Route 460 Location Study

PURPOSE AND NEED

TECHNICAL REPORT

December 2004

Table of Contents

List of Tables

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

Route 460 is a primary east-west arterial highway that traverses the Commonwealth of Virginia. On the eastern side of the Commonwealth, Route 460 is a four lane, undivided arterial with posted speeds of 35 to 55 mph from I-295 in Prince George County to US 58 in Suffolk. This eastern segment of the route was built in the mid 1930s as a two-lane roadway. In the mid 1950s, two concrete outside lanes were added to the existing asphalt lanes, widening Route 460 to four undivided travel lanes. Since the widening, minor roadway improvements including some median turn lanes and new traffic signals have been implemented.

The Route 460 Location Study evaluates transportation improvements in the Route 460 study area from Interstate 295 (I-295) in Prince George County, southeast to US 58 in the City of Suffolk. In the study area existing Route 460 is approximately 52 miles in length and passes through portions of the counties of Prince George, Surry, Sussex, Southampton and Isle of Wight; the City of Suffolk; the incorporated towns of Waverly, Wakefield, Ivor, and Windsor; and the unincorporated communities of Disputanta and Zuni.

1.2 PROJECT BACKGROUND

Recent transportation planning efforts that identified Route 460 include a nationwide study of a new east coast to west coast transportation corridor entitled the TransAmerica Transportation Corridor Feasibility Study. The study was funded by the Intermodal Surface Transportation Efficiency Act (ISTEA) and completed in 1994. None of the alternatives advanced in the 1994 study were determined to be feasible, coast-to-coast. However, based upon a benefit cost analysis conducted at a state and regional level, higher end roadway alternatives (freeway design) were found to be feasible in some locations, including the section in Virginia.

Building upon the national study completed as a result of ISTEA authorization, the National Highway System Act of 1995 (NHS) directed and funded the analysis of a new roadway transportation corridor in West Virginia and Virginia. The NHS Act designated the communities to be linked by the corridor which included Beckley, West Virginia and the following locations in Virginia; Roanoke, Lynchburg, Petersburg and Virginia Beach. In 1997 and 1998, Route 460 was the subject of a joint Virginia Department of Transportation (VDOT) and West Virginia Department of Transportation (WVDOT) study known as the *TransAmerica Corridor Feasibility Study, Beckley, West Virginia to Hampton Roads, Virginia*.

On a state and regional level Route 460 was designated a high priority in the Virginia Transportation Act of 2000 (VTA 2000), is listed in both the Tri-Cities and Hampton Roads Metropolitan Planning Organizations' (MPO) Constrained Long Range Plans (CLRP) and is currently listed as a study in the Commonwealth of Virginia Six Year Plan, FY 2004 - 2010.

1.3 PURPOSE AND NEED ELEMENTS

The following needs have been identified for the project:

- Address roadway deficiencies: Route 460 has design and operational defiencies that cause safety and mobility problems. (see 1.3.1)
- Improve safety: Crash rates for Route 460 are higher than other rural principal arterial roadways in Virginia. (see 1.3.2)

- Accommodate increasing freight shipments: Truck percentages for Route 460 are significantly higher than national averages for rural roads with similar functional classification, and forecast to grow due to expansions at the Port of Virginia. (see 1.3.3)
- Reduce Travel Delay: Future traffic volumes will result in increased travel delays on Route 460 due to capacity limitations at traffic signals and the lack of access control. (see 1.3.4)
- Provide adequate hurricane evacuation capability: Route 460 is a designated hurricane evacuation route for Southside Hampton Roads communities, yet during two recent hurricanes, the road was closed due to effects caused by these storms. (see 1.3.5)
- Improve strategic military connectivity: Route 460 is a designated part of the Strategic Highway Network (STRAHNET) by the Department of Defense and FHWA. (see 1.3.6)
- Meet legislative mandate: Federal legislation as well as the Virginia Transportation Act of 2000 identified the roadway as a high priority corridor for improvement. Improvements to Route 460 are necessary to meet the intent of these acts. (see 1.3.7)
- Meet local economic development plans: Jurisdictions along the Route 460 study area have identified economic development priorities related to transportation improvements. (see 1.3.8)

