# Stuart 2020 Transportation Plan

Developed by the

Transportation Planning Division

of the

Virginia Department of Transportation

in cooperation with the

U.S. Department of Transportation, Federal Highway Administration

and the

Town of Stuart

November 2002

This report does not constitute a standard, specification, regulation or provide a funding mechanism for the included transportation recommendations.

# Stuart 2020 Transportation Plan

## INTRODUCTION

The *Stuart 2020 Transportation Plan* (the Plan) was developed as a cooperative effort between the Federal Highway Administration, Virginia Department of Transportation (VDOT) and the Town of Stuart. The Plan is the product of a study that evaluated the transportation system in Stuart and recommended a set of transportation improvements to best satisfy existing and future transportation needs. The study identified needs based on capacity, safety, and engineering aspects of the transportation system.

Effective transportation systems are essential to continued local and statewide economic growth and development. Providing safe, effective, and efficient movement of people and goods is a basic goal of all transportation programs in Virginia. It is with this basic goal in mind, and with further consideration of environmental issues and local transportation objectives, that this Plan was developed.

VDOT will use this Plan when evaluating requests from the Stuart local government for specific transportation projects, and when implementing projects on the VDOT-maintained roadway system. The recommendations in this *Stuart 2020 Transportation Plan* will also be used as part of the VDOT statewide transportation planning process to ensure that local transportation projects are compatible with and support transportation improvements both statewide and in neighboring localities.

## STUDY AREA AND THOROUGHFARE SYSTEM

Stuart is located in Patrick County, on the mountainous eastern slope of the Blue Ridge Mountains in Virginia. The county also helps form the southern boundary between Virginia and North Carolina. The town is nestled in the Blue Ridge foothills, where U.S. Route 58 and Virginia Highway 8 converge, and covers an area of approximately 472 acres. Historically, Stuart has functioned as a commercial hub for the surrounding agricultural community. Today, the local economy is sustained by the manufacturing, lumber, and textile industries.

The study area for this transportation plan coincides with the corporate limits of the Town of Stuart. As part of the analysis of transportation operations and needs performed for the study, however, connectivity to facilities in surrounding Patrick County and potential extension of improvements into the county were also investigated.

A subset of the town's roadway network is designated by VDOT, the Federal Highway Administration, and the Town of Stuart as the urban thoroughfare system. The thoroughfare system includes roads that are functionally classified as collectors or arterials. Arterial roads serve as the major traffic-carrying facilities in the area. Collector roads carry a lesser volume of traffic and feed traffic to the arterial roadways. The focus of the *Stuart 2020 Transportation Plan* is this thoroughfare system. The recommendations that were developed as part of the study process were limited to existing thoroughfares and/or recommendations for new thoroughfares. In addition to roadways, improvements to the following aspects of the transportation system have been evaluated as part of this study: parking; bicycle and pedestrian facilities; intercity rail, bus, and air; transit and paratransit; taxi; and the movement of goods.

## DEMOGRAPHIC OVERVIEW

The population of Stuart has remained level over the past 10 years. The 1990 US Census showed a population of 965 in 1990, while the 2000 US Census showed a population of 961. Based on population

trends as well as input from local officials, the town's population is expected to remain relatively stable through the 20-year horizon of this study, with a nominal projected growth of approximately 0.5% per year.

The primary industries in Stuart relate to manufacturing and lumber. The town is home to International Paper, Stuart Flooring, CMI Industries, and Elastotec. Spokesmen for each company expect the number of jobs with each of these local employers to remain steady for foreseeable future.

## SUMMARY OF APPROACH AND ANALYSIS METHODS

This transportation plan was developed as part of a structured approach with five basic components:

- Data Collection
- Forecasting of Future Traffic Demands
- Development of Recommendations to Meet Existing and Future Transportation Needs
- Coordination with Stuart Citizens and Government Officials
- Environmental Overview and Plan Documentation

Recommendations for the *Stuart 2020 Transportation Plan* are based on a comprehensive review of the capacity, safety, and geometry of the roadway system, as well as on other issues that affect the area's transportation system, such as parking, other modes of transportation, and goods movement.

