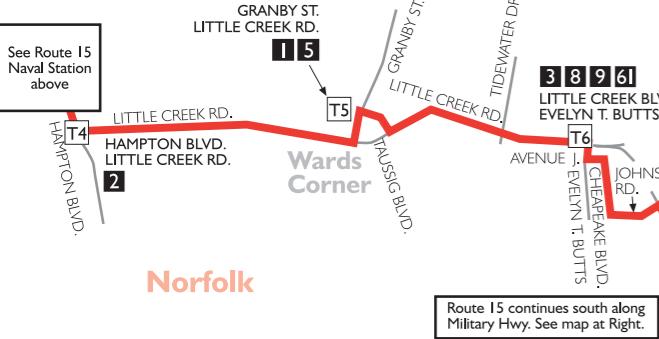
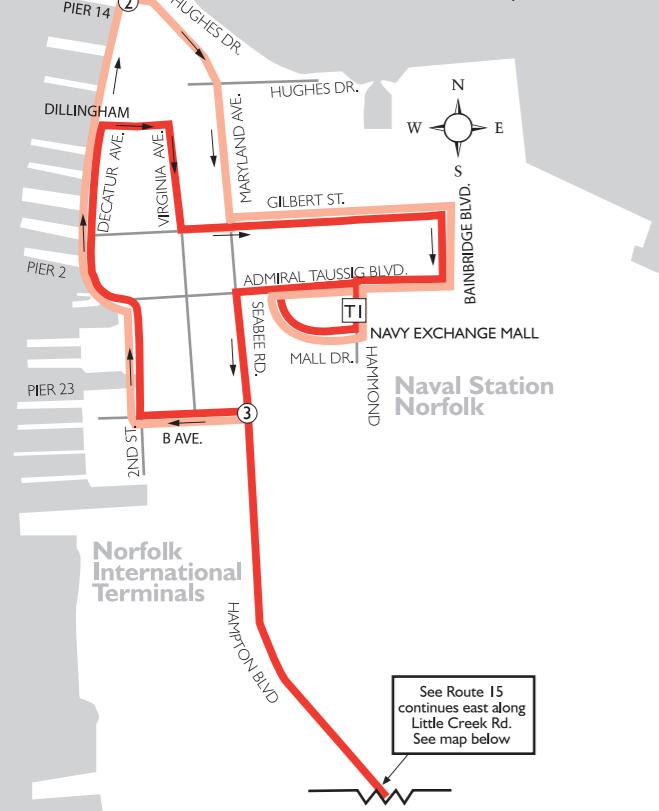
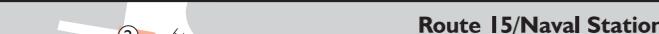
NAVAL STATION NORFOLK / ROBERT HALL BLV

EFFECTIVE DECEMBER 31, 2009



Route 15/Naval Station

EFFECTIVE DECEMBER 31, 2006



MAP LEGEND

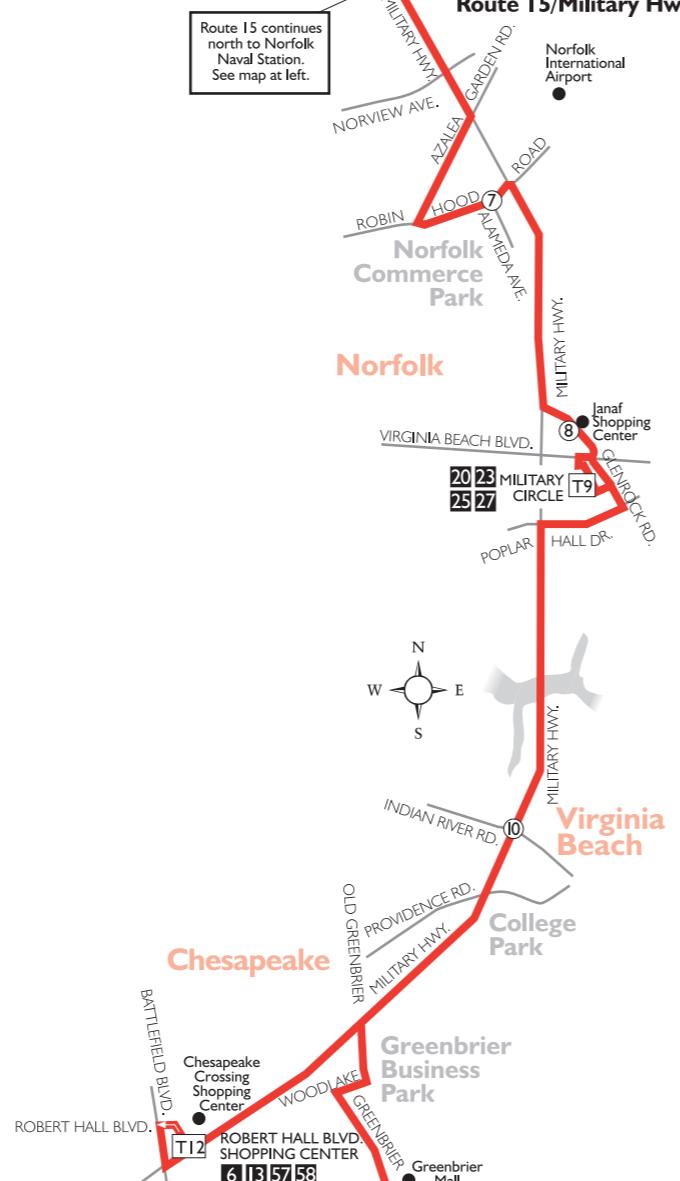
- Daily Route
- After 9PM
- & Weekend

① Time Point
Use these in conjunction with corresponding time points on timetables to determine when the bus arrives at this point on the route.

- TI Time Point & Trans Point Combined
- 4 Connecting Bus R

TRANSFER LOCATIONS: ROUTE 15 At these junctures Route 15 connects with other routes.

T1 NAVY EXCHANGE
MALL
Routes 2, 3 **T4** HAMPTON BLVD.
LITTLE CREEK RD.
Route 2 **T5** LITTLE CREEK RD.
GRANBY ST.
Routes 1, 5 **T6** LITTLE CREEK RD.
EVELYN T. BUTTS AVE.
Routes 3, 8, 9, 61 **T9** MILITARY CIRCLE
Routes 20, 23, 25, 27 **T12** ROBERT HALL BLVD.
CHESAPEAKE CROSSING SHOPPING CENTER
Routes 6, 13, 57, 58



WEEKDAY From Naval Station Norfolk to Military Circle to Robert Hall Blvd. Chesapeake Crossing Shopping Center and Greenbrier Mall

These times are in the PM

SATURDAY & SUNDAY SCHEDULE IS ON THE BACK

**ROUTING WAS CHANGED AFTER 9PM AND WEEKENDS.
PLEASE CALL 222-6100.**



Robert Hall Blvd T12	Shopping Center (1)	Greenbrier Mail (10)	Military Hwy Military Circle T9	Indian River Rd. Janar Shopping Center (8)	Janar Shopping Center (7)	Robin Hood Rd. Almeda Ave. T6	Robin Hood Rd. Almeda Ave. T5	Evelyn T. Batts Ave. Little Creek Rd. T4	Evelyn T. Batts Ave. Little Creek Rd. T4	Little Creek Rd. Granby St. T3	Little Creek Rd. Granby St. (3)	S & S Gate (2)	Hughes Dr. Decatur Rd. (1)	Navy Ave. Hall Navy Exchange
				4:45 5:15 5:45	4:52 5:22 5:52	5:00 5:30 6:00	5:15 5:45 6:15	5:30 6:00 6:30	5:39 6:09 6:39	5:46 6:16 6:46			6:06 6:36 7:06	
				6:00 6:15 6:30	6:07 6:22 6:37	6:15 6:30 6:45	6:30 6:45 7:00	6:45 7:00 7:15						7:36
6:22		6:32 6:50	6:45 7:03 7:15	6:52 7:07 7:22	7:00 7:15 7:30	7:15 7:30 7:45	7:30 7:45 8:00	7:39 8:09 8:16						8:06 8:36
7:22		7:32	7:33 7:45 8:03	7:37 7:52 8:07	7:45 8:00 8:15	8:00 8:15 8:30	8:15 8:30 8:45	8:15 8:30 8:45						9:06
		7:50	8:02	8:15 8:33 8:45	8:22 8:37 8:52	8:30 8:45 9:00	8:45 9:00 9:15	9:00 9:15 9:30	9:09 9:16					9:36
8:22		8:32	8:50	9:15 9:32 10:02	9:22 9:52 10:22	9:30 10:00 10:30	9:45 10:00 10:45	10:00 10:30 11:00	10:09 10:46 11:09	10:16 11:06 11:36				10:06
9:22		8:50 9:50	9:02 9:32 10:02	9:15 9:45 10:15	9:22 9:52 10:22	9:30 10:00 10:30	9:45 10:00 10:45	10:00 10:30 11:00	10:09 10:46 11:09	10:16 11:06 11:36				10:36
10:22		10:32 10:50	10:45 11:02 11:32	10:52 11:15 11:45	11:00 11:22 11:52	11:15 11:30 12:00	11:30 12:00 12:15	11:39 12:09 12:39	11:46 12:16 12:46					12:06 12:36 1:06
11:22		11:50 12:32 12:50	12:02 12:45 1:02	12:15 12:52 1:22	12:22 12:52 1:30	12:30 1:00 1:45	12:45 1:15 2:00	1:00 1:30 2:09	1:09 1:46 2:16					1:36 2:06 2:36
1:22		1:32 1:50 2:32	1:45 2:02 2:45	1:52 2:22 2:52	2:00 2:30 3:00	2:15 2:45 3:15	2:30 3:00 3:30	2:39 3:09 3:39	2:46 3:16 3:46					3:06 3:36 4:06
		2:50	3:02	3:00 3:15 3:30	3:07 3:22 3:37	3:15 3:30 3:45	3:30 3:45 4:00	3:45 4:00 4:15						4:36
3:22		3:32 3:50	4:02	3:45 4:03 4:15	3:52 4:07 4:22	4:00 4:15 4:30	4:15 4:30 4:45	4:30 4:45 5:00	4:39 4:45 5:09	4:46 5:16				5:06 5:36
4:22		4:32	4:45 5:03	4:33 4:45 5:07	4:37 4:52 5:15	4:45 5:00 5:30	5:00 5:15 5:30	5:15 5:30 5:45	5:39 5:46					6:06
		4:50 5:32	5:02 5:32	5:15 5:36 5:45	5:22 5:40 5:52	5:30 5:48 6:00	5:45 6:03 6:15	6:00 6:18 6:30	6:09 6:46 6:39	6:16 6:46 6:46				6:36 7:06
5:22		5:50 6:32	6:02 6:32	6:15 6:45 7:45	6:22 6:52 7:52	6:30 7:00 8:00	6:45 7:15 8:15	7:00 7:30 8:30	7:09 7:46 8:39	7:16 7:46 8:46				7:36 8:06 9:06
6:22		6:50 7:32	7:02 7:40	7:15 7:45	7:22 7:52	7:30 8:00	7:45 8:15	7:50 8:30	7:59 8:46					9:53 10:53 11:53
7:22		7:50 10:32	8:02 9:45 10:45	8:15 9:45 10:52	8:22 9:52 11:00	8:30 9:00 11:15	8:45 9:15 11:30	8:50 9:30 11:39	8:46 9:46 11:46					10:03 11:03 12:03
				11:48	11:52	12:00	12:15	12:30	12:39	12:46				12:53 1:03 1:53 2:03

These times are in the PM

SATURDAY & SUNDAY SCHEDULE IS ON THE BACK

SATURDAY From Naval Station Norfolk to Military Circle to Robert Hall Blvd. / Chesapeake Crossing Shopping Center and Greenbrier Mall

T1	T4	T5	T6	7	8	T9	10	11	T12
5:13	5:22	5:30	5:45	6:03	6:10	6:15	6:45	6:54	7:13
5:43	5:52	6:00	6:15	6:33	6:40	6:45	7:00	7:15	
6:13	6:22	6:30	6:45	7:03	7:10	7:15			
6:43	6:52	7:00	7:15	7:33	7:40	7:45	7:54	8:13	
7:13	7:22	7:30	7:45	8:03	8:10	8:15	8:45	8:54	9:13
7:43	7:52	8:00	8:15	8:33	8:40	8:45			
8:13	8:22	8:30	8:45	9:03	9:10	9:15			
8:43	8:52	9:00	9:15	9:33	9:40	9:45	9:54	10:13	
9:13	9:22	9:30	9:45	10:03	10:10	10:15			
9:43	9:52	10:00	10:15	10:33	10:40	10:45	10:54		11:13
10:13	10:22	10:30	10:45	11:03	11:10	11:15			
10:43	10:52	11:00	11:15	11:33	11:40	11:45	11:54	12:13	
11:13	11:22	11:30	11:45	12:03	12:10	12:15			
11:43	11:52	12:00	12:15	12:33	12:40	12:45	12:54		1:13
12:13	12:22	12:30	12:45	1:03	1:10	1:15			
12:43	12:52	1:00	1:15	1:33	1:40	1:45	1:54	2:13	
1:13	1:22	1:30	1:45	2:03	2:10	2:15			
1:43	1:52	2:00	2:15	2:33	2:40	2:45	2:54		3:13
2:13	2:22	2:30	2:45	3:03	3:10	3:15			
2:43	2:52	3:00	3:15	3:33	3:40	3:45	3:54	4:13	
3:13	3:22	3:30	3:45	4:03	4:10	4:15			
3:43	3:52	4:00	4:15	4:33	4:40	4:45	4:54		5:13
4:13	4:22	4:30	4:45	5:03	5:10	5:15			
4:43	4:52	5:00	5:15	5:33	5:40	5:45	5:54	6:13	
5:13	5:22	5:30	5:45	6:03	6:10	6:15			
5:43	5:52	6:00	6:15	6:33	6:40	6:45	6:54	7:13	
6:13	6:22	6:30	6:45	7:03	7:10	7:15			
6:43	6:52	7:00	7:15	7:33	7:40	7:45	7:54		8:13
7:43	7:52	8:00	8:15	8:33	8:40	8:45	8:54		9:13
8:43	8:52	9:00	9:15	9:33	9:40	9:45	9:54		10:13
9:43	9:52	10:00	10:15	10:33	10:40	10:45			
10:43	10:52	11:00	11:15	11:33	11:40	11:45			
11:43	11:52	12:00	12:15	12:33	12:40	12:45			

SUNDAY

6:41	6:50	7:03	7:18	7:33	7:40	7:45		
7:41	7:50	8:03	8:18	8:33	8:40	8:45		
8:41	8:50	9:03	9:18	9:33	9:40	9:45		
9:41	9:50	10:03	10:18	10:33	10:40	10:45		
10:41	10:50	11:03	11:18	11:33	11:40	11:45	11:48	11:54
11:41	11:50	12:03	12:18	12:33	12:40	12:45	12:48	12:54
12:41	12:50	1:03	1:18	1:33	1:40	1:45	1:48	1:54
1:41	1:50	2:03	2:18	2:33	2:40	2:45	2:48	2:54
2:41	2:50	3:03	3:18	3:33	3:40	3:45	3:48	3:54
3:41	3:50	4:03	4:18	4:33	4:40	4:45	4:48	4:54
4:41	4:50	5:03	5:18	5:33	5:40	5:45	5:48	5:54
5:41	5:50	6:03	6:18	6:33	6:40	6:45		
6:41	6:50	7:03	7:18	7:33	7:40	7:45		
7:41	7:50	8:03	8:18	8:33	8:40	8:45		
8:41	8:50	9:03	9:18	9:33	9:40	9:45		
9:41	9:50	10:03	10:18	10:33	10:40	10:45		
10:41	10:50	11:03	11:18	11:33	11:40	11:45		
11:41	11:50	12:03	12:18	12:33	12:40	12:45		

These times are in the PM

SATURDAY From Chesapeake Crossing Shopping Center and Greenbrier Mall to Military Circle to Naval Station Norfolk