1.3.1 Roadway Deficiencies

Route 460 has roadway deficiencies that result in numerous problems related to safety, accommodation of truck traffic, hurricane evacuation and military preparedness. Existing Route 460 does not comply with current VDOT design standards for roads of similar purpose and functional class. Functionally, Route 460 is classified a rural principal arterial. This classification is designated for roadways that provide substantial statewide or interstate travel, primarily between large urban populations (AASHTO). Route 460 fails VDOT design manual criteria for lane width, median width, left turn lane protection, shoulder width, clear zone protection and access control. Lane widths on Route 460 range from 10 to 11 feet, resulting in reduced capacity and constrained operations. Minimum lane widths of 12 feet provide safe and consistent vehicle operation and separation between multiple lanes and multiple classes of vehicles. Minimum 12-foot lane widths also benefit high-speed facilities where passing is necessary. Since existing Route 460 does not provide medians, there is no protection from oncoming traffic and no refuge area for turning vehicles. The lack of medians may contribute to the incidence of rear end collisions on Route 460. The lack of shoulders along existing Route 460 results in no safe haven locations for vehicle breakdowns and law enforcement. Additionally, the lack of clear zones adjacent to the travel lanes severly limits opportunities for vehicle recovery for travelers who leave the paved surface at a high rate of speed. Table 1.3-1 illustrates the differences between the existing typical conditions along Route 460 and VDOT's design guidelines for rural principal arterials. The lack of a median, clear zone and shoulders along most of the roadway is due primarily to the relatively narrow right of way. Between Providence Road (Route 604) in Suffolk and Windsor, the right of way is approximately 66 feet wide. West of Windsor, the right of way is approximately 80 feet wide.

Table 1.3-1
VDOT DESIGN CRITERIA COMPARISON FOUR LANE RURAL PRINCIPAL ARTERIAL

Design Criteria	Existing Route 460	VDOT Design Manual
Lane Width	10' to 11'	Minimum 12'
Median Width	No Median	Minimum 40'
Outside Shoulder Width - Graded	No Shoulder	10' to 13'
Outside Shoulder Width - Paved	No Shoulder	8'
Inside Shoulder Width - Paved	No Shoulder	3'
Clear Zone	No Clear Zone	30' – 34'

Sources: Parsons Brinckerhoff (existing conditions) and VDOT, "Road Design Manual, Vol.1"

In addition to the roadway deficiencies depicted above, the current lack of access control along Route 460 creates operational conflicts. Vehicles entering and exiting Route 460 via the many intersections, driveways, and curbcuts cause friction with faster-traveling traffic, resulting in safety problems and travel delays. The American Association of State Highway and Transportation Officials (AASHTO) recommends "access management" practices for arterial highways similar in function to Route 460:

> "Arterials are designed and built with the intention of providing better traffic service than is available on local roads and streets…One of the most important considerations in arterial development is the amount of access control, full or partial, that can be acquired. The ability to control access on an arterial will often relate directly to the project's safety….Provision of access management is vital to the concept of an arterial route if it is to provide the service life for which it is designed." (AASHTO)

1.3.2 Improve Safety

There are over 1,300 miles of four-lane roadways in Virginia functionally classified as a rural principal arterial. Only five percent of these roads are non-divided four lane roadways similar to Route 460 in the study corridor. The majority of rural principal arterials in Virginia (77 percent) are 4-lane divided roadways with no access control. Roadways with a four-lane undivided cross section usually have higher than average crash rates due to the lack of median control, limitations to access control, and the impact that turning vehicles have on slowing traffic flows and increasing crash potential. In addition, a high percentage of vehicles traveling on Route 460 are trucks. Larger vehicles operate less efficiently than standard passenger vehicles, increase roadway congestion, and increase accident severity.