The transportation system recommendations for Stuart are divided into three phases. Phase One recommendations apply to existing deficiencies and the most immediate transportation needs of the area. Phase Two recommendations apply to transportation improvements needed by the interim year 2010, and Phase Three recommendations are long-term projects needed by 2020.

## PHASE ONE: BASE YEAR (2000) RECOMMENDATIONS

The study identified current deficiencies in the Stuart transportation system. Potential deficiencies in the existing transportation system included traffic flow and safety concerns, parking, and goods movement by truck. One project was identified as a short-term, immediate improvement and is described below.

### Intersection of North Main Street (Route 1009) and Blue Ridge Avenue (US Route 58)

Improve the turning radius in the southeast quadrant of this intersection to correct the poor sight distance due to steep grades at this intersection. This recommendation will also allow truckers to navigate this intersection more easily.

## PHASE TWO: INTERIM YEAR (2010) RECOMMENDATIONS

The interim year recommendations include projects that are intended to correct existing deficiencies but, based on projected costs and potential impacts, would require a number of years to plan and fund.

### Extension of the Route 58 Connector

At the time of the development of the *Stuart 2020 Transportation Plan*, a connector road from the Route 58 Bypass to South Main Street north of the Mayo River was funded for project development in VDOT's Six-Year

Program (FY 2002-FY 2008). This interim-year recommendation is to extend the connector road south across the Mayo River and tie into Route 8 south of the corporate limits. This new crossing of the Mayo River would bypass the congested existing bridge as well as the intersection of South Main Street, Patrick Avenue, and Commerce Street.

### Intersection of North Main Street (Route 1009) and Dobyns Road (Route 631)

Improve the turn radius in northwest quadrant of this intersection to correct existing geometric deficiencies. Safety at the existing intersection is compromised by the steep grade of Main Street as well as sight distance concerns. The intersection is particularly problematic for trucks.

## PHASE THREE: FUTURE YEAR (2020) RECOMMENDATIONS

The Phase Three recommendations are intended to improve traffic operations in Stuart's commercial district where South Main Street, Patrick Avenue, and Commerce Street intersect. While the extension of the Route 58 Connector across the Mayo River is anticipated to divert some traffic from this intersection and the existing bridge crossing, improvements will still be needed in this southern commercial district within the 2020 time frame.

### Intersection of South Main Street, Patrick Avenue, and Commerce Street

Construct a right-turn lane on the northbound approach in conjunction with reconstruction of the Mayo River Bridge (described in the next paragraph). Route 8 (Patrick Avenue) carries some of the highest levels of traffic in Stuart. These high volumes, when combined with the configuration of this intersection, create considerable congestion, particularly during the evening peak period when the Patrick County High School dismisses. Analysis of police reports for the previous three years shows that this intersection is also a high-accident location.

### Mayo River Bridge

Reconstruct the bridge. Coordinate with improvements to the intersection of South Main Street, Patrick Avenue, and Commerce Street to provide sufficient bridge width for the northbound right-turn lane.

## OTHER MODES AND GOODS MOVEMENT

In developing the *Stuart 2020 Transportation Plan*, all modes of travel were considered. Either within the town itself or within an area of reasonable accessibility, Stuart residents can travel by transit, air, rail, bus, and walking. While fixed-route transit service is not provided, paratransit service is available for senior citizens and disabled citizens. Operated by Patrick County, this paratransit service operates with four vans that transport patrons to medical appointments and provide transportation to meal sites. Because most residents of the town and its surrounding environs are employed locally, ridesharing programs are not applicable. There has been no taxi service in Stuart for over a decade and no inter-city bus service since the 1960s. However, inter-city bus service is available through the Greyhound station in Martinsville, 20 miles to the east. The closest passenger rail service is the Amtrak station, 50 miles to the east in Danville.

The small, privately operated Blue Ridge Airport is the closest airport to Stuart, located approximately 15 miles east on US Highway 58. The facility provides general aviation service to its customers with one 5000-foot asphalt runway and typically handles 30 to 50 operations per day. The two closest commercial airport facilities are in Greensboro, 50 miles to the southeast, and Roanoke, 50 miles to the north.

Stuart has neither bicycle facilities nor bicycle lanes on its streets. According to local officials, there is very little demand for bicycle riding in the town. In addition, low traffic volumes on most streets allow for bicycle travel on the roadway