Robert Hall Blvd. Shopping Center	Greenbrier	Military Hwy. Circle	Janet Shopping Center	Almeda Ave.	Robin Hood Rd.	Little Creek Rd.	Little Creek St.	Hampton Blvd.	S & S Gate	Hughes Dr. Ave.	Navy Exchange
T12	11	10	9	8	7	6	5	4	3	2	T1
5:15	5:22	5:30	5:45	6:00	6:09	6:16	6:23	6:33			
5:48	5:55	6:00	6:15	6:30	6:39	6:46	6:53	7:03			
6:18	6:22	6:30	6:45	7:00	7:09	7:16	7:23	7:33			
6:47	6:54	7:00	7:15	7:30	7:39	7:46	7:53	8:03			
7:17	7:20	7:23	7:45	8:00	8:09	8:16	8:23	8:33			
7:47	7:52	8:00	8:15	8:30	8:39	8:46	8:53	9:03			
8:17	8:20	8:28	8:45	9:00	9:09	9:16	9:23	9:33			
8:47	8:52	9:00	9:15	9:30	9:39	9:46	9:53	10:03			
9:17	9:20	9:28	9:45	10:00	10:39	10:46	10:53	11:03			
9:47	9:52	10:00	10:15	10:30	11:09	11:16	11:23	11:33			
10:17	10:20	10:45	10:52	11:00	11:15	11:30	11:46	11:53	12:03		
10:47	10:52	11:12	11:20	11:30	11:45	12:00	12:09	12:16	12:23	12:33	
11:17	11:20	11:32	11:45	12:00	12:15	12:30	12:39	12:46	12:53	1:03	
11:47	11:52	12:00	12:15	12:30	12:45	1:00	1:09	1:16	1:23	1:33	
12:17	12:20	12:45	12:52	1:00	1:15	1:30	1:39	1:46	1:53	2:03	
1:17	1:20	1:32	1:45	1:52	2:00	2:09	2:20	2:27	2:34	2:41	
2:17	2:20	2:45	2:52	3:00	3:15	3:30	3:39	3:46	3:53	4:03	
3:17	3:20	3:32	3:45	3:52	4:00	4:15	4:30	4:46	4:53	5:03	
4:17	4:20	4:45	4:52	5:00	5:15	5:30	5:39	5:46	5:53	6:03	
5:17	5:20	5:32	5:45	5:52	6:00	6:15	6:30	6:46	6:53	7:03	
6:17	6:20	6:45	6:52	7:00	7:15	7:30	7:39	7:46	7:53	8:03	
6:47	6:52	7:00	7:20	7:30	7:45	7:52	7:59	8:06	8:13	8:20	
7:17	7:20	7:45	7:52	8:00	8:15	8:30	8:39	8:46	8:53	9:03	
7:47	7:52	8:00	8:20	8:30	8:45	8:52	8:59	9:06	9:13	9:20	
8:17	8:20	8:45	8:52	9:00	9:15	9:30	9:39	9:46	9:53	10:03	
8:47	8:52	9:00	9:20	9:30	10:15	10:30	10:39	10:46	10:53	11:03	
9:17	9:20	9:32	9:45	10:00	10:15	10:30	10:39	10:46	10:53	11:03	
9:47	9:52	10:00	10:20	10:30	10:45	10:52	11:00	11:15	11:30	11:45	
10:17	10:20	10:45	10:52	11:00	11:15	11:30	11:39	11:46	11:53	12:03	
10:47	10:52	11:00	11:20	12:00	12:15	12:30	12:39	12:46	12:53	1:03	

RT. 61
HRT
 Hampton Roads Transit
CROSSROADS
SOUTHSIDE ROUTE / PENINSULA / SOUTHSIDE- Wheelchair Lift-Equipped
Bike Rack Equipped
■ Virginia Beach
 Pembroke East
 Virginia Beach Boulevard

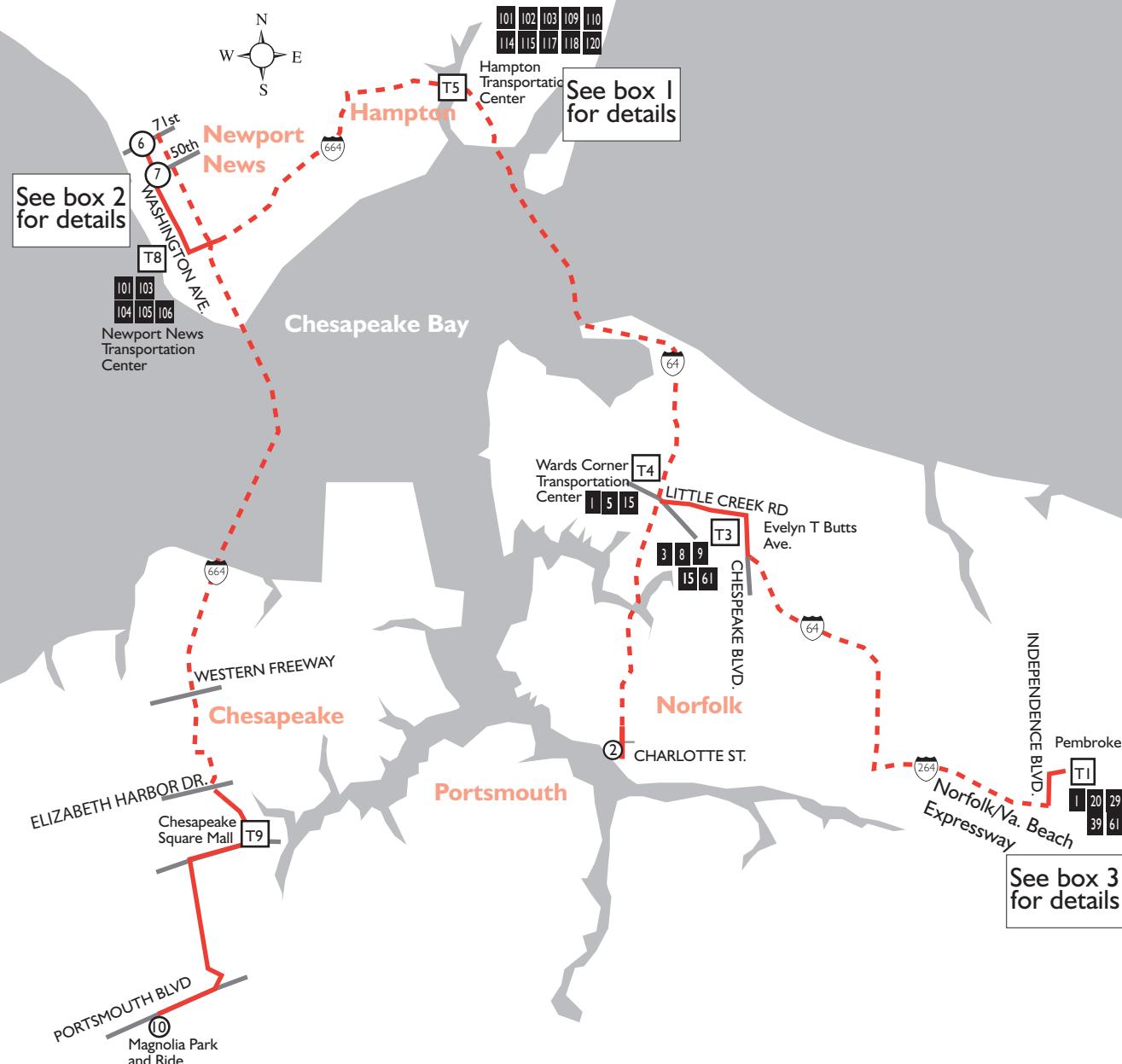
■ Norfolk
 Chesapeake Blvd.
 Wards Corner

■ Hampton
 Settlers Landing Rd.
 Lincoln Street

■ Newport News
 Warwick Boulevard
 34th Street

■ Chesapeake
 Chesapeake Square Mall
 Portsmouth Boulevard

■ Suffolk
 Magnolia
 Park & Ride

CROSSROADS ROUTE / PENINSULA / SOUTHSIDE
EFFECTIVE DEC 31, 2006


Using The Schedules

To help you to better understand HRT's bus schedule, we have provided the following example. Please refer to the sample schedules at right for this example.

For this example, we are using the Newmarket Fair bus stop **A** as the point where the bus would pick you up.

The Riverside Regional Medical Center bus stop **B** is your destination. 7:30 a.m. is the time you need to arrive at your destination.

Since you are heading toward Riverside Regional Medical Center from Newmarket Fair, you would use the chart at right **I** for your schedule and direction.

Next, you would locate on the time that most closely approximates when you need to arrive at your destination. In this example the time that is closest to 7:30 a.m. is 7:05 a.m. **D**

Moving left across the times, locate where this line intersects with your bus stop. **B** This is the bus you need to take to arrive at your destination on time. For this example, you would take the 6:35 a.m. bus to arrive at Riverside Regional Medical Center at 7:05 a.m.

I DAILY									
From Downtown Newport News to Newmarket Fair to Riverside Regional Medical Center to Christopher Newport University									
Newport News Transit Center 40th Street Jefferson Ave. Jefferson Ave. Briarfield Rd. Newmarket Fair A Jefferson Ave. Main Street Jefferson Ave. Harpersville Rd. Jefferson Ave. Thimble Shoals Riverside Reg. Medical Ctr. Christopher Newport B									
T1	②	③	T4	⑤	⑥	T7	T8	⑨	
5:45	5:52	5:55	6:05	6:10	6:14*	6:25	6:35	6:40	
6:15	6:22	6:20	6:22	6:27	6:32	6:37	6:45	6:50	
6:45	6:52	6:55	7:05	7:10	7:14	7:25	7:35	7:40	
7:15	7:22	7:15	7:25	7:40	7:44	7:55	8:05	8:10	
7:45	7:52	7:45	8:05	8:10	8:14	8:25	8:35	8:40	
8:15	8:22	8:25	8:35	8:40	8:44	8:55	9:05	9:10	
8:45	8:52	8:55	9:05	9:10	9:14	9:25	9:35	9:40	
9:15	9:22	9:25	9:35	9:40	9:44	9:55	10:05	10:10	
9:45	9:52	9:55	10:05	10:10	10:14	10:25	10:35	10:40	
10:15	10:22	10:25	10:35	10:40	10:44	10:55	11:05	11:10	
10:45	10:52	10:55	11:05	11:10	11:14	11:25	11:35	11:40	
11:15	11:22	11:25	11:35	11:40	11:44	11:55	12:05	12:10	
11:45	11:52	11:55	12:05	12:10	12:14	12:25	12:35	12:40	
12:15	12:22	12:25	12:35	12:40	12:44	12:55	1:05	1:10	
12:45	12:52	12:55	1:05	1:10	1:14	1:25	1:35	1:40	
1:15	1:22	1:25	1:35	1:40	1:44	1:55	2:05	2:10	
1:45	1:52	1:55	2:05	2:10	2:14	2:25	2:35	2:40	

HRT BUS FARES

ADULT	\$1.50
SENIOR/PERSON with DISABILITIES	\$0.75*
YOUTH (up to age 18)	\$1.00*
CHILD UNDER 38"	FREE
TRANSFER	FREE
FARECARDS	
10-RIDE FARECARD	\$14.00
10-RIDE SENIOR/PERSON with DISABILITIES	\$ 7.50*
7-DAY FARECARD	\$17.00
30-DAY FARECARD	\$47.50
30-DAY SENIOR/PERSON with DISABILITIES	\$35.00*
YOUTH U-18 FARECARD (20 rides)	\$20.00*

For more information

Customer Service 222-6100

Monday-Friday: 6am to 9pm Saturday: 7am to 9pm
Sunday: 9am to 5pm Holidays: 9am to 4pm

Ticket Sales

1500 Monticello Ave., Norfolk Mon.-Fri.: 7:30am to 5pm

3400 Victoria Blvd., Hampton Mon.-Fri.: 8am to 4:30pm

Silverleaf Commuter Station, Va. Beach Mon.-Fri.: 5am to 12:30pm

Newport News Transportation Center Mon.-Fri.: 6am to 8pm

Saturday: 7am to 8pm • Sunday: 9am to 4pm

Hampton Transportation Center Mon.-Fri.: 6am to 8pm

Saturday: 7am to 8pm • Sunday: 9am to 4pm

Lost & Found 222-6100
Monday-Friday: 8am to 5:00pm

TRAFFIX Commuter Programs 1-800-700-RIDE
Monday-Friday: 8am to 5:00pm

TDD line or after hours 722-8427

Website gohrt.com

Compliments & Suggestions

HRT welcomes your input. If you have any requests, suggestions, recommendations or information that will help improve our service, please call 222-6036, Monday through Friday between 8am and 5pm or anytime online at gohrt.com.

*Youth, up to age 18, are required to show operator an ID which includes age and photograph. School IDs are not required to display a birthdate. Senior citizens, age 60 and over, must show driver a DMV, Medicare ID or any other proof of age which includes a photograph. Persons with Disabilities must show HRT Half-fare, ADA Paratransit ID or Medicare card.

WEEKDAY From Suffolk to Chesapeake to Newport News to Hampton to Norfolk to Virginia Beach

Suffolk	Chesapeake Square	North Yard	49th Washington	Newport News Transportation Center	Hampton Transportation Center	Wards Corner	Little Creek Rd.	Evelyn T. Butts Ave.	Monticello Ave.	Charlotte St.	49th Washington	Newport News Transportation Center	Suffolk
T10	T9	⑥	⑦	T8	T5	T4	T3	②	T1				
		6:10 6:25	6:16 6:31	6:45 6:40*	6:57 6:52*	6:19 7:14*	6:27 7:14*						
6:00		6:30	6:36	6:45 7:45 8:45	6:57 7:57 8:57	7:19 8:19 9:19	7:27 8:27 9:27						
9:07	9:20			9:45 10:45 11:45	9:57 10:57 11:57	10:19 11:19 12:19	10:27 11:27 12:27						
10:07	10:20												
11:07	11:20												
12:07	12:20			12:45	12:57	1:19	1:27						
1:07	1:20			1:45	1:57	2:19	2:27						
2:07	2:20			2:45	2:57	3:19	3:27						
3:07	3:20			3:45 3:40 4:10	3:57 4:03* 4:21*	4:19 4:25* 4:33*	4:27 4:40* 5:10*						
4:07	4:20			4:45 5:07 6:07	4:57 5:45 6:45	5:19 6:19 7:19*	5:27 6:27 7:34*						

SATURDAY

6:10 6:25	6:16 6:31	6:21* 6:36*	6:45* 7:00*	7:10* 7:25*		7:27* 7:42*	
8:07	8:20	8:45	8:57	9:19	9:27	9:54	
9:07	9:20		9:45	9:57	10:19	10:27	10:54
10:07	10:20		10:45	10:57	11:19	11:27	11:54
11:07	11:20		11:45	11:57	12:19	12:27	12:54
12:07	12:20		12:45	12:57	1:19	1:27	1:54
1:07	1:20		1:45	1:57	2:19	2:27	2:54
2:07	2:20		2:45	2:57	3:19	3:27	3:54
3:07	3:20		3:45 3:40 4:10	3:57 4:03* 4:21*	4:19 4:25* 4:55*	4:27 4:40* 5:10*	4:54
4:07	4:20		4:45 5:07 6:07	4:57 5:45 6:45	5:19 6:19 7:19	5:27 6:27 7:34*	5:54

SUNDAY

8:07	8:20		8:45 9:45 10:45	8:57 9:57 10:57	9:19 11:19	9:27 11:27		9:54 11:54
9:07	9:20		11:45	11:57	12:19	12:27		12:54
10:07	10:20		12:45	12:57	1:19	1:27		1:54
11:07	11:20		1:45	1:57	2:19	2:27		2:54
12:07	12:20		2:45	2:57	3:19	3:27		3:54
1:07	1:20		3:45 4:45	3:57 4:57	4:19 5:19	4:27 5:27		4:54 5:54
2:07	2:20		5:45 6:45	5:57 6:57	6:19 7:19	6:27 7:34*		6:54
3:07	3:20							
4:07	4:20							
5:07	5:20							
6:07	6:20							

*These trips will operate Express and make stops only at the designated time points, except at the Park & Ride at St. Paul Blvd. & Bute St. and Washington St. between 50th St. & Newport News Transfer Center. No other boarding or departure locations will be observed.