Table 1.3-2 provides calculated crash rate comparisons between the various highway types functionally classified as rural principal arterials in Virginia. The crash rates are calculated as the number of crash types per 100 Million Vehicle Miles Traveled (MVMT). The data indicate that:

- The crash fatality rate in the Route 460 corridor (2.2 per 100 MVMT) is greater than other facilities statewide. It is 137 percent greater than the average of four-lane divided roadways with no access control, 157 percent greater than four lane divided roadways with partial access control, and is 220 percent higher than the average of non-Interstate four lane freeways in Virginia.
- The injury crash rate on Route 460 is greater than the other 4-lane rural principal arterials in Virginia. It is 107 percent greater than the average of four-lane divided roadways with no access

control, 149 percent greater than four lane divided roadways with partial access control, and is 164 percent higher than the average of non-Interstate four lane freeways in Virginia.

- The total crash rate for Route 460 is similar to the crash rate for a 4-lane divided facility with no access control; however, these rates are significantly higher than the total crash rates for 4-lane divided facilities with partial (121 percent higher) or full access control (143 percent higher).

Table 1.3-2
CRASH RATES COMPARISONS – STUDY AREA TO OTHER FACILITY TYPES

Crash Rates by Facility Type	Route 460 Study Corridor *	Rural Principal Arterials – Virginia Averages (2001)		
		4-Lane Divided No Access Control	4-Lane Divided; Partial Access Control	4-Lane Divided Full Access Control
# miles of Facility Type in VA	52	1,023	77	169
# Persons Killed (per 100 MVMT)	2.2	1.6	1.4	1.0
# Persons Injured (per 100 MVMT)	62.3	58.2	41.7	37.9
Total Crash Rate (per 100 MVMT)	77.7	83.1	64.2	54.1

* Route 460 in the study area represents approximately 65 percent of the 4-Lane undivided Rural Principal Arterial roadways in Virginia, therefore no comparison is made to the statewide average for undivided 4-Lane facilities.

There were 555 crashes along the corridor from 1999 to 2001. Of the 555 crashes documented by VDOT during the three-year analysis period, 76 crashes involved tractor-trailers (14 percent). However, approximately half of the fatal crashes in the Route 460 corridor involved tractor-trailers. Crashes involving tractor-trailers constituted approximately 28 percent of all property damage related to crashes.

Crash types that occurred include:

- Rear end collisions (29%),
- Collisions with fixed objects off the road (24%),
- Angle accidents (21%),
- Sideswipes (same direction of traffic) (7%),
- Jackknifes, overturned vehicles and ran off the road (7%),
- Deer collisions (6%),
- Sideswipes (opposite direction of traffic) (3%),
- Head-on collisions (1%),
- Fixed object in road (1%), and
- Other miscellaneous crashes (1%).

1.3.3 Accommodate Increasing Freight Traffic

Route 460 is an important shipping route and, therefore, carries a large amount of truck traffic (see Table 1.3-3). For corridor analysis, through trucks are measured near the mid-point of travel corridors, away from the effects of local truck shipments in metropolitan areas and major shipping points. Throughout Route 460, truck volumes currently range from approximately 2,600 to near 4,100 trucks per day, with

through truck volumes near 3,700. This correlates to between 18 percent and 34 percent of total vehicular traffic. By comparison, the national average truck composition for rural arterial highways is ten percent of total traffic (FHWA). As depicted in Table 1. 3-3, truck volumes along Route 460 are larger than and growing faster than on alternate routes such as Route 58 and Interstate 64. On Interstate 64, VDOT count data indicates that through truck trips (measured near the New Kent County / James City County line) have decreased both in total number and as a percentage of total ADT between 1990 and 2002.

Route 460 provides a link for seaport cargo and airfreight delivery between the ports and airports in both Hampton Roads and the Richmond - Petersburg Metropolitan Area. Waterborne freight shipments to, from, and within Virginia are projected to increase from 24 million tons in 1998 to 40 million tons by 2020 (FHWA). The majority of this freight will be arriving and departing from the ports of Hampton Roads. While some of this freight will be transported inland by rail (29 percent) and barge (12 percent), trucks (59 percent) will move a larger share (Virginia Port Authority). In response to these projected increases, two separate port facilities are planned for Portsmouth, Virginia. A.P. Moller / Maersk Group proposes a new container terminal in Portsmouth on the west side of the Elizabeth River. Additionally, the Port of Virginia has long-term plans to construct a new container terminal on the east side of Craney Island.