WEEKDAY From Virginia Beach to Norfolk to Hampton to Newport News to Chesapeake to Suffolk

Suffolk	Chesapeake Square	North Yard	49th Washington	Newport News Transportation Center	Hampton Transportation Center	Wards Corner	Little Creek Rd.	Evelyn T. Butts Ave.	Monticello Ave.	Charlotte St.	49th Washington	Newport News Transportation Center	Suffolk

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ROUTE 20

BUS SCHEDULE

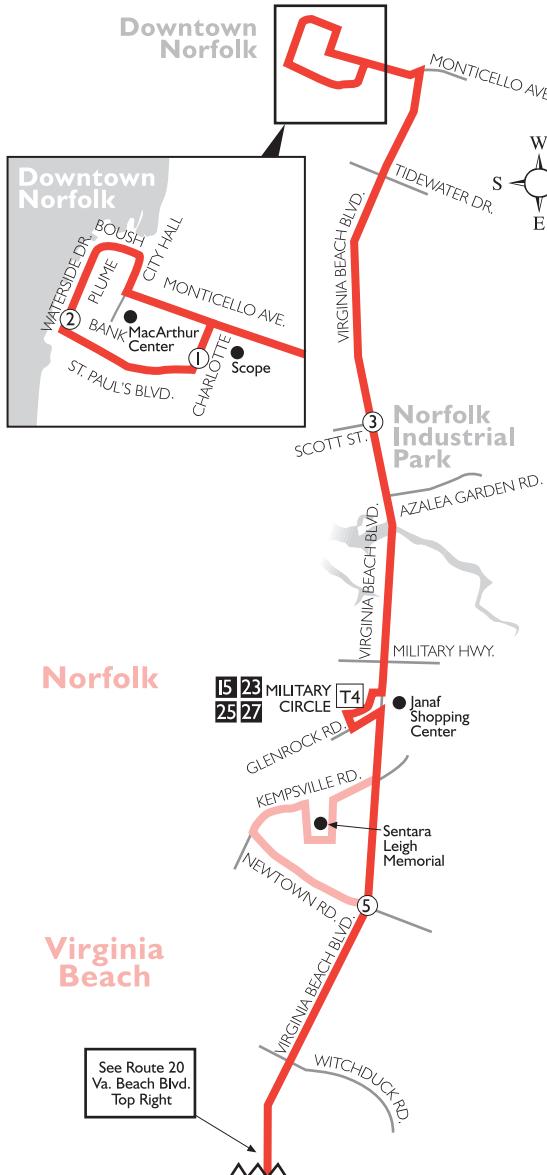


DOWNTOWN NORFOLK / VIRGINIA BEACH OCEANFRONT ROUTE - Wheelchair Lift-Equipped Bike Rack Equipped



DOWNTOWN NORFOLK / VA. BEACH OCEANFRONT

EFFECTIVE DECEMBER 31, 2006



█ Downtown Norfolk █ Virginia Beach Blvd. / Norfolk
 Charlotte St. Monticello Avenue
 Bank St. Military Circle
 Newtown Road

█ Virginia Beach Blvd. / Va. Beach █ Oceanfront
 Witchduck Road 17th Street & Pacific Avenue
 Pembroke East 68th Street & Atlantic Avenue
 Hilltop

WEEKDAY From Downtown Norfolk to 68th Street & Atlantic Avenue

Charlotte St.	Bank St.	Va. Beach Blvd.	Military Circle	Va. Beach Blvd.	Newtown Rd.	Pembroke East	Va. Beach Blvd.	Plaza Trail	First Colonial Rd.	Pacific Ave.	Atlantic Ave.	68th St.
①	③	T4	⑤	T6	⑦	T8	T9	T10				
4:44	5:05	5:20	5:33	5:50	6:07	6:20	6:32					
5:14	5:35	5:50	6:03	6:20	6:37	6:50	7:02					
5:34	5:55	6:10	6:23	6:40								
5:44	6:05	6:20	6:33	6:50	7:07	7:20	7:32					
6:04	6:25	6:40	6:53	7:10								
6:14	6:35	6:50	7:03	7:20	7:37	7:50	8:02					
6:34	6:55	7:10	7:23	7:40								
6:44	7:05	7:20	7:33	7:50	8:07	8:20	8:32					
7:04	7:25	7:40	7:53	8:10								
7:14	7:35	7:50	8:03	8:20	8:37	8:50	9:02					
7:34	7:55	8:10	8:23	8:40								
7:44	8:05	8:20	8:33	8:50	9:07	9:20	9:32					
8:03	8:24	8:39	8:52	9:09								
8:14	8:35	8:50	9:03	9:20	9:37	9:50	10:02					
8:34	8:55	9:10										
8:44	9:05	9:20	9:33	9:50	10:07	10:20	10:32					
9:14	9:35	9:50	10:03	10:20	10:37	10:50	11:02					
9:44	10:05	10:20	10:33	10:50	11:07	11:20	11:32					
10:14	10:35	10:50	11:03	11:20	11:37	11:50	12:02					
10:44	11:05	11:20	11:33	11:50	12:07	12:20	12:32					
11:14	11:35	11:50	12:03	12:20	12:37	12:50	1:02					
11:44	12:05	12:20	12:33	12:50	1:07	1:20	1:32					
12:14	12:35	12:50	1:03	1:20	1:37	1:50	2:02					
12:44	1:05	1:20	1:33	1:50	2:07	2:20	2:32					
1:14	1:35	1:50	2:03	2:20	2:37	2:50	3:02					
1:44	2:05	2:20	2:33	2:50	3:07	3:20	3:32					
2:14	2:35	2:50	3:03	3:20	3:37	3:50	4:02					
2:44	3:05	3:20	3:33	3:50	4:07	4:20	4:32					
3:14	3:35	3:50	4:03	4:20	4:37	4:50	5:02					
3:44	4:05	4:20	4:33	4:50	5:07	5:20	5:32					
4:14	4:35	4:50	5:03	5:20	5:37	5:50	6:02					
4:29	4:50	5:05	5:18	5:35								
4:44	5:05	5:20	5:33	5:50	6:07	6:20	6:32					
4:59	5:20	5:35	5:48	6:05								
5:14	5:35	5:50	6:03	6:20	6:37	6:50	7:02	7:12				
5:29	5:50	6:05	6:18	6:35								
5:44	6:05	6:20	6:33	6:50	7:07	7:20	7:32	7:48				
5:59	6:20	6:35	6:48	7:05								
6:25	6:35	6:50	7:03	7:20	7:37	7:50	8:02	8:12				
7:20	7:30	7:45	7:58	8:15	8:32	8:45	8:57	9:07				
8:20	8:30	8:45	8:58	9:15	9:32	9:45	9:57	10:07				
9:20	9:30	9:45	9:58	10:15	10:32	10:45	10:57	11:07				
10:20	10:30	10:45	10:58	11:15	11:32	11:45	11:57	12:07				
11:20	11:30	11:45	11:58	12:15	12:32	12:45	12:57					

These times are in the PM *These trips serve Sentara Leigh Hospital

TRANSFER LOCATIONS: ROUTE 20

At these junctures Route 20 connects with other routes.

① Time Point
Use these in conjunction with corresponding time points on timetables to determine when the bus arrives at this point on route.

T1 Time Point & Transfer Point Combined
Connecting Bus Route

T4 MILITARY CIRCLE
Routes 15, 23, 25, 27

T6 PEMBROKE EAST
Routes 1, 36, 61

T8 FIRST COLONIAL RD.
LASKIN ROAD
Routes 24, 29

T9 PACIFIC AVENUE
19TH STREET
Routes 24, 33

WEEKEND SCHEDULE IS ON THE BACK

WEEKDAY From Atlantic Avenue & 68th Street to Downtown Norfolk

Atlantic Ave. 68th St.	Pacific Ave. 19th St.	First Colonial Rd. Laskin Rd.	Va. Beach Blvd. Plaza Trail	First Colonial Rd. Laskin Rd.	Pacific Ave. 19th St.	Atlantic Ave. 68th St.
⑩	T9	T8	⑦	T6	⑤	T4
5:33	5:48	6:00	6:15	6:29	6:33	6:44
6:03	6:18	6:30	6:45	6:59	7:03	7:14
5:32	5:44	5:59	6:10	6:33	6:48	7:00
6:07	6:19	6:34	6:30	6:48	7:00	7:45
6:37	6:49	7:04	7:15	7:33	8:00	8:14
7:07	7:19	7:34	7:30	7:48	8:00	8:29
7:37	7:49	8:04	8:15	8:33	8:45	9:14
8:07	8:19	8:34	8:45	9:03	9:15	9:29
8:37	8:49	9:04	9:15	9:33	9:45	10:14
9:07	9:19	9:34	9:45	10:03	10:15	10:44
9:37	9:49	10:04	10:15	10:33	10:45	11:14
10:07	10:19	10:34	10:45	11:03	11:15	11:44
10:37	10:49	11:04	11:15	11:33	11:45	12:14
11:07	11:19	11:34	11:45	12:03	12:15	12:44
11:37	11:49	12:04	12:15	12:33	12:45	1:00
12:07	12:19	12:34	12:45	1:03	1:15	1:44
12:37	12:49	1:04	1:15	1:33	1:45	2:00
1:07	1:19	1:34	1:45	2:03	2:15	2:44
1:37	1:49	2:04	2:15	2:33	2:45	3:14
2:07	2:19	2:34	2:45	3:03	3:15	3:44
2:37	2:49	3:04	3:15	3:33	3:45	4:14
3:07	3:19	3:34	3:45	4:03	4:15	4:44
3:37	3:49	4:04	4:15	4:33	4:50	5:14
4:07	4:19	4:34	4:45	5:03	5:15	5:44
4:37	4:49	5:04	5:05	5:23	5:35	5:50
5:12	5:24	5:39	5:50	6:08	6:20	6:49
5:42	5:54	6:09	6:10	6:28	6:40	6:55
6:12	6:24	6:39	6:50	7:08	7:20	7:35
6:42	6:54	7:09	7:20	7:38	7:50	8:05
7:32	7:42	7:54	8:09	8:20	8:38	8:50
8:27	8:37	8:49	9:04	9:15	9:33	9:45
9:27	9:37	9:49	10:04	10:15	10:33	11:00
10:27	10:37	10:49	11:04	11:15	11:45	12:00
11:27	11:37	11:49	12:04	12:15	12:33	12:45
					1:00	1:14

These times are in the PM *These trips serve Sentara Leigh Hospital

SATURDAY From Atlantic Avenue & 68th Street to Downtown Norfolk

Atlantic Ave. 68th St.	Pacific Ave. 19th St.	First Colonial Rd. Lastin Rd.	Va. Beach Blvd. Pembroke East	Va. Beach Blvd. Newtown Rd. Military Circle	Va. Beach Blvd. Scott St. Charlotte St. Bank St.	⑩	T9	T8	⑦	T6	⑤	T4	③	①
6:27 7:27	6:37 7:37	6:49 7:49	7:04 8:04	7:15 8:15	7:33 8:33	6:45 7:45	7:00 8:00	7:14 8:14						
8:27	8:37	8:49	9:04	8:48 9:15 9:48	9:03 9:33 10:03	9:15 9:45 10:15	9:30 10:00 10:30	9:44 10:14 10:44						
927	9:37	9:49	10:04	10:15 10:48 11:15	10:33 11:03 11:33	10:45 11:15 11:45	11:00 11:30 12:00	11:14 11:44 12:14						
10:27	10:37	10:49	11:04	11:48 12:15 12:48	12:03 12:33 1:03	12:15 12:45 1:15	12:30 1:00 1:30	12:44 1:14 1:44						
11:27	11:37	11:49	12:04	1:15 1:48 2:15	1:33 2:03 2:33	1:45 2:15 2:45	2:00 2:30 3:00	2:14 2:44 3:14						
12:27	12:37	12:49	1:04	2:48	3:03	3:15	3:30	3:44						
1:27	1:37	1:49	2:04	3:15 3:45 3:48	3:33 3:45 4:03	3:45 4:00 4:15	3:30 4:00 4:30	3:44 4:14 4:44						
2:27	2:37	2:49	3:04	4:15 4:48 4:48	4:33 5:03 5:03	4:45 5:15 5:15	5:00 5:30 5:30	5:14 5:44 5:44						
3:27	3:37	3:49	4:04	4:15 4:48 4:48	4:33 5:03 5:03	4:45 5:15 5:15	5:00 5:30 5:30	5:14 5:44 5:44						
4:27	4:37	4:49	5:04	5:15 5:15 5:20	5:33 5:45 5:45	5:45 6:00 6:00	5:50 6:00 6:00	5:54 6:14 6:14						
5:27	5:37	5:49	6:04	5:48 6:04 7:04	6:03 6:33 7:15	6:15 6:45 7:33	6:30 7:00 7:45	6:44 7:14 8:14						
6:27	6:37	6:49	7:04	7:15 7:33 8:04	7:33 8:33 8:33	7:45 9:45 9:45	8:00 9:00 9:00	8:14 9:14 9:14						
7:27	7:37	7:49	8:04	8:15 8:15 8:15	8:33 9:15 9:15	8:45 9:33 9:33	8:57 9:45 9:45	8:57 9:45 9:45	9:09 10:09 11:09					
10:27	10:37	10:49	11:04	11:15 12:04 12:04	11:33 12:33 12:33	11:45 12:45 12:45	12:00 1:00 1:00	12:14 1:14 1:14						

SUNDAY

7:27	7:37	7:49	8:04	8:15	8:33	8:45	8:57	9:09
8:27	8:37	8:49	9:04	9:15	9:33	9:45	9:57	10:09
9:27	9:37	9:49	10:04	10:15	10:33	10:45	10:57	11:09
10:27	10:37	10:49	11:04	11:15	11:33	11:45	11:57	12:09
11:27	11:37	11:49	12:04	12:15	12:33	12:45	12:57	1:09
12:27	12:37	12:49	1:04	1:15	1:33	1:45	1:57	2:09
1:27	1:37	1:49	2:04	2:15	2:33	2:45	2:57	3:09
2:27	2:37	2:49	3:04	3:15	3:33	3:45	3:57	4:09
3:27	3:37	3:49	4:04	4:15	4:33	4:45	4:57	5:09
4:27	4:37	4:49	5:04	5:15	5:33	5:45	5:57	6:09
5:27	5:37	5:49	6:04	6:15	6:33	6:45	6:57	7:09
6:27	6:37	6:49	7:04	7:15	7:33	7:45	7:57	8:09
7:27	7:37	7:49	8:04	8:15	8:33	8:45	8:57	9:09
8:27	8:37	8:49	9:04	9:15	9:33	9:45	9:57	10:09
9:27	9:37	9:49	10:04	10:15	10:33	10:45	10:57	11:09
10:27	10:37	10:49	11:04	11:15	11:33	11:45	11:57	12:09
11:27	11:37	11:49	12:04	12:15	12:33	12:45	12:57	1:09

These times are in the PM

HRT will operate reduced service on most holidays. For holiday times please call HRT Customer Service at 222-6100 or visit our website at gohrt.com.

Schedule subject to change.

SATURDAY From Downtown Norfolk to 68th Street & Atlantic Avenue

Charlotte St. Bank St.	Va. Beach Blvd. Scott St.	Military Circle	Va. Beach Blvd. Pembroke	Va. Beach Blvd. Plaza Trail	Va. Beach Blvd. First Colonial Rd.	Va. Beach Blvd. Laskin Rd.	Va. Beach Blvd. Pacific Ave.	Atlantic Ave. 68th St.
①	③	T4	⑤	T6	⑦	T8	T9	10
5:09 6:09 7:09	5:30 6:30 7:30	5:45 6:45 7:45	5:58 6:58 8:15	6:15 7:15 8:32	6:32 7:32 8:45	6:45 7:45 8:57	6:57 7:57 9:07	7:07
7:39 8:09 8:39	8:00 8:30 9:00	8:15 8:45 9:15	8:45 9:15 9:45	8:45 9:32 9:45	9:45 9:57 10:45	9:57 10:07 11:57	10:07	
9:09 9:39 10:09	9:30 10:00 10:30	9:45 10:28 10:45	9:58 10:45 11:15	10:15 11:32 11:45	10:45 11:57 12:05	10:57 11:07 12:07	11:07	
10:39 11:09 11:39	11:00 11:30 12:00	11:15 11:58 12:28	11:28 12:15 12:45	11:45 12:32 12:45	12:45 12:57 1:07	12:57 1:07 1:07	1:07	
12:09 12:39 1:09	12:30 1:00 1:30	12:45 1:15 1:45	12:58 1:28 1:58	1:15 2:15 2:15	1:32 2:32 2:45	1:45 2:57 3:07	1:57 2:07 3:07	
1:39 2:09 2:39	2:00 2:30 3:00	2:15 2:45 3:15	2:28 2:58 3:28	2:45 3:15 3:45	3:15 3:57 4:07	4:15 5:15 5:45	4:45 5:57 6:07	
3:09 3:39 4:09	3:30 4:00 4:30	3:45 4:15 4:45	3:58 4:28 4:58	4:15 4:45 5:15	4:32 5:32 5:45	4:45 5:45 5:57	5:15 6:07 6:07	
4:39 5:09 5:39	5:00 5:30 6:30	5:15 5:45 6:45	5:28 5:58 6:58	5:45 6:32 7:15	6:32 7:32 7:45	6:45 7:45 8:07	6:57 7:07 8:07	
6:09 7:09 8:09	6:35 7:35 8:35	6:45 7:45 8:45	6:58 7:58 8:58	7:15 8:15 9:15	7:32 8:32 9:45	7:45 8:45 9:45	7:57 8:57 9:07	
9:09 10:09 11:09	9:35 10:35 11:35	9:45 10:45 11:45	9:58 10:58 11:58	10:15 11:15 12:15	10:45 11:45 12:45	10:57 11:57 12:57	11:07 12:07 1:07	
12:09 12:39 1:09	12:35 1:05 2:05	12:45 1:15 2:15	12:58 1:28 2:32	1:15 2:15 3:15	1:32 2:45 3:45	1:45 2:57 3:57	1:57 2:07 3:07	
3:09 4:09 5:09	3:35 4:35 5:35	3:45 4:45 5:45	3:58 4:58 6:15	4:15 5:15 6:15	4:32 5:32 6:45	4:45 5:45 6:57	5:15 6:07 7:07	
6:09 7:09 8:09	6:35 7:35 8:35	6:45 7:45 8:45	6:58 7:58 9:15	7:15 8:15 9:32	7:32 8:32 9:45	7:45 8:45 9:57	8:07 9:07 10:07	
9:09 10:09 11:09	9:35 10:35 11:35	9:45 10:45 11:45	9:58 10:58 11:58	10:15 11:15 12:15	10:45 11:45 12:45	10:57 11:57 12:57	11:07 12:07 1:07	

When buses depart Southside Garage at 18th and Lindsay, customers are permitted to ride from this location to the starting place of that vehicle. When buses pull into Southside Garage at 18th and Lindsay, customers are permitted to ride service from the last stop to 18th and Lindsay. This service will operate express and no other stops will be made. For scheduled times please contact Customer Service at 222-6100.

HRT BUS FARES

ADULT	\$1.50
SENIOR/PERSON with DISABILITIES	\$0.75*
YOUTH (up to age 18)	\$1.00*
CHILD UNDER 38"	FREE
TRANSFER	FREE

FARECARDS

10-RIDE FARECARD	\$14.00
10-RIDE	

RT.29
LYNNHAVEN



HRT
Hampton Roads Transit®

PLEASURE HOUSE RD. / TCC VIRGINIA BEACH ROUTE - Wheelchair Lift-Equipped



■ TCC, Virginia Beach ■ Lynnhaven Mall

Buckner Road
Faculty Drive

■ Hilltop

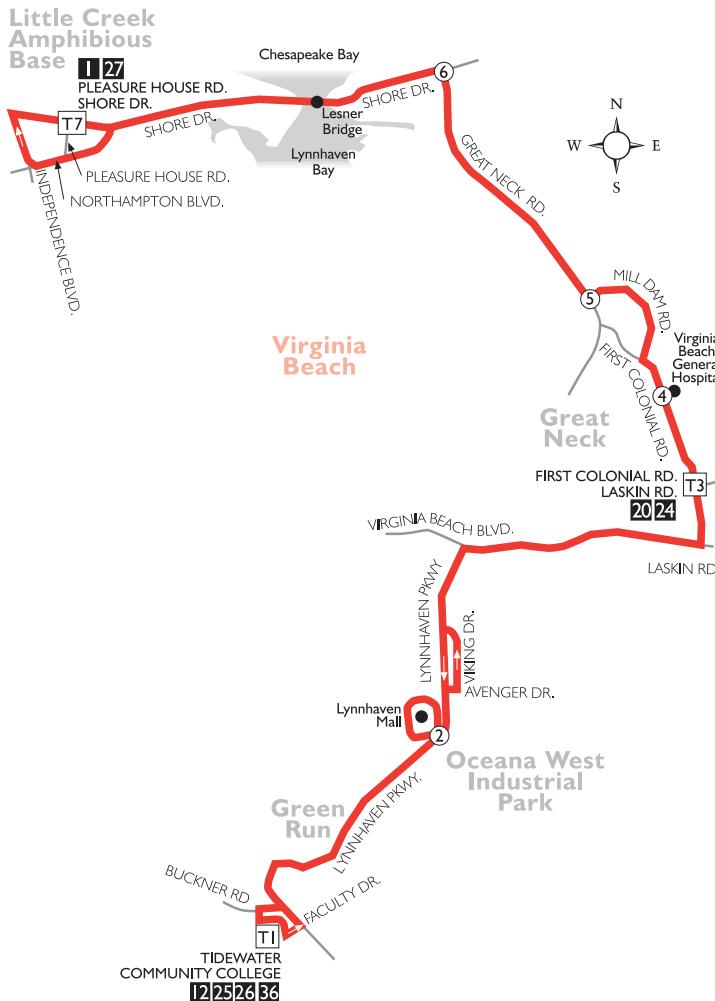
Laskin Road
Va. Beach Gen. Hospital

■ Shore Drive

Northampton Blvd.
Pleasure House Rd.

PLEASURE HOUSE RD. / TCC VIRGINIA BEACH ROUTE

EFFECTIVE DECEMBER 31, 2006



WEEKDAYS & SATURDAY

From Pleasure House Road to Virginia Beach General Hospital, Hilltop, Lynnhaven Mall, TCC

		Pleasure House Rd. Shore Drive Great Neck Rd. Mill Dam Rd. Virginia Beach General Hospital Laskin Rd. First Colonial Rd. Lynnhaven Mall Tidewater Community College						
		T7	6	5	4	T3	2	T1
6:45	6:53	6:58	7:04	7:14	7:30	7:45		
7:45	7:53	7:58	8:04	8:14	8:30	8:45		
8:45	8:53	8:58	9:04	9:14	9:30	9:45		
9:45	9:53	9:58	10:04	10:14	10:30	10:45		
10:45	10:53	10:58	11:04	11:14	11:30	11:45		
11:45	11:53	11:58	12:04	12:14	12:30	12:45		
12:45	12:53	12:58	1:04	1:14	1:30	1:45		
1:45	1:53	1:58	2:04	2:14	2:30	2:45		
2:45	2:53	2:58	3:04	3:14	3:30	3:45		
3:45	3:53	3:58	4:04	4:14	4:30	4:45		
4:45	4:53	4:58	5:04	5:14	5:30	5:45		
5:45	5:53	5:58	6:04	6:14	6:30	6:45		
6:45	6:53	6:58	7:04	7:14				

These times are in the PM

WEEKDAYS & SATURDAY

From TCC to Lynnhaven Mall, Hilltop, Virginia Beach General Hospital and Pleasure House Road

		Tidewater Community College Lynnhaven Mall Laskin Rd. First Colonial Rd. Virginia Beach General Hospital Mill Neck Rd. Shore Drive Great Neck Rd. Pleasure House Rd.						
		T1	2	T3	4	5	6	T7
6:48	7:00	7:15	7:24	7:29	7:34	7:40		
7:48	8:00	8:15	8:24	8:29	8:34	8:40		
8:48	9:00	9:15	9:24	9:29	9:34	9:40		
9:48	10:00	10:15	10:24	10:29	10:34	10:40		
10:48	11:00	11:15	11:24	11:29	11:34	11:40		
11:48	12:00	12:15	12:24	12:29	12:34	12:40		
12:48	1:00	1:15	1:24	1:29	1:34	1:40		
1:48	2:00	2:15	2:24	2:29	2:34	2:40		
2:48	3:00	3:15	3:24	3:29	3:34	3:40		
3:48	4:00	4:15	4:24	4:29	4:34	4:40		
4:48	5:00	5:15	5:24	5:29	5:34	5:40		
5:48	6:00	6:15	6:24	6:29	6:34	6:40		
6:48	7:00	7:15						

These times are in the PM

HOLIDAY SCHEDULE FOR ROUTE 29:

HRT will operate reduced service on most holidays.

For holiday times please call HRT Customer Service at 222-6100 or visit our website at gohrt.com.

Schedule subject to change.

MAP LEGEND

Weekdays & Saturday

Streets

① Time Point
Use these in conjunction with corresponding time points on timetables to determine when the bus arrives at this point on route.

T1 Time Point & Transfer Point Combined
Connecting Bus Route
4

TRANSFER LOCATIONS: ROUTE 29

At these junctures Route 29 connects with other routes.

T1 TCC
Routes 12, 25, 26, 36

T3 FIRST COLONIAL ROAD
LASKIN ROAD
Routes 20, 24,

T7 PLEASURE HOUSE ROAD
SHORE DRIVE
Routes 1, 27,

ROUTE 102 COLISEUM



HRT
Hampton Roads Transit

PENINSULA TOWN CENTER / QUEENS ST. / DOWNTOWN HAMPTON ROUTE - Wheelchair Lift-Equipped
Bike Rack Equipped



Peninsula Town Center
Coliseum Drive
Mercury Boulevard

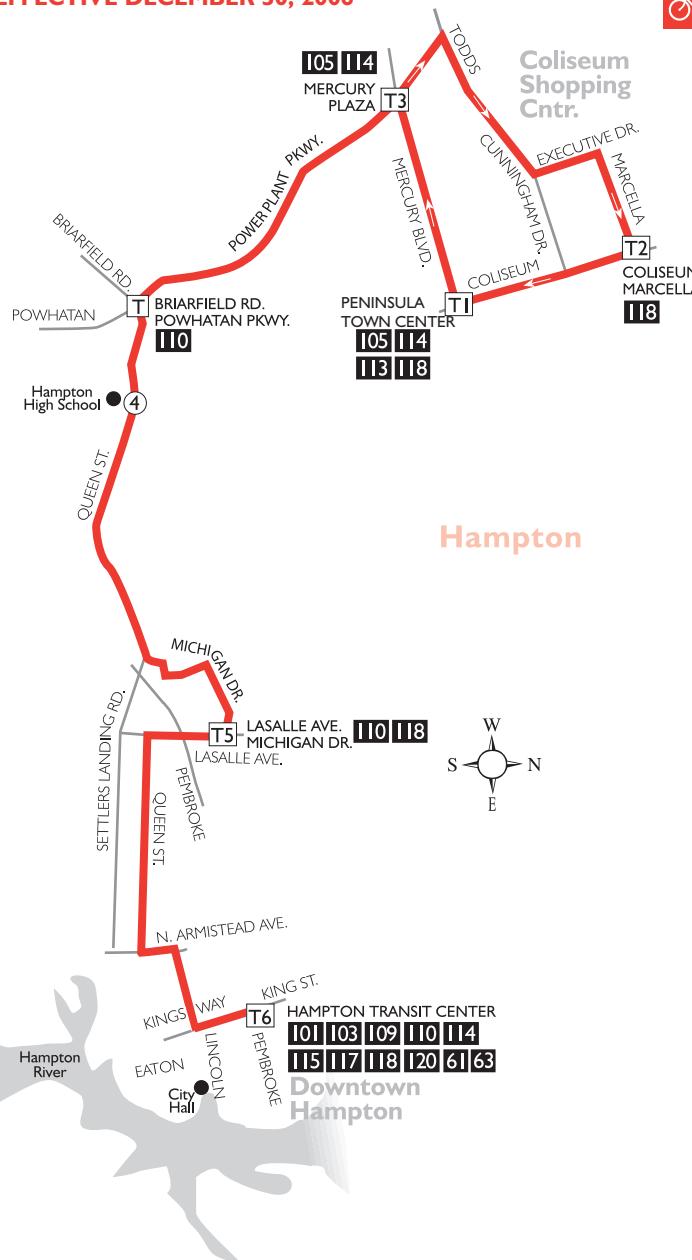
Mercury Plaza
Mercury Boulevard
Powhatan Parkway

Hampton High School
Queen Street
Independence Drive

Downtown Hampton
King Street
Pembroke Avenue

PENINSULA TOWN CENTER / DOWNTOWN HAMPTON

EFFECTIVE DECEMBER 30, 2006



MONDAY THRU SATURDAY

From Peninsula Town Center to Hampton High School to Downtown Hampton

Peninsula Town Center	Mercury Plaza	Hampton High School	Lasalle Avenue	Michigan Drive	Hampton Transit Center
T1	T3	④	T5	T6	
7:50	6:55	7:00	7:04	7:15	
8:50	7:55	8:00	8:04	8:15	
	8:55	9:00	9:04	9:15	
9:50	9:55	10:00	10:04	10:15	
10:50	10:55	11:00	11:04	11:15	
11:50	11:55	12:00	12:04	12:15	
12:50	12:55	1:00	1:04	1:15	
1:50	1:55	2:00	2:04	2:15	
2:50	2:55	3:00	3:04	3:15	
3:50	3:55	4:00	4:04	4:15	
4:50	4:55	5:00	5:04	5:15	
5:50	5:55	6:00	6:04	6:15	
6:50	6:55	7:00	7:04	7:15	
7:50	7:55	8:00	8:04	8:15	
8:50	8:55	9:00	9:04	9:15	
9:50	9:55	10:00	10:04	10:15	
10:50	10:55	11:00	11:04	11:15	
11:50	11:55	12:00	12:04	12:15	

SUNDAY

8:50	8:55	9:00	9:04	9:15
9:50	9:55	10:00	10:04	10:15
10:50	10:55	11:00	11:04	11:15
11:50	11:55	12:00	12:04	12:15
12:50	12:55	1:00	1:04	1:15
1:50	1:55	2:00	2:04	2:15
2:50	2:55	3:00	3:04	3:15
3:50	3:55	4:00	4:04	4:15
4:50	4:55	5:00	5:04	5:15
5:50	5:55	6:00	6:04	6:15
6:50	6:55	7:00	7:04	7:15
7:50	7:55	8:00	8:04	8:15

PM Times

MONDAY THRU SATURDAY

From Downtown Hampton to Hampton High School to Peninsula Town Center

Hampton Transit Center	Lasalle Avenue	Michigan Drive	Hampton High School	Mercury Plaza	Coliseum Drive	Peninsula Town Center
T6	T5	④	T3	T2	T1	
7:20	7:28	7:31	7:35	7:43	7:50	
8:20	8:28	8:31	8:35	8:43	8:50	
9:20	9:28	9:31	9:35	9:43	9:50	
10:20	10:28	10:31	10:35	10:43	10:50	
11:20	11:28	11:31	11:35	11:43	11:50	
12:20	12:28	12:31	12:35	12:43	12:50	
1:20	1:28	1:31	1:35	1:43	1:50	
2:20	2:28	2:31	2:35	2:43	2:50	
3:20	3:28	3:31	3:35	3:43	3:50	
4:20	4:28	4:31	4:35	4:43	4:50	
5:20	5:28	5:31	5:35	5:43	5:50	
6:20	6:28	6:31	6:35	6:43	6:50	
7:20	7:28	7:31	7:35	7:43	7:50	
8:20	8:28	8:31	8:35	8:43	8:50	
9:20	9:28	9:31	9:35	9:43	9:50	
10:20	10:28	10:31	10:35	10:43	10:50	
11:20	11:28	11:31	11:35	11:43	11:50	

SUNDAY

8:20	8:28	8:31	8:35	8:43	8:50
9:20	9:28	9:31	9:35	9:43	9:50
10:20	10:28	10:31	10:35	10:43	10:50
11:20	11:28	11:31	11:35	11:43	11:50
12:20	12:28	12:31	12:35	12:43	12:50
1:20	1:28	1:31	1:35	1:43	1:50
2:20	2:28	2:31	2:35	2:43	2:50
3:20	3:28	3:31	3:35	3:43	3:50
4:20	4:28	4:31	4:35	4:43	4:50
5:20	5:28	5:31	5:35	5:43	5:50
6:20	6:28	6:31	6:35	6:43	6:50
7:20	7:28	7:31	7:35	7:43	7:50

PM Times

TRANSFER LOCATIONS

At these junctures Route 102 connects with other routes.