As a consequence of the increasing truck traffic on Route 460 and the geometric deficiencies identified in Section 1.3.1, operational problems have been identified by both car and truck drivers that travel on Route 460. During August 2003, public involvement meetings were held in two locations in the study corridor. Ninety-three comment sheets were returned after the meetings. When asked what transportation problems the public would like addressed by the study, the largest percentage of respondents (38 percent) indicated traffic, particularly related to trucks, was the most important concern. In September 2003, telephone interviews were conducted with transportation managers at several distribution and shipping facilities that use Route 460. Every manager contacted has experienced problems with their truck fleets using existing Route 460. Specific concerns mentioned included the undivided roadway, narrow travel lanes, the lack of left-turn protection, and the impact of delays due to crashes.

Table 1.3-3
CHANGE IN ANNUAL AVERAGE DAILY TRAFFIC (AADT) AND TRUCK TRAFFIC ON MAJOR ROUTES

Major Freight Routes	1990 Data			2002 / 2003 Data		
	Total AADT	Truck AADT	Percent Trucks	Total AADT	Truck AADT	Percent Trucks
I-64 (at New Kent County / James City County Line)	27,130	3,230	12	42,000	2,520	6
US 460 (at Rt 616 in Ivor)	9,700	2,037	21	11,100 *	3,770 *	34 *
US 58 (at Rt 653 in Capron)	7,355	1,755	24	13,000	2,080	16

Source: VDOT, Average Daily Traffic Volumes with Vehicle Classification Data on Interstate, Arterial and Primary Routes, 1990 and 2002

* Route 460 traffic counts conducted summer 2003

1.3.4 Reduce Travel Delays

Future traffic volumes will result in increased travel delays on Route 460 due to traffic signals and the lack of access control. Traffic forecasts for 2026 were based upon traffic growth and diversion of traffic from other facilities. The super-regional travel demand model (a combination of the Hampton Roads and Richmond regions' travel demand models) indicates annual traffic growth rates on Route 460 ranging from 1 percent to 2.5 percent. The 2026 forecasts also include diversion of traffic from other facilities such as Interstate 64 (I-64), Route 10, and Route 35.

To demonstrate the effect of future traffic volumes on travel times, Synchro 5.0 software modeled both existing and future travel times through the 52-mile Route 460 corridor. The Synchro model includes the computation of traffic signal delays (including deceleration time, stopped time, and acceleration time) at each traffic signal location. In addition to the twelve existing traffic signals, a scenario with five new traffic signals (17 total) was modeled for the future year. This scenario was considered conservative considering projected development along Route 460 (called for in future land use plans) and recent trends in the eastern portion of the study area (three new traffic signals have been installed since 2001). The travel time simulation was conducted for the PM peak period in the westbound travel direction.

Synchro 5.0 does not account for another cause of travel delay—lack of access control. The unsignalized driveways and access roads located along Route 460 create operational conflicts between through traffic and local traffic that result in additional travel delays. As discussed in section 1.3.1, rural principal arterials roadways are intended to provide some level of access control. The Highway Capacity Manual (HCM) provides estimates for the reduction of free-flow speed attributable to a lack of access control along a roadway (Highway Capacity Manual). The reduction ranges between 2.5 and 10 mph depending on the density of access points (curb cuts per mile of roadway). To assess the affect of these access points on travel speeds, existing Route 460 driveways and access points were identified using digital orthophotography, and the HCM methodology was applied. (Digital orthophoto data was collected in 2002 for the Virginia Base Mapping Program (VBMP) of the Virginia Geographic Information Network (VGIN)). Table 1.3-4 summarizes the results of the travel time comparison. Forecasted travel time increases from 71 minutes to 79 minutes from existing conditions to Year 2026. The eight additional minutes required to travel from Route 58 to I-295 in the forecast year represents an increase of 11 percent, and a reduction in average travel speed from 42 mph to 38 mph. No assumption was made to estimate the future number of curb-cuts and access points along Route 460, and therefore the "future PM Peak" scenario includes the same number of access points as the existing conditions.