T1

PENINSULA
TOWN CENTER
Routes 105, 113,
114, 118

T2

COLISEUM DR.
MARCELLA RD.
Route 118

T3

MERCURY
PLAZA
Routes 105, 114

T

BRIARFIELD RD.
POWHATAN PKWY.
Route 110

T5

LASALLE AVE.
MICHIGAN DR.
Routes 118, 110

T6

HAMPTON TRANSIT
CENTER
Routes 101, 103, 109,
110, 114, 115, 117,
118, 120, 61, 63

MAP LEGEND

① Time Point

Use these in conjunction with corresponding time points on timetables to determine when the bus arrives at this point on route.

Transfer Point

Time Point & Transfer Point Combined

4

Connecting Bus Route

Streets

ROUTE 113



BUS SCHEDULE

PENINSULA TOWN CENTER / FORT EUSTIS EXPRESS ROUTE - Wheelchair Lift-Equipped



■ Peninsula Town Center ■ Patrick Henry Mall ■ Fort Eustis

Coliseum Drive

Mercury Boulevard

Jefferson Avenue

Mall Parkway

Fort Eustis Boulevard

Washington Boulevard

PENINSULA TOWN CENTER / FORT EUSTIS EXPRESS ROUTE
EFFECTIVE DECEMBER 30, 2006



Hampton

Hampton Roads
Center

CUNNINGHAM
MERCURY
QUEEN ST.
COLISEUM DR.

FRIDAY EVENINGS

To Fort Eustis

Fort Eustis	Patrick Henry Mall	Peninsula Town Center	Patrick Henry Mall	Fort Eustis
T1	T2	T3	T2	T1
6:00	6:10	6:29	6:40	6:59
7:00	7:10	7:29	7:40	7:59
8:00	8:10	8:29	8:40	8:59
9:00	9:10	9:29	9:40	9:59
10:00	10:10	10:29	10:40	10:59
11:00	11:10	11:29	11:40	11:59

PM Times

SUNDAY AFTERNOONS

To Fort Eustis

Fort Eustis	Patrick Henry Mall	Peninsula Town Center	Patrick Henry Mall	Fort Eustis
T1	T2	T3	T2	T1
12:00	12:10	12:29	12:40	12:59
1:00	1:10	1:29	1:40	1:59
2:00	2:10	2:29	2:40	2:59
3:00	3:10	3:29	3:40	3:59
4:00	4:10	4:29	4:40	4:59
5:00	5:10	5:29	5:40	5:59
6:00	6:10	6:29	6:40	6:50

PM Times

SATURDAY AFTERNOONS/EVENINGS

To Fort Eustis

Fort Eustis	Patrick Henry Mall	Peninsula Town Center	Patrick Henry Mall	Fort Eustis
T1	T2	T3	T2	T1
12:00	12:10	12:29	12:40	12:59
1:00	1:10	1:29	1:40	1:59
2:00	2:10	2:29	2:40	2:59
3:00	3:10	3:29	3:40	3:59
4:00	4:10	4:29	4:40	4:59
5:00	5:10	5:29	5:40	5:59
6:00	6:10	6:29	6:40	6:59
7:00	7:10	7:29	7:40	7:59
8:00	8:10	8:29	8:40	8:59
9:00	9:10	9:29	9:40	9:59
10:00	10:10	10:29	10:40	10:59
11:00	11:10	11:29	11:40	11:59

PM Times

MAP LEGEND

■ Daily Route

— Streets

① Time Point

Use these in conjunction with corresponding time points on timetables to determine when the bus arrives at this point on route.

■ Transfer Point

■ T Time Point & Transfer Point Combined

■ 4 Connecting Bus Route

TRANSFER LOCATIONS

At these junctures Route 113 connects with other routes.

T1
FORT
EUSTIS
Route 106

T2
PATRICK HENRY
MALL
Routes 107, 111, 116, 119

T3
PENINSULA TOWN CENTER
Routes 102, 105, 114, 118

ROUTE 114

BUS SCHED



NEWMARKET / DOWNTOWN HAMPTON ROUTE - Wheelchair Lift-Equipped & Bike Rack Equipped

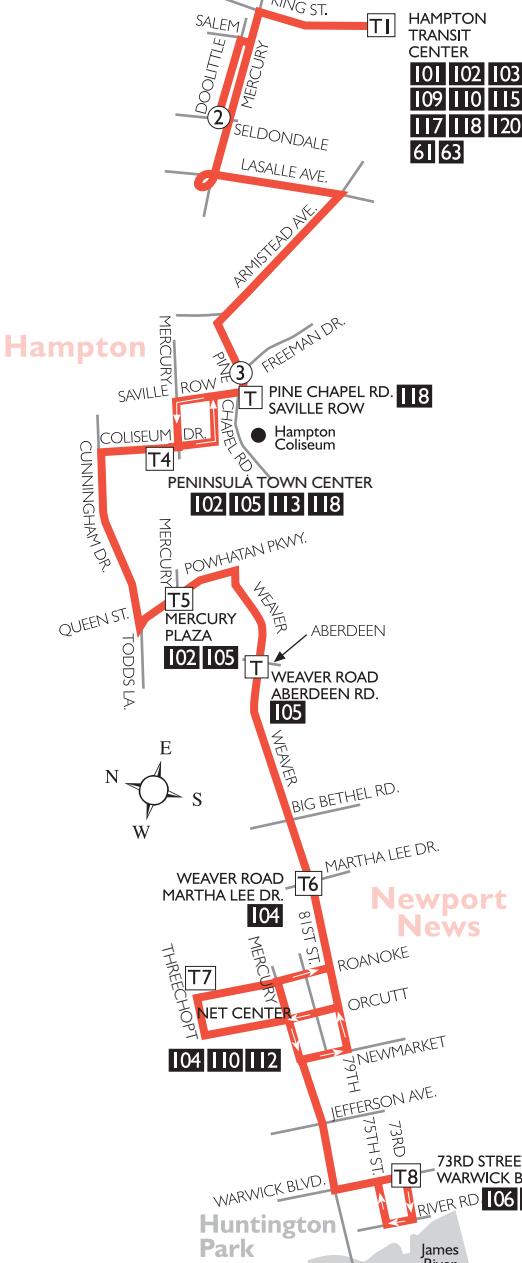
Bike Rack Equipped

■ Peninsula Town Center ■ Downtown Hampton
Cunningham Drive King Street
Coliseum Drive Pembroke Avenue

King Street
Pembroke Avenue

NEWMARKET / DOWNTOWN HAMPTON ROUTE

EFFECTIVE DECEMBER 30, 2006

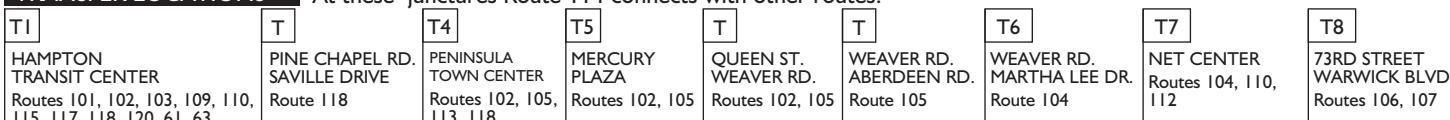


MAP LEGEND

- Time Point**
Use these in conjunction with corresponding time points on timetables to determine when the bus arrives at this point on route.
- Transfer Point**
- Time Point & Transfer Point Combined**
- Connecting Bus Route**

TRANSFER LOCATIONS

At these junctures Route 114 connects with other routes



MONDAY THRU SATURDAY

From Downtown Hampton to Peninsula Town Center to Newmarket to 73rd & Warwick

 **Mercury Plaza**
Queen Street
Mercury Boulevard

■ Peninsula Town Center

T1		②		③		T4		T5		T6		T7		T8	
5:45	5:50	6:00	6:10	6:20	6:30	6:24	6:30	6:40	6:54	7:00	7:10	7:00	7:10	7:40	7:40
6:15	6:20	6:30	6:40	6:50	7:00	6:54	7:00	7:10	7:24	7:30	7:40	7:30	7:40	7:40	7:40
6:45	6:50	7:00	7:10	7:20	7:30	7:24	7:30	7:40	7:54	8:00	8:10	8:00	8:10	8:40	8:40
7:15	7:20	7:30	7:40	7:50	8:00	7:54	8:00	8:10	8:20	8:24	8:30	8:20	8:30	8:40	8:40
7:45	7:50	8:00	8:10	8:20	8:30	8:10	8:20	8:30	8:50	8:54	9:00	8:50	9:00	9:10	9:10
8:15	8:20	8:30	8:40	8:50	9:00	8:40	8:50	9:00	9:20	9:24	9:30	9:20	9:30	9:40	9:40
8:45	8:50	9:00	9:10	9:20	9:30	9:10	9:20	9:30	9:50	9:54	10:00	9:50	10:00	10:10	10:10
9:15	9:20	9:30	9:40	9:50	10:00	9:40	9:50	10:00	10:20	10:24	10:30	10:20	10:30	10:40	10:40
9:45	9:50	10:00	10:10	10:20	10:30	10:10	10:20	10:30	10:50	10:54	11:00	10:50	11:00	11:10	11:10
10:15	10:20	10:30	10:40	10:50	11:00	10:40	10:50	11:00	11:20	11:24	11:30	11:20	11:30	11:40	11:40
10:45	10:50	11:00	11:10	11:20	11:30	11:10	11:20	11:30	11:50	11:54	12:00	11:50	12:00	12:10	12:10
11:15	11:20	11:30	11:40	11:50	12:00	11:40	11:50	12:00	12:20	12:24	12:30	12:20	12:30	12:40	12:40
11:45	11:50	12:00	12:10	12:20	12:30	12:10	12:20	12:30	12:50	12:54	1:00	12:50	1:00	1:10	1:10
12:15	12:20	12:30	12:40	12:50	1:00	12:40	12:50	1:00	1:20	1:24	1:30	1:20	1:30	1:40	1:40
12:45	12:50	1:00	1:10	1:20	1:30	1:10	1:20	1:30	1:50	1:54	2:00	1:50	2:00	2:10	2:10
1:15	1:20	1:30	1:40	1:50	2:00	1:40	1:50	2:00	2:20	2:24	2:30	2:20	2:30	2:40	2:40
1:45	1:50	2:00	2:10	2:20	2:30	2:10	2:20	2:30	2:50	2:54	3:00	2:50	3:00	3:10	3:10
2:15	2:20	2:30	2:40	2:50	3:00	2:40	2:50	3:00	3:20	3:24	3:30	3:20	3:30	3:40	3:40
2:45	2:50	3:00	3:10	3:20	3:30	3:10	3:20	3:30	3:50	3:54	4:00	3:50	4:00	4:10	4:10
3:15	3:20	3:30	3:40	3:50	4:00	3:40	3:50	4:00	4:20	4:24	4:30	4:20	4:30	4:40	4:40
3:45	3:50	4:00	4:10	4:20	4:30	4:10	4:20	4:30	4:50	4:54	5:00	4:50	5:00	5:10	5:10
4:15	4:20	4:30	4:40	4:50	5:00	4:40	4:50	5:00	5:20	5:24	5:30	5:20	5:30	5:40	5:40
4:45	4:50	5:00	5:10	5:20	5:30	5:10	5:20	5:30	5:50	5:54	6:00	5:50	6:00	6:10	6:10
5:15	5:20	5:30	5:40	5:50	6:00	5:40	5:50	6:00	6:20	6:24	6:30	6:20	6:30	6:40	6:40
5:45	5:50	6:00	6:10	6:20	6:30	6:10	6:20	6:30	6:50	6:54	7:00	6:50	7:00	7:10	7:10
6:15	6:20	6:30	6:40	6:50	7:00	6:40	6:50	7:00	7:20	7:24	7:30	7:20	7:30	7:40	7:40
7:45	7:50	8:00	8:10	8:20	8:30	8:10	8:20	8:30	8:50	8:54	9:00	8:50	9:00	9:10	9:10
8:45	8:50	9:00	9:10	9:20	9:30	9:10	9:20	9:30	10:00	10:24	10:30	10:00	10:30	10:40	10:40
10:45	10:50	11:00	11:10	11:20	11:30	11:10	11:20	11:30	11:50	11:54	11:30	11:50	11:30	11:40	11:40

PM Times

MONDAY THRU SATURDAY

From 73rd & Warwick to Newmarket to Peninsula Town Center to Downtown Hampton

73rd Street	Warwick Blvd.	Net Center	Martha Lee	Weaver Rd.	Mercury Plaza	Peninsula Town Center	Pine Chapel	Doolittle	Seabondale	Hampton	Transit Center
T8	T7	T6	T5	T4	(3)	(2)	T1				
					5:55 6:25 6:55	6:05 6:35 7:05	6:10 6:40				
6:45	6:55	6:59	7:05	7:15	7:25	7:35	7:40				
7:15	7:25	7:29	7:35	7:45	7:55	8:05	8:10				
7:45	7:55	7:59	8:05	8:15	8:25	8:35	8:40				
8:15	8:25	8:29	8:35	8:45	8:55	9:05	9:10				
8:45	8:55	8:59	9:05	9:15	9:25	9:35	9:40				
9:15	9:25	9:29	9:35	9:45	9:55	10:05	10:10				
9:45	9:55	9:59	10:05	10:15	10:25	10:35	10:40				
10:15	10:25	10:29	10:35	10:45	10:55	11:05	11:10				
10:45	10:55	10:59	11:05	11:15	11:25	11:35	11:40				
11:15	11:25	11:29	11:35	11:45	11:55	12:05	12:10				
11:45	11:55	11:59	12:05	12:15	12:25	12:35	12:40				
12:15	12:25	12:29	12:35	12:45	12:55	1:05	1:10				
12:45	12:55	12:59	1:05	1:15	1:25	1:35	1:40				
1:15	1:25	1:29	1:35	1:45	1:55	2:05	2:10				
1:45	1:55	1:59	2:05	2:15	2:25	2:35	2:40				
2:15	2:25	2:29	2:35	2:45	2:55	3:05	3:10				
2:45	2:55	2:59	3:05	3:15	3:25	3:35	3:40				
3:15	3:25	3:29	3:35	3:45	3:55	4:05	4:10				
3:45	3:55	3:59	4:05	4:15	4:25	4:35	4:40				
4:15	4:25	4:29	4:35	4:45	4:55	5:05	5:10				
4:45	4:55	4:59	5:05	5:15	5:25	5:35	5:40				
5:15	5:25	5:29	5:35	5:45	5:55	6:05	6:10				
5:45	5:55	5:59	6:05	6:15	6:25	6:35	6:40				
6:15	6:25	6:29	6:35	6:45	6:55	7:05	7:10				
6:45	6:55	6:59	7:05	7:15	7:25	7:35	7:40				
7:15	7:25	7:29	7:35	7:45	7:55	8:05	8:10				
7:45	7:55	7:59	8:05	8:15	8:25	8:35	8:40				
8:45	8:55	8:59	9:05	9:15	9:25	9:35	9:40				
9:45	9:55	9:59	10:05	10:15	10:25	10:35	10:40				
10:45	10:55	10:59	11:05	11:15	11:25	11:35	11:40				
11:45	11:55	11:59	12:05	12:15	12:25	12:35	12:40				
SUNDAY											
6:45	6:55	6:59	7:00	7:15	6:25 7:25	6:35 7:35	6:40 7:40				
7:45	7:55	7:59	8:00	8:15	8:25	8:35	8:40				
8:45	8:55	8:59	9:00	9:15	9:25	9:35	9:40				
9:45	9:55	9:59	10:00	10:15	10:25	10:35	10:40				
10:45	10:55	10:59	11:00	11:15	11:25	11:35	11:40				
11:45	11:55	11:59	12:00	12:15	12:25	12:35	12:40				
12:45	12:55	12:59	1:00	1:15	1:25	1:35	1:40				
1:45	1:55	1:59	2:00	2:15	2:25	2:35	2:40				
2:45	2:55	2:59	3:00	3:15	3:25	3:35	3:40				
3:45	3:55	3:59	4:00	4:15	4:25	4:35	4:40				
4:45	4:55	4:59	5:00	5:15	5:25	5:35	5:40				
5:45	5:55	5:59	6:00	6:15	6:25	6:35	6:40				
6:45	6:55	6:59	7:00	7:15	7:25	7:35	7:40				

PM Time

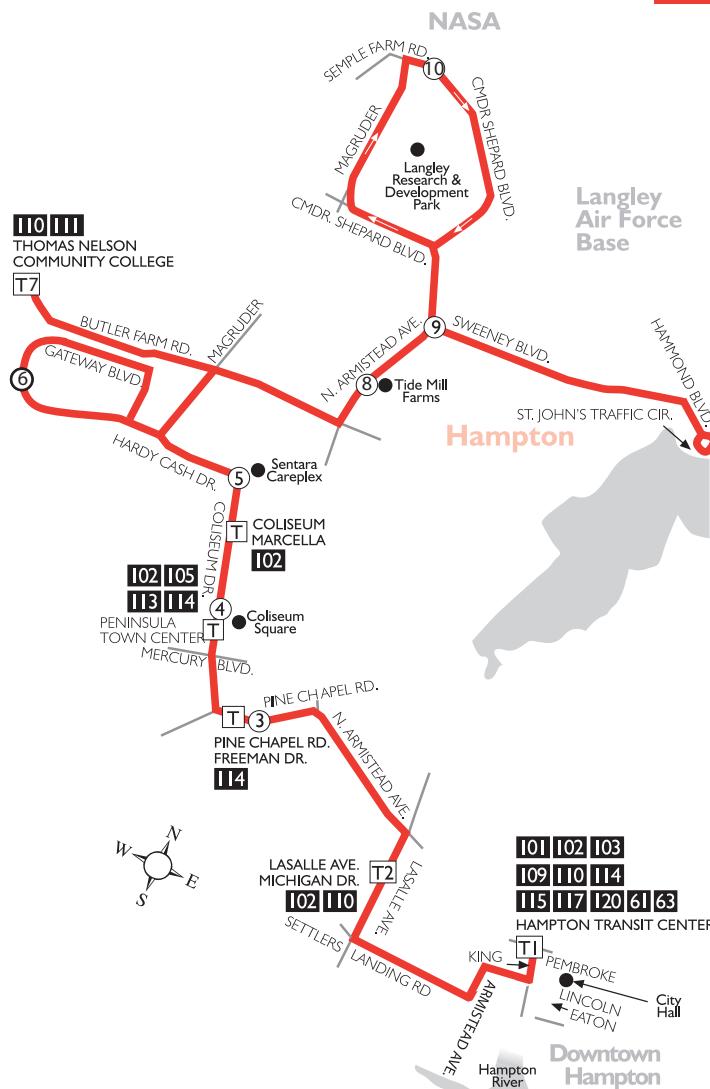
ROUTE 118 MAGRUDER



HRT
Hampton Roads Transit

LANGLEY / SEMPLE FARM ROAD ROUTE

EFFECTIVE DECEMBER 30, 2006



THOMAS NELSON COLLEGE / SEMPLE FARM RD. ROUTE - Wheelchair Lift-Equipped Bike Rack Equipped



■ Magruder ■ Downtown Hampton ■ Peninsula Town Center ■ Thomas Nelson College ■ Semple Farm Road

Magruder
Pembroke Avenue
Butler Farm Rd.
King Street

Coliseum Drive
Mercury Boulevard

Thomas Nelson Drive
Butler Farm Road

Langley Research & Development Park
North Armistead Drive

MONDAY THRU SATURDAY

From Hampton Transit Center to Coliseum Square to Thomas Nelson Community College to Langley to Semple Farm Rd.

Hampton Transit Center	LaSalle Avenue	Michigan Dr.	Pine Chapel Rd.	Coliseum Square	Sentara Careplex	Gateway Blvd.	Thomas Nelson Community Coll.	Tide Mill Farms	Langley Air Force Base	Coliseum Drive
T1	T2	③	④	⑤	⑥	T7	⑧	⑨	⑩	Mercury Boulevard
6:15	6:23	6:29	6:35	6:40	6:46	6:50	6:56	7:03	7:08	
7:15	7:23	7:29	7:35	7:40	7:46	7:50	7:56	8:03	8:08	
8:15	8:23	8:29	8:35	8:40	8:46	8:50	8:56	9:03	9:08	
9:15	9:23	9:29	9:35	9:40	9:46	9:50	9:56	10:03	10:08	
10:15	10:23	10:29	10:35	10:40	10:46	10:50	10:56	11:03	11:08	
11:15	11:23	11:29	11:35	11:40	11:46	11:50	11:56	12:03	12:08	
12:15	12:23	12:29	12:35	12:40	12:46	12:50	12:56	1:03	1:08	
1:15	1:23	1:29	1:35	1:40	1:46	1:50	1:56	2:03	2:08	
2:15	2:23	2:29	2:35	2:40	2:46	2:50	2:56	3:03	3:08	
3:15	3:23	3:29	3:35	3:40	3:46	3:50	3:56	4:03	4:08	
4:15	4:23	4:29	4:35	4:40	4:46	4:50	4:56	5:03	5:08	
5:15	5:23	5:29	5:35	5:40	5:46	5:50	5:56	6:03	6:08	
6:15	6:23	6:29	6:35	6:40		6:50	6:56	7:03	7:08	
7:15	7:23	7:29	7:35	7:40		7:50	7:56	8:03	8:08	
8:15	8:23	8:29	8:35	8:40		8:50	8:56	9:03	9:08	
9:15	9:23	9:29	9:35	9:40		9:50	9:56	10:03	10:08	
10:15	10:23	10:29	10:35	10:40		10:50	10:56	11:03	11:08	

SUNDAY

8:15	8:23	8:29	8:35	8:40	8:46	8:50	8:56	9:03	9:08	
9:15	9:23	9:29	9:35	9:40	9:46	9:50	9:56	10:03	10:08	
10:15	10:23	10:29	10:35	10:40	10:46	10:50	10:56	11:03	11:08	
11:15	11:23	11:29	11:35	11:40	11:46	11:50	11:56	12:03	12:08	
12:15	12:23	12:29	12:35	12:40	12:46	12:50	12:56	1:03	1:08	
1:15	1:23	1:29	1:35	1:40	1:46	1:50	1:56	2:03	2:08	
2:15	2:23	2:29	2:35	2:40	2:46	2:50	2:56	3:03	3:08	
3:15	3:23	3:29	3:35	3:40	3:46	3:50	3:56	4:03	4:08	
4:15	4:23	4:29	4:35	4:40	4:46	4:50	4:56	5:03	5:08	
5:15	5:23	5:29	5:35	5:40	5:46	5:50	5:56	6:03	6:08	
6:15	6:23	6:29	6:35	6:40		6:50	6:56	7:03	7:08	

PM Times

MONDAY THRU SATURDAY

From Semple Farm Rd. to Langley to Thomas Nelson Community College to Coliseum Square to Hampton Transit Center

Hampton Transit Center	LaSalle Avenue	Michigan Dr.	Pine Chapel Rd.	Coliseum Square	Sentara Careplex	Gateway Blvd.	Thomas Nelson Community Coll.	Tide Mill Farms	Langley Air Force Base	Coliseum Drive
T1	T2	③	④	⑤	⑥	T7	⑧	⑨	⑩	Mercury Boulevard
7:20	7:26	7:36	7:40	7:44	7:47	7:52	7:57	8:07		
8:20	8:26	8:36	8:40	8:44	8:47	8:52	8:57	9:07		
9:20	9:26	9:36	9:40	9:44	9:47	9:52	9:57	10:07		
10:20	10:26	10:36	10:40	10:44	10:47	10:52	10:57	11:07		
11:20	11:26	11:36	11:40	11:44	11:47	11:52	11:57	12:07		
12:20	12:26	12:36	12:40	12:44	12:47	12:52	12:57	1:07		
1:20	1:26	1:36	1:40	1:44	1:47	1:52	1:57	2:07		
2:20	2:26	2:36	2:40	2:44	2:47	2:52	2:57	3:07		
3:20	3:26	3:36	3:40	3:44	3:47	3:52	3:57	4:07		
4:20	4:26	4:36	4:40	4:44	4:47	4:52	4:57	5:07		
5:20	5:26	5:36	5:40	5:44	5:47	5:52	5:57	6:07		
6:20	6:26	6:36	6:40	6:44	6:47	6:52	6:57	7:07		
7:20	7:26	7:36	7:40	7:44	7:47	7:52	7:57	8:07		
8:20	8:26	8:36	8:40	8:44	8:47	8:52	8:57	9:07		
9:20	9:26	9:36	9:40	9:44	9:47	9:52	9:57	10:07		
10:20	10:26	10:36	10:40	10:44	10:47	10:52	10:57	11:07		
11:20	11:26	11:36	11:40	11:44	11:47	11:52	11:57	12:07		

SUNDAY

9:20	9:26	9:36	9:40	9:44	9:47	9:52	9:57	10:07		
10:20	10:26	10:36	10:40	10:44	10:47	10:52	10:57	11:07		
11:20	11:26	11:36	11:40	11:44	11:47	11:52	11:57	12:07		
12:20	12:26	12:36	12:40	12:44	12:47	12:52	12:57	1:07		
1:20	1:26	1:36	1:40	1:44	1:47	1:52	1:57	2:07		
2:20	2:26	2:36	2:40	2:44	2:47	2:52	2:57	3:07		
3:20	3:26	3:36	3:40	3:44	3:47	3:52	3:57	4:07		
4:20	4:26	4:36	4:40	4:44	4:47	4:52	4:57	5:07		
5:20	5:26	5:36	5:40	5:44	5:47	5:52	5:57	6:07		
6:20	6:26	6:36	6:40	6:44	6:47	6:52	6:57	7:07		
7:20	7:26	7:36	7:40	7:44	7:47	7:52	7:57	8:07		

PM Times

HRT will operate reduced service on most holidays.
For holiday times please call HRT Customer Service at 222-6100 or visit our website at gohrt.com.

Schedule subject to change.

TRANSFER LOCATIONS

At these junctures Route 118 connects with other routes.

T1	T2	T	T	T6
HAMPTON TRANSIT CENTER	LASALLE AVE. MICHIGAN DR.	PINE CHAPEL FREEMAN DR.	COLISEUM TOWN CENTER	THOMAS NELSON COMM. COLLEGE
Routes 101, 102, 103, 109, 110, 114, 115, 117, 120, 61, 63	Routes 102, 110	Route 114	Routes 102, 105, 113, 111	Routes 110, 111

MAP LEGEND

- Route 118
- Streets
- Time Point
 - ① Time Point
 - Transfer Point
 - Time Point & Transfer Point Combined
 - 4 Connecting Bus Route

HRT BUS FARES

ADULT	\$1.50
SENIOR/PERSON with DISABILITIES.....	\$0.75*
YOUTH (up to age 18).....	\$1.00*
CHILD UNDER 38"	FREE
TRANSFER	FREE

FARECARDS

10-RIDE FARECARD	\$14.00
10-RIDE SENIOR/PERSON with DISABILITIES	\$ 7.50*
7-DAY FARECARD	\$17.00
30-DAY FARECARD	\$50.00
30-DAY SENIOR/PERSON with DISABILITIES	\$35.00*
YOUTH U-18 FARECARD (20 rides).....	\$20.00*

*Youth, up to age 18, are required to show operator an ID which includes age and photograph. School IDs are not required to display a birthdate. Senior citizens, age 60 and over, must show driver a DMV, Medicare ID or any other proof of age which includes a photograph. Persons with Disabilities must show HRT Half-fare, ADA Paratransit ID or Medicare card. Identification is also required at time of farecard purchase.

For more information

Customer Service 222-6100

Monday-Friday: 6am to 9pm Saturday: 7am to 9pm

Sunday: 9am to 5pm Holidays: 9am to 4pm

Ticket Sales

1500 Monticello Ave., Norfolk Mon.-Fri.: 7:30am to 5pm

3400 Victoria Blvd., Hampton Mon.-Fri.: 8am to 4:30pm

Silverleaf Commuter Station, Va. Beach .Mon.-Fri.: 5am to 12:30pm

Newport News Transportation Center ...Mon.-Fri.: 6am to 8pm

Saturday: 7am to 8pm • Sunday: 9am to 4pm

Hampton Transportation CenterMon.-Fri.: 6am to 8pm

Saturday: 7am to 8pm • Sunday: 9am to 4pm

Lost & Found 222-6100

Monday-Friday: 8am to 5:00pm

TRAFFIX Commuter Programs 1-800-700-RIDE

Monday-Friday: 8am to 5:00pm

TDD line or after hours 722-8427

Website gohrt.com

Compliments & Suggestions

HRT welcomes your input. If you have any requests, suggestions, recommendations or information that will help improve our service, please call 222-6036, Monday through Friday between 8am and 5pm or anytime online at gohrt.com.

Using The Schedules

To help you to better understand HRT's bus schedule, we have provided the following example. Please refer to the sample schedules at right for this example.

For this example, we are using the Newmarket Fair bus stop **A** as the point where the bus would pick you up.

The Riverside Regional Medical Center bus stop **B** is your destination. 7:30 a.m. is the time you need to arrive at your destination.

Since you are heading toward Riverside Regional Medical Center from Newmarket Fair, you would use the chart at right **I** for your schedule and direction.

Next, you would locate on the time that most closely approximates when you need to arrive at your destination. In this example the time that is closest to 7:30 a.m. is 7:05 a.m. **D**

Moving left across the times, locate where this line intersects with your bus stop. **B** This is the bus you need to take to arrive at your destination on time. For this example, you would take the 6:35 a.m. bus to arrive at Riverside Regional Medical Center at 7:05 a.m.