Table 1.3-4
WESTBOUND TRAVEL TIME COMPARISON

Scenario	Total Travel Time	Average Travel Speed
Existing PM Peak	71 minutes	42 mph
Future PM Peak	79 minutes	38 mph

1.3.5 Provide Adequate Hurricane Evacuation Capability

Route 460 is a primary route for motorists evacuating from the threat of a hurricane and is signed as a designated "Hurricane Evacuation Route". Data from the Hurricane Emergency Response Plan indicates that the total number of people evacuating dwelling units south of the Hampton Roads Bridge Tunnel ranges from 103,200 to 421,000 (see Table 1.3-5). The number of vehicles evacuating from these dwelling units ranges from 41,300 to 151,700. These figures do not include the employment based population and freight operations that may also be evacuating during an emergency. Additionally, these

figures do not include the residents and tourist populations for northeastern North Carolina, including portions of the Outer Banks that will evacuate using Route 168 in Chesapeake.

According to the plan, Southside Hampton Roads residents are directed to use Interstate 64 and Route 460 for hurricane evacuation. Norfolk and Virginia Beach residents located north of Interstate 264 are directed to use Interstate 64 for hurricane evacuation. All of Chesapeake and Suffolk, and parts of Norfolk and Virginia Beach are directed to use Route 460 as a hurricane evacuation route.

Despite Route 460's important role for hurricane and emergency evacuation, the roadway is susceptible to the effects of severe weather. During recent major storms and hurricanes, Route 460 was closed for extended periods. The most recent closure occurred on September 18, 2003 due to Hurricane Isabel. Travel lanes were blocked between Route 40 and Route 604 due to the effects of heavy winds, including downed trees and power lines. The roadway re-opened after debris was cleared. As listed in Table 1.3-1, existing Route 460 has a narrow right-of-way which does not provide either a clear zone or shoulders adjacent to the travel lanes. The narrow right-of-way contributed to the amount of storm debris blocking the travel lanes during Hurricane Isabel. On September 16, 1999 heavy rainfall from Hurricane Floyd caused extreme flood conditions along the Blackwater River, resulting in the river cresting about nine feet above the surface of the roadway just west of Zuni. Route 460 was closed to through traffic for nearly a week due to the flooding.

Table 1.3-5
EVACUATION AND CLEARANCE TIMES FOR SELECT HAMPTON ROADS JURISDICTIONS

Jurisdictions	People Evacuating Dwelling Units		Vehicles Evacuating Dwelling Units		Clearance Times (Hours)	
	Low	High	Low	High	Low	High
City of Chesapeake	6,858	48,408	2,770	19,510	3	11 ¼
City of Norfolk	47,249	179,431	14,530	54,840	7 ¾	22
City of Portsmouth	500	60,238	179	21,320	3 ¼	9 ¼
City of Suffolk	3,522	3,522	1,330	1,330	4	15 ½
City of Virginia Beach	45,091	129,448	22,510	54,655	8 ½	26 ¾
Total	103,220	421,047	41,319	151,655	N/A	N/A

Source: Virginia Emergency Operations Plan, Hurricane Emergency Response Plan, August 2001

1.3.6 Improve Strategic Military Connectivity

The Hampton Roads region includes numerous important military installations, including the Norfolk Naval Station, Oceana Naval Air Station, Fort Monroe (U.S. Army), Langley Air Force Base, and Little Creek Naval Amphibious Base. Fort Lee (U.S. Army) is located near Petersburg. Together these installations are vital to the nation's defense.