I
DAILY

From Downtown Newport News to Newmarket Fair to Riverside Regional Medical Center to Christopher Newport University

1	2	3	4	5	6	7	8	9
5:45	5:52	5:55	6:05	6:10	6:14*	6:25	6:35	6:40
6:15	6:20	6:22	6:27	6:32	6:37	6:45	6:50	
6:45	6:52	6:55	6:35	6:40	6:44	6:55	7:05	7:10
7:15	7:22	7:25	7:40	7:44	7:55	8:05	8:15	8:20
7:45	7:52	7:55	8:15	8:10	8:14	8:25	8:35	8:40
8:15	8:22	8:25	8:35	8:40	8:44	8:55	9:05	9:10
8:45	8:52	8:55	9:05	9:10	9:14	9:25	9:35	9:40
9:15	9:22	9:25	9:35	9:40	9:44	9:55	10:05	10:10
9:45	9:52	9:55	10:05	10:10	10:14	10:25	10:35	10:40
10:15	10:22	10:25	10:35	10:40	10:44	10:55	11:05	11:10
10:45	10:52	10:55	11:05	11:10	11:14	11:25	11:35	11:40
11:15	11:22	11:25	11:35	11:40	11:44	11:55	12:05	12:10
11:45	11:52	11:55	12:05	12:10	12:14	12:25	12:35	12:40
12:15	12:22	12:25	12:35	12:40	12:44	12:55	1:05	1:10
12:45	12:52	12:55	1:05	1:10	1:14	1:25	1:35	1:40
1:15	1:22	1:25	1:35	1:40	1:44	1:55	2:05	2:10
1:45	1:52	1:55	2:05	2:10	2:14	2:25	2:35	2:40

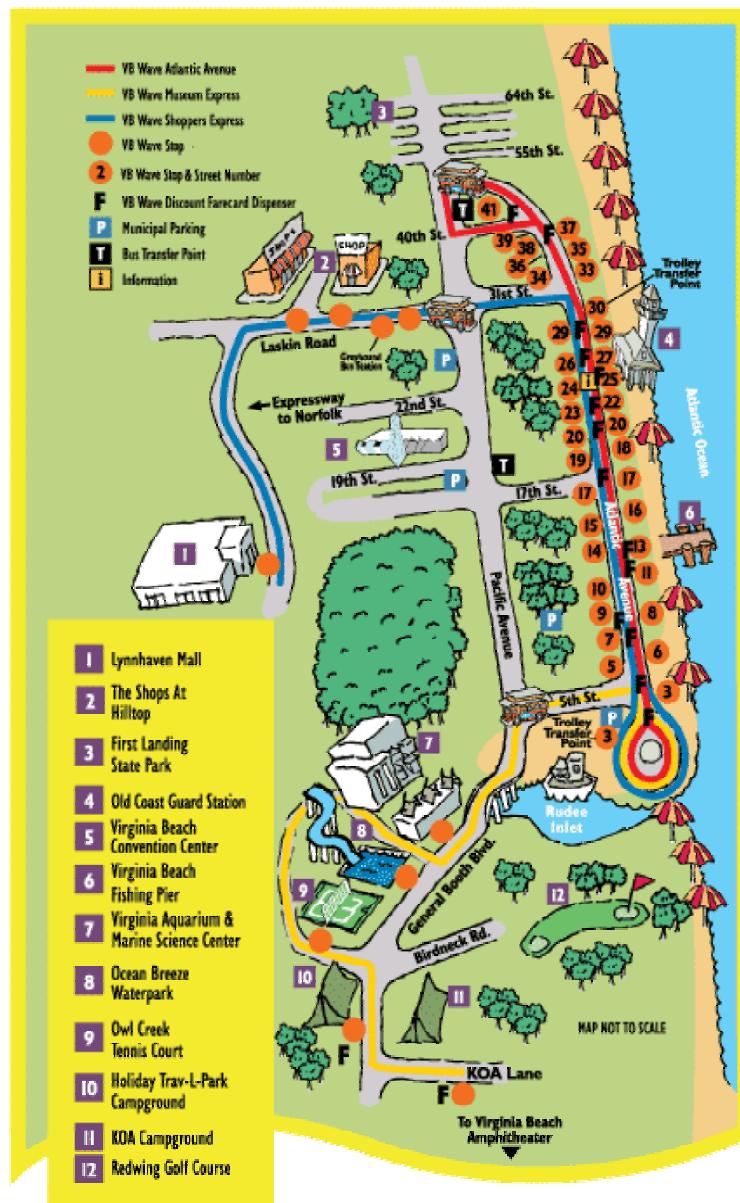
When buses depart Southside Garage at 18th and Lindsay, customers are permitted to ride from this location to the starting place of that vehicle.

When buses pull into Southside Garage at 18th and Lindsay, customers are permitted to ride service from the last stop to 18th and Lindsay.

This service will operate express and no other stops will be made.

For scheduled times please contact Customer Service at 222-6100.

"Wave" transit route in Virginia Beach



APPENDIX B

CITY ORDINANCES REGARDING BICYCLES ON SIDEWALKS

(source: www.municode.com, accessed 6/1/07)

From Norfolk Code of Ordinances

(source: directed to www.municode.com from Norfolk city web site, accessed 6/1/07)

Sec. 8-56. Riding on sidewalks.

- (a) No person shall ride a bicycle or motorized push scooter upon any sidewalk, whether paved or unpaved, in a business district.
- (b) No person fifteen (15) or more years of age shall ride a bicycle or motorized push scooter upon any sidewalk, whether paved or unpaved, in any district, except that any person shall be allowed to ride a bicycle on the sidewalks of the area designated as the "Elizabeth River Trail".
- (c) Whenever any person shall ride a bicycle or a motorized push scooter on the sidewalk, whether paved or unpaved, such person shall yield the right-of-way to any pedestrian and shall give an audible signal before overtaking and passing any pedestrian. Persons riding bicycles or motorized push scooters on sidewalks shall ride in single file.
- (d) A business district, within the meaning of this section, is the territory contiguous to any sidewalk, whether paved or unpaved, in any block where seventy-five (75) percent or more of the total frontage abutting such sidewalk in such block is occupied by buildings actually in use and operation for business purposes.
- (e) This prohibition shall not apply to public safety officers, city employees or their representatives operating bicycles while engaged in their official assigned duties.

(Code 1958, § 8-14; Ord. No. 37,608, § 2, 5-17-94; Ord. No. 40,476, § 9, 9-25-01; Ord. No. 40,825, § 1, 9-17-02)

State law references: Riding on sidewalks, Code of Virginia, § 46.1-229.01

Sec. 25-1. Title and territorial application.

This chapter shall be designated and may be cited as the Motor Vehicle Code of the City of Norfolk, and its provisions shall be applicable within the corporate limits of the city.

(Code 1958, § 29-1)

From Hampton Code of Ordinances

(source: directed to www.municode.com from Hampton city web site, accessed 6/1/07)

Sec. 6-28. Required use of bicycle paths.

Wherever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and shall not use the roadway.

State law references: Authority for above section, Code of Virginia, § 46.2-905.

Sec. 6-29. Riding on sidewalks within public rights-of-way.

- (a) Whenever any person shall ride a bicycle on the sidewalk within public rights-of-way, whether paved or unpaved, such person shall yield the right-of-way to any pedestrian, shall give an audible signal before overtaking and passing any pedestrian, and shall ride in single file. Permissive use of a sidewalk within public rights-of-way does not apply where there is a usable bike path.
- (b) No person except a police officer while on patrol shall ride a bicycle upon any sidewalk within public rights-of-way, whether paved or unpaved, in (i) any area where the main entrance/exit to a building directly opens onto a sidewalk within public rights-of-way (e.g., certain areas of Phoebus and Downtown), or (ii) any area actively being used for a special public event (e.g., Bay Days), or (iii) any area where "no bike riding" signage is conspicuously posted.
- (c) A violation of any provision of this section shall be punishable by a civil penalty of not more than fifty dollars (\$50.00).

(Ord. No. 676, 12-10-80; Code 1964, § 25.1-93, 25.1-276; Ord. No. 1270, 2-9-00)

State law references: Authority to prohibit riding bicycles on sidewalks, Code of Virginia, § 46.2-904.

From Virginia Beach Code of Ordinances

(source: directed to www.municode.com from Virginia Beach city web site, accessed 6/1/07)

Sec. 7-59. Regulations pertaining to riding on city sidewalks and bicycle paths other than the resort area.

- a) It shall be unlawful for any person to ride a moped or motor-driven cycle on any sidewalk or designated bicycle route within the City.
- b) Except as otherwise provided in this Chapter, riding a bicycle, electric personal assistive mobility device, electric power-assisted bicycle, motorized skateboard or motorized scooter is permitted on the sidewalks and designated bicycle paths of the City.
- c) A person riding a bicycle, electric personal assistive mobility device, motorized skateboard, motorized scooter or electric power-assisted bicycle upon and along a sidewalk, or across a roadway upon and along a crosswalk, shall yield the right-of-way to any pedestrian, shall give an audible signal before overtaking and passing such pedestrian, and shall dismount and walk the bicycle, electric personal assistive mobility device, motorized skateboard, motorized scooter or electric power-assisted bicycle when necessary to avoid physical contact with any person; and
- d) A violation of this Section shall be punishable by a civil penalty of not more than fifty dollars (\$50.00).

(Ord. No. 2848, 10-26-04; Ord. No. 2952, 6-27-06)

Sec. 7-59.1. Regulations pertaining to riding wheeled devices or vehicles in the resort area.

- a) During the resort season, it shall be unlawful for any person to ride an electric personal assistive mobility device, electric power-assisted bicycle, moped, motorized skateboard or motorized scooter on Atlantic Avenue.
- b) It shall be unlawful at any time for any person to ride on any sidewalk in the resort area an all-terrain vehicle, a bicycle, electric power-assisted bicycle, electric personal assistive mobility device, motorized skateboard, motorized scooter, skateboard, scooter, or any pedal-powered vehicle that is muscle-powered or any muscle-powered device. However, the use of roller blades and roller skates is permitted. A violation of this sub-section shall be punished by a civil penalty of not more than fifty dollars (\$50.00).

(Ord. No. 2848, 10-26-04; Ord. No. 2952, 6-27-06)

Sec. 7-59.2. Regulations pertaining to riding on the beach or the boardwalk.

- a) It shall be unlawful for any person to ride on the beach, upon sand dunes or on the boardwalk a motor vehicle, an all-terrain vehicle, a bicycle, electric power-assisted bicycle, electric personal assistive mobility device, motor-driven cycle, motorized skateboard, motorized scooter, moped, scooter, skateboard or a pedal-powered vehicle that is muscle-powered or any other muscle-powered device, unless specifically authorized in a special event permit.
- b) The use of roller blades and roller skates on the boardwalk is permitted.
- c) Reserved.

(Ord. No. 2848, 10-26-04; Ord. No. 2943, 5-23-06; Ord. No. 2952, 6-27-06)

Editor's note: Ord. No. 2943, adopted May 23, 2006, stated that the provisions of subsection (c) shall expire on September 30, 2006. Said provisions pertained to the use of electric personal assistive mobility on the boardwalk permitted pursuant to a temporary permit authorized by the City Manager.

Sec. 7-59.3. Regulations pertaining to riding wheeled devices or vehicles on the grassy area or bicycle path adjacent to the boardwalk and oceanfront parks and plazas.

- a) It shall be unlawful for any person to ride on the bicycle path adjacent to the boardwalk an all-terrain vehicle, electric personal assistive mobility device, electric power-assisted bicycle, motor-driven cycle, motorized skateboard, motorized scooter, moped, roller blades, roller skates, scooters or skateboards or a pedal-powered vehicle that is muscle-powered or any other muscle-powered device other than a bicycle as defined in this chapter.
- b) It shall be unlawful to ride an all-terrain vehicle, bicycle, electric personal assistive mobility device, electric power-assisted bicycle, motor-driven cycle, motorized skateboard, motorized scooter, moped, roller blades, roller skates, scooters or skateboards or a pedal-powered vehicle that is muscle-powered or any other muscle-powered device on the grassy area adjacent to the boardwalk and the oceanfront parks and plazas. Provided, however, that bicycles are allowed in the oceanfront plazas for the purpose of accessing the bicycle path adjacent to the boardwalk.
- c) Surreys shall be permitted on the bicycle path and the oceanfront plazas subject to the provisions of this Chapter.
- d) For purposes of this Section the term "oceanfront parks" refers to the grassy and non-grassy areas of the parks located at 7th, 13th, 17th, 24th, 25th, and 31st Streets. The term "oceanfront plazas" or "plazas" refers to the paved areas connecting Atlantic Avenue to the bicycle path.

(Ord. No. 2848, 10-26-04; Ord. No. 2952, 6-27-06)

Sec. 7-59.4. Regulations pertaining to riding wheeled devices in Town Center.

- a) It shall be unlawful for any person to ride on any sidewalk or plaza in the Town Center an all-terrain vehicle, bicycle, electrical personal assistive mobility device, electric power-assisted bicycle, motor-driven cycle, motorized skateboard,

motorized scooter, moped, roller blades, roller skates, scooters or skateboards, or a pedal-powered vehicle that is muscle-powered or any other muscle-powered device.

- b) For purposes of this Section, the term "Town Center" means the area bounded by and including the sidewalk on the south side of Virginia Beach Boulevard, the Norfolk Southern Corporation property line, the sidewalk on the east side of Independence Boulevard, and the sidewalk on the west side of Constitution Drive.
- c) A violation of this Section shall be punished by a civil penalty of not more than fifty dollars (\$50.00).

(Ord. No. 2861, 1-25-05; Ord. No. 2952, 6-27-06)

Editor's note: Ord. No. 2861, adopted Jan. 25, 2005 added new provisions to the Code as § 7-59.4 and renumbered former § 7-59.4 as § 7-59.5.

Sec. 7-59.5. General provisions applicable to Sections 7-59.1 through 7-59.5.

- a) For purposes of Sections 7-59.1 through 7-59.4, the term "scooter" is a muscle-powered device having two (2) or more wheels, a platform on which the rider stands, and a steering mechanism such as handlebars.
- b) The provisions of Section 7-59.1 through 7-59.4 shall not be applicable to the use of baby carriages, strollers or related modes of transportation of infants, or the use of wheelchairs and wheelchair conveyance used for the transportation of disabled persons or electrical personal assistive mobility devices, electric power-assisted bicycles or motorized scooters equipped with a seat used for the transportation of disabled persons for either a (i) state-issued placard for the disabled has been issued and is prominently displayed thereon or (ii) special decal has been issued by the city pursuant to section 7-25 and is prominently displayed thereon.
- c) The prohibitions set forth in Sections 7-59.1 through 7-59.4 shall not be applicable to city employees or city contractors on officials business, or to employees of any franchise or permittee authorized to provide services at Town Center, or on the beach, boardwalk and adjacent bicycle path, oceanfront parks and plaza, while on duty, or when authorization is granted by the City Manager or his designee for special events.

(Ord. No. 2848, 10-26-04; Ord. No. 2861, 1-25-05; Ord. No. 2952, 6-27-06)

Note: See the editor's note to § 7-59.4.