Due to the importance of highway transportation for mobilizing the nation's military, the FHWA, in partnership with the Department of Defense, has identified highways and connecting roadways that create a Strategic Highway Corridor Network (STRAHNET). The STRAHNET is a system of about 61,000 miles of inter-connected highways, including the Interstate System. An additional 2,000 miles of

STRAHNET Connectors link important military installations and ports. Together, STRAHNET and the Connectors define the total minimum public highway network necessary to support Department of Defense deployment needs and sustain military preparedness. As part of the STRAHNET system, Route 460 (from I-95 to US 58) performs a critical role in preserving the nation's security and military preparedness by connecting the many military facilities located in Hampton Roads with the interstate system and the military facilities near the Petersburg/Richmond area.

The Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) is responsible for the use of transportation facilities by the military, and identified the STRAHNET system. One of the MTMCTEA's missions related to highway systems is "Identify the minimum public highway infrastructure that DOD needs to fulfill its mission; then integrate these public highway needs into civil policies, plans and programs"(MTMCTEA Highway Systems). All non-interstate roadways that are part of the STRAHNET such as Route 460 are part of the National Highway System, and therefore should follow design guidelines based upon the functional classification of the roadway. As indicated in Section 1.3.1, Route 460 currently does not meet design standards for a rural principal arterial highway.

1.3.7 Meet Legislative Mandate

Two Congressional acts and one state act support study and investment in the Route 460 corridor. These acts have directed improvements to the Route 460 corridor by identifying the corridor as a high priority corridor and providing funding for feasibility studies.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 was the federal transportation legislation for the period of 1991 through 1997. The "East-West Transamerica Corridor" is identified in Section 1105(c) (3) of ISTEA as a "National Highway System high priority corridor". The purpose of designating such corridors in the legislation is to:

> "identify highway corridors of national significance; to include those corridors on the National Highway System; to allow the Secretary, in cooperation with the States, to prepare long-range plans and feasibility studies for these corridors; to allow the States to give priority to funding the construction of these corridors; and to provide increased funding for segments of these corridors that have been identified for construction" (Intermodal Surface Transportation Efficiency Act of 1991).

The National Highway System Designation Act of 1995 officially designated the NHS. In section 332, the Act defined the TransAmerica corridor as "...commencing on the Atlantic Coast in the Hampton Roads area going westward across Virginia" (National Highway System Designation Act of 1995). The Act also directed the Secretary of Transportation, "in cooperation with the States of Virginia and West Virginia, to "…conduct a study to determine the feasibility of establishing a route for the East-West TransAmerica CorridoThe Virginia Transportation Act of 2000 (VTA) established a Priority Transportation Fund, identified sources to fund the Priority Transportation Fund, and designated specific roadway improvement projects across the Commonwealth to be funded by the VTA or other available funding sources. Within the Suffolk (now Hampton Roads) District of VDOT, the Act listed "regional Route 460 improvements" and allocated $25 million for the improvements.

In addition to these federal and state legislative actions, local governments along the corridor have included improvements to Route 460 in their comprehensive plans, and/or supported the project via resolutions passed by the Board of Supervisors. These jurisdictions include: Prince George County, Surry County, Sussex County, Southampton County, Isle of Wight County and the City of Suffolk.

1.3.8 Meet Local Economic Development Goals

Localities along the Route 460 study area have identified economic development priorities related to transportation, and in some instances have made specific mention of Route 460 as part of their economic

development plans. A summary of various economic development goals as listed in comprehensive plans or in economic development plans is provided in the following sections.

The City of Suffolk adopted its 2018 Comprehensive Plan in March 1998. The Comprehensive Plan acknowledges the need for upgrading Route 460 to a limited-access highway. As such, the Plan calls for immediate action: "Unless right-of-way and access rights are purchased now, the opportunity to upgrade Route 460 could be lost, or it will become costly" The Plan states that Route 460 is a vital connector used for regional goods movement and some commuting movement to the Eastern portion of Hampton Roads (City of Suffolk, Virginia, 2018 Comprehensive Plan).