APPENDIX C

SPEED DATA FOR NEWPORT AVE. IN NORFOLK

Intermodal Engineering, P.C.
 3656 E. Stratford Road
 Virginia Beach, VA 23455
 757-464-5129

Page 1

Site Code: 511
 Station ID:
 Newport Ave
 7200 block

A to B																	Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	85th Percent	95th Percent	
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	76	9999	Total	85th Percent	95th Percent	
06/18/07	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	7	3	20	124	117	52	5	1	0	0	0	0	0	4	333	37	40		
12 PM	1	1	25	116	141	60	5	2	0	1	0	0	0	1	5	358	37	40	
13:00	5	1	25	136	131	40	6	1	0	0	0	0	0	1	5	351	35	40	
14:00	4	7	24	114	121	61	7	0	0	0	0	0	0	1	0	339	37	40	
15:00	7	6	23	130	153	39	11	2	0	0	0	0	0	0	5	376	36	40	
16:00	5	8	44	171	165	34	1	0	1	0	1	0	0	0	4	434	35	38	
17:00	6	4	42	148	184	45	1	0	0	0	0	1	0	0	3	434	35	39	
18:00	3	4	27	147	144	40	4	1	0	0	0	0	2	1	2	375	35	39	
19:00	4	10	39	90	110	32	7	0	0	0	0	0	0	0	1	293	35	39	
20:00	2	7	32	104	76	19	1	2	1	0	0	0	1	0	3	248	35	39	
21:00	1	1	23	72	54	12	3	0	0	0	0	0	0	0	1	167	35	38	
22:00	0	1	14	53	50	11	6	1	0	0	0	0	0	0	0	136	35	40	
23:00	0	1	12	31	30	14	4	1	0	0	0	0	0	0	0	93	37	40	
Total	45	54	350	1436	1476	459	61	11	2	1	2	3	4	33	3937				
Percent	1.1%	1.4%	8.9%	36.5%	37.5%	11.7%	1.5%	0.3%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.8%				
AM Peak Vol.	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	
PM Peak Vol.	15:00	19:00	16:00	16:00	17:00	14:00	15:00	12:00	16:00	12:00	16:00	18:00	12:00	12:00	16:00				
	7	10	44	171	184	61	11	2	1	1	1	2	1	5	434				

A to B																	Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	85th Percent	95th Percent	
06/19/07 15	0	2	8	24	18	7	1	0	0	0	0	0	0	0	0	60	35	38	
01:00	1	0	3	14	11	2	1	0	0	0	0	0	0	0	0	32	34	36	
02:00	0	1	4	6	2	2	0	1	0	0	0	0	0	0	0	16	36	37	
03:00	0	0	0	4	3	3	0	0	0	0	0	0	0	0	0	10	36	37	
04:00	0	0	3	5	7	3	0	0	0	0	0	0	0	0	0	18	35	37	
05:00	0	0	8	25	27	9	3	0	0	0	0	0	0	0	0	72	36	39	
06:00	1	3	6	63	65	34	3	1	0	0	0	0	0	0	0	3	179	37	40
07:00	4	3	20	78	131	38	5	0	0	0	0	1	0	0	0	7	287	36	40
08:00	0	3	34	127	121	34	5	1	0	0	0	0	0	0	0	1	326	35	39
09:00	7	8	39	119	132	26	2	0	0	1	0	0	0	0	0	4	338	35	38
10:00	7	6	24	108	130	25	5	1	0	0	1	0	0	0	0	2	309	35	39
11:00	5	5	29	113	136	37	8	1	0	0	0	0	0	0	0	5	339	35	40
12 PM	9	2	27	147	131	41	5	1	1	0	0	0	2	1	13	380	36	44	
13:00	5	6	33	134	128	30	5	1	0	2	1	0	0	0	3	348	35	40	
14:00	4	3	38	111	141	28	6	0	0	0	1	0	0	0	1	333	35	39	
15:00	8	7	35	114	142	44	6	4	1	0	0	0	0	0	5	366	36	40	
16:00	2	9	38	159	143	36	4	1	1	0	0	0	1	0	5	399	35	39	
17:00	8	10	35	163	172	39	6	2	0	1	0	1	0	0	3	440	35	39	
18:00	8	5	32	179	152	33	8	2	1	0	0	0	1	0	3	424	35	39	
19:00	4	3	24	100	118	50	3	1	0	1	0	0	0	0	5	309	37	40	
20:00	1	2	35	111	87	26	3	0	1	0	0	0	0	0	4	270	35	39	
21:00	2	4	21	81	63	14	3	1	0	0	0	0	0	0	0	189	35	38	
22:00	2	4	11	59	53	10	0	2	0	0	0	0	0	0	2	143	35	39	
23:00	0	0	11	50	39	13	5	0	0	0	0	0	0	0	0	118	35	40	
Total	78	86	518	2094	2152	584	87	20	5	5	4	5	1	66	5705				
Percent	1.4%	1.5%	9.1%	36.7%	37.7%	10.2%	1.5%	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	1.2%				
AM Peak Vol.	09:00	09:00	09:00	08:00	11:00	07:00	11:00	02:00		09:00	07:00			07:00	11:00				
PM Peak Vol.	12:00	17:00	14:00	18:00	17:00	19:00	18:00	15:00	12:00	13:00	13:00	12:00	12:00	12:00	17:00				
	9	10	38	179	172	50	8	4	1	2	1	2	1	13	440				

A to B																	Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	85th Percent	95th Percent	
06/20/07 15	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	72	36	40
01:00	1	1	10	18	17	1	0	0	1	0	0	0	0	0	0	0	49	34	35
02:00	0	3	3	18	3	1	1	0	0	0	0	0	0	0	0	0	29	31	40
03:00	0	1	8	3	1	0	0	0	0	0	0	0	0	0	0	0	13	27	28
04:00	0	0	2	6	10	3	0	1	0	0	0	0	0	0	0	0	22	36	38
05:00	0	0	6	27	23	6	4	0	0	0	0	0	0	0	0	0	66	35	41
06:00	0	1	10	48	69	28	5	2	0	0	0	0	0	0	0	0	163	37	40
07:00	4	4	21	106	128	40	4	4	0	0	0	0	1	0	5	317	36	40	
08:00	1	1	24	110	100	30	2	0	0	0	0	2	0	0	7	277	35	40	
09:00	5	7	38	126	90	46	1	3	0	1	2	0	0	0	2	321	36	40	
10:00	0	3	50	120	89	30	7	1	0	0	0	0	0	0	0	300	35	39	
11:00	6	4	34	136	105	36	6	1	0	2	1	0	0	0	7	338	36	40	
12 PM	2	9	51	154	111	32	9	2	2	0	0	0	0	0	1	373	35	40	
13:00	6	4	31	97	111	29	9	0	0	0	0	1	0	0	4	292	35	40	
14:00	2	5	24	105	146	61	9	2	0	0	0	0	0	0	4	358	37	40	
15:00	3	5	28	140	127	40	8	3	0	2	0	0	0	0	5	361	36	40	
16:00	4	14	34	155	153	45	10	2	1	0	0	0	0	0	10	428	36	41	
17:00	10	10	36	208	172	61	4	1	1	0	0	1	0	0	9	513	35	40	
18:00	4	6	40	153	148	39	5	1	0	0	0	0	0	0	9	405	35	40	
19:00	3	3	29	85	79	35	5	0	1	0	1	0	0	0	1	242	36	40	
20:00	4	3	22	102	88	20	7	1	0	1	0	0	0	0	1	249	35	40	
21:00	3	4	22	94	63	11	0	0	0	0	0	0	0	0	1	198	34	36	
22:00	1	0	17	62	52	11	4	0	0	0	0	0	0	0	0	147	35	39	
23:00	2	3	12	32	33	10	1	0	0	0	0	0	0	0	1	94	35	39	
Total	61	91	561	2131	1942	625	104	24	6	6	6	3	0	67	5627				
Percent	1.1%	1.6%	10.0%	37.9%	34.5%	11.1%	1.8%	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	1.2%					
AM Peak Vol.	11:00	09:00	10:00	11:00	07:00	09:00	10:00	07:00	01:00	11:00	08:00	07:00			08:00	11:00			
PM Peak Vol.	17:00	16:00	12:00	17:00	17:00	14:00	16:00	15:00	12:00	15:00	19:00	13:00			16:00	17:00			
	10	14	51	208	172	61	10	3	2	2	1	1			10	513			

Intermodal Engineering, P.C.
 3656 E. Stratford Road
 Virginia Beach, VA 23455
 757-464-5129

Page 4

Site Code: 511
 Station ID:
 Newport Ave
 7200 block

A to B																	Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	85th Percent	95th Percent	
06/21/07 15	0	1	6	21	23	7	2	0	0	0	0	0	0	0	0	60	35	39	
01:00	0	1	5	19	8	3	1	0	0	0	0	0	0	0	0	37	33	37	
02:00	0	0	1	13	9	1	0	1	0	0	0	0	0	0	0	25	34	36	
03:00	0	1	2	7	3	4	0	0	0	0	0	0	0	0	0	17	36	38	
04:00	0	0	2	6	10	2	0	0	0	0	0	0	0	0	0	20	35	36	
05:00	0	1	6	23	24	13	3	0	0	0	0	0	0	0	0	70	37	40	
06:00	2	1	6	57	63	25	6	2	1	0	0	0	0	0	0	2	165	38	42
07:00	2	4	11	92	112	48	12	2	0	0	0	2	0	0	0	2	287	38	42
08:00	2	2	26	124	146	47	6	3	0	0	0	0	1	0	0	3	360	36	40
09:00	7	7	36	119	115	27	4	0	1	1	0	0	1	0	2	320	35	39	
10:00	5	10	42	124	97	28	2	1	1	0	2	1	0	6	319	35	40		
11:00	4	9	29	135	112	40	5	2	0	0	0	0	0	4	340	35	40		
12 PM	8	7	32	158	158	46	6	0	1	1	0	0	0	6	423	35	40		
13:00	5	4	36	141	106	31	1	0	0	1	1	0	0	7	333	35	39		
14:00	7	6	36	97	131	39	8	3	1	0	0	1	0	1	330	36	40		
15:00	5	7	27	116	156	48	4	0	0	2	0	0	0	7	372	36	40		
16:00	4	7	28	158	177	45	7	2	0	0	1	0	0	3	432	35	39		
17:00	10	5	27	156	150	66	10	2	1	0	0	1	0	10	438	37	41		
18:00	3	4	36	139	133	40	4	2	0	0	0	0	0	4	365	35	39		
19:00	1	9	24	110	109	32	4	1	0	0	0	0	0	2	292	35	39		
20:00	6	2	34	125	76	20	3	0	0	0	0	1	0	3	270	35	39		
21:00	2	1	30	96	50	15	0	0	0	0	0	0	0	2	196	34	38		
22:00	0	1	17	54	57	11	1	1	0	0	1	0	0	0	143	35	38		
23:00	0	4	9	47	38	11	5	0	0	0	0	0	0	0	114	35	40		
Total	73	94	508	2137	2063	649	94	22	6	5	7	5	1	64	5728				
Percent	1.3%	1.6%	8.9%	37.3%	36.0%	11.3%	1.6%	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	1.1%					
AM Peak Vol.	09:00	10:00	10:00	11:00	08:00	07:00	07:00	08:00	06:00	09:00	07:00	08:00	09:00	10:00	08:00				
PM Peak Vol.	17:00	19:00	13:00	12:00	16:00	17:00	17:00	14:00	12:00	15:00	13:00	14:00		17:00	17:00				
	10	9	36	158	177	66	10	3	1	2	1	1		10	438				

A to B																	Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	85th Percent	95th Percent	
06/22/07	0	3	5	22	26	8	3	0	0	0	0	0	0	0	0	67	36	40	
01:00	0	0	4	12	11	5	1	0	0	0	0	0	0	0	0	33	36	39	
02:00	0	2	1	12	9	6	3	0	0	0	0	0	0	0	0	33	38	41	
03:00	0	0	3	3	4	2	1	0	0	0	0	0	0	0	0	13	36	37	
04:00	0	0	3	8	6	6	2	0	0	0	0	0	0	0	0	25	38	41	
05:00	0	0	7	25	35	10	3	2	0	0	0	0	0	0	0	82	37	41	
06:00	2	4	10	45	70	20	6	2	0	0	1	0	0	0	2	162	37	42	
07:00	2	4	13	80	125	42	6	1	0	0	0	0	0	1	2	276	37	40	
08:00	5	3	28	114	118	30	3	1	0	0	0	0	0	0	0	3	305	35	39
09:00	5	10	31	111	112	36	4	1	0	0	0	0	0	0	7	317	35	40	
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Total	14	26	105	432	516	165	32	7	0	0	1	0	1	1	14	1313			
Percent	1.1%	2.0%	8.0%	32.9%	39.3%	12.6%	2.4%	0.5%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	1.1%				
AM Peak Vol.	08:00	09:00	09:00	08:00	07:00	07:00	06:00	05:00					06:00		07:00	09:00	09:00		
PM Peak Vol.	5	10	31	114	125	42	6	2					1		1	7	317		

Grand Total 271 351 2042 8230 8149 2482 378 84 19 17 20 16 7 244 22310
 Percent 1.2% 1.6% 9.2% 36.9% 36.5% 11.1% 1.7% 0.4% 0.1% 0.1% 0.1% 0.1% 0.0% 1.1%

15th Percentile : 26 MPH
 50th Percentile : 31 MPH
 85th Percentile : 35 MPH
 95th Percentile : 40 MPH

Statistics 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 16379
 Percent in Pace : 73.4%
 Number of Vehicles > 25 MPH : 19646
 Percent of Vehicles > 25 MPH : 88.1%
 Mean Speed(Average) : 31 MPH

APPENDIX D
TECHNICAL NOTES

Notes on the source and preparation of data in the report:

FINDINGS FROM PREVIOUS NON-DRIVER REPORTS

Previous HRPDC reports in the non-driver series. Author on all is Robert Case.

- “Elderly and Handicapped Transportation in 2030, Part I: Improving Elderly Transportation Using the NHTS”, June 2005.
- “Non-Driver Transportation in 2030, Part II: Improving the Mobility of Non-Drivers Age 18-64 Using the NHTS”, November 2006.
- “Snapshot of Non-Drivers In Hampton Roads: Summary of HRPDC Non-Driver Phone Survey”, June 2007.
- “Improving the Mobility of Non-Drivers Using Proximity to Destinations and Bus Routes”, June 2007.

POPULATION

Source is 2000 Census block group data.

EMPLOYMENT DATA

Source for study area data is 2005, 2nd quarter (April-June) ES-202 data from the Virginia Employment Commission. Employment data for the 3 months was averaged. The percent retail by locality was from the Bureau of Economic Analysis.

COMMUTE DATA

The source for study area commute modes is 2000 Census Transportation Planning Package Part 1 data by tract and TAZ, Table 1-002, Sex by Means of Transportation to Work. The source for the locality commute modes is the 2000 Census Transportation Planning Package Place of Residence Profiles. For further information regarding commuting data in Hampton Roads, see the report “A Review of 2000 Census Commute Data for Hampton Roads” on the HPDC web site (www.hrpdcva.gov).

PARCEL, LANDUSE, and ZONING DATA

Data was provided by the GIS departments of the respective cities. The zoning data from Virginia Beach was not complete at the time of this study, and so there are a few parcels with no zoning indicated.

STREETS

The street location on the maps was provided by the GIS departments of the respective cities.

TRAFFIC COUNTS

The source of the traffic counts was the report “Average Daily Traffic Volumes for Major Roadways in Hampton Roads, 2001-2006”, as prepared by HRPDC staff and dated 2/23/07. It is a compilation of counts from VDOT (for Norfolk) and cities (Hampton and Virginia Beach).

NEWPORT AVE. SPEED DATA

Data was collected on 6/21/07 and 6/22/07 by Intermodal Engineering for the City of Norfolk. It was not collected specifically for this report.

SIDEWALK LOCATION

Sidewalk data along major streets was the result of fieldwork by the author.

SIDEWALK COST

VDOT staff provided a cost of \$110,000 per mile for a 5-foot sidewalk, citing the value as that used for the Statewide Planning Level Cost Estimate.

BICYCLE FACILITIES

Bicycle route information was taken from an inventory that is continually maintained by HRPDC staff. City ordinances regarding use of bicycles on sidewalks was retrieved from the respective city websites. Locations of bicycle racks were the result of field visits by the author.

BICYCLE RACK COSTS

All costs are based on data found at the "Pedestrian and Bicycle Information Center" web page (www.bicyclinginfo.org), accessed on 6/22/07. The inverted U cost was \$190 in 2003; adjusted for inflation (3.89%) results in approximately \$225. The upper end cost was chosen for the ten-bicycle rack (stated costs ranged from \$325 to \$780).

TRANSIT

Transit route locations were taken from maps on the Hampton Roads Transit (HRT) website (hrtransit.org) and GIS data provided by HRT staff. Stop locations were provided via GIS files from HRT staff. February 2007 ridership and in-service hours were provided by HRT. Information regarding the replacement of trolleys and NET service with universal shuttles was provided by HRT staff and from a July 11, 2007 Virginian Pilot article "HRT Proposes Universal Shuttle with Hybrid Buses" by Debbie Messina and Richard Quinn.

ACTIVITY LOCATION UNIT THRESHOLD

The graph of mobility versus the quantity of activity location units (alu's) on page 20 of "Improving the Mobility of Non-drivers Using Local Survey and GIS Data" indicates an increase in mobility with greater than 2,000 alu's.

OTHER CITY PLANS

"Greater Wards Corner Comprehensive Plan", adopted December 21, 2004.

"City of Hampton Community Plan", adopted February 2006.

"Coliseum Central Master Plan", adopted September 22, 2004.

"Virginia Beach 2003 Comprehensive Plan", adopted December 2, 2003.

"Laskin Road Corridor Plan", adopted June 27, 2000.