Isle of Wight County adopted a new Comprehensive Plan in 2001. The County has identified three "Development Services Districts" (DSDs) to provide for moderate growth over the next twenty years (County of Isle of Wight Comprehensive Plan). As a means to provide improved infrastructure to the Windsor DSD, the County Board of Supervisors passed a resolution in support of a "new limited access road in close proximity to the existing Route 460 corridor" (County of Isle of Wight, Board of Supervisors Resolution). According to the County's Director of Economic Development, "The Route 460 corridor represents the short term and intermediate future of economic development potential for our community. Longer term it represents the key to the diversification of our corporate employment and tax base" (Memorandum from Patrick J. Small, CED (Director of Economic Development) to W. Douglas Caskey (County Administrator). Re: Route 460 – Modified Study Area. October 9, 2003).

In its most recent comprehensive plan, Southampton County states that it needs a diversed economic base less reliant upon agriculture and forestry (paper and wood products). The plan cites the need to attract prospective industries with "accessibility to major thoroughfares, access to rail, and the availability of public water and sewer" (County of Southampton, Virginia, 2000 Comprehensive Plan Update). Surry County's Land Development Plan states, "industrial development will be a prime factor" in the County's future economic well-being and states the county is committed to intercounty access (Land Development Plan, Surry County, Virginia).

Sussex County recognizes Route 460 as an economic generator. In its Comprehensive Plan Update, the County recommends either commercial or industrial site development along Route 460. Commercial centers are currently along Route 460, mostly within the town limits of Wakefield and Waverly. The County Comprehensive Plan also recommends two stretches of Route 460 for commercial sites: from the north boundary of the town of Waverly through the town to State Road 614, and from the south boundary of the town of Wakefield to the Southampton County line. Industrial sites are recommended from State Road 602 through the southern boundary of Waverly, from State Road 614 to the northern boundary of Wakefield, and from the southern boundary of Wakefield to the Southampton County line (County of Sussex, Virginia. 1997 Comprehensive Plan Update).

Prince George County updated the Comprehensive Plan in May 1999. Included in the Land Use Plan is the statement that "Commercial and Industrial activities can be expected to develop in areas of the County adjacent to major interchanges and along U.S. Route 460" (County of Prince George, Virginia, Comprehensive Plan Update). Additionally, the County has designated an Enterprise Zone that provides special incentives to industries that locate there. The Enterprise Zone covers approximately 6 square miles, and includes the interchange of Interstate 295 and Route 460, as well as the entire Route 460 corridor within the County (County of Prince George, Virginia, Comprehensive Plan Update). The Comprehensive Plan also recommends reconstruction of Route 460 within the boundary of the Tri-Cities Area MPO.

References

American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets", 2001.

FHWA, Office of Highway Information Management, Highway Statistics Series 1995, Washington, D.C.: FHWA, USDOT, 1996.

U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations (http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/VA3.pdf)

Transportation Research Board, "Highway Capacity Manual", 2000. p. 21-7, exhibit 21-7: Access-Point Density Adjustment.

Digital orthophoto data was collected in 2002 for the Virginia Base Mapping Program (VBMP) of the Virginia Geographic Information Network (VGIN).

MTMCTEA Highway Systems website: www.tea.army.mil/dodprog/hnd/systems.htm

Intermodal Surface Transportation Efficiency Act of 1991, Section 1105 (b)

National Highway System Designation Act of 1995, Section 332(a)(1)(A)

National Highway System Designation Act of 1995, Section 332(b)(2)

City of Suffolk, Virginia, 2018 Comprehensive Plan, Volume One: The Plan. Prepared by LDR International, et al. Adopted March 25, 1998

County of Isle of Wight Comprehensive Plan. Adopted June 21st 2001.

County of Isle of Wight, Board of Supervisors Resolution. August 7, 2003

County of Southampton, Virginia, 2000 Comprehensive Plan Update, "Vision 2020". Prepared by Landmark Design Group. Adopted August 27, 2001.

Land Development Plan, Surry County, Virginia. Adopted November 21, 1974

County of Sussex, Virginia. 1997 Comprehensive Plan Update. Prepared by William C. Overman Associates. Adopted November 20, 1997

County of Prince George, Virginia, Comprehensive Plan Update. Adopted May 25, 1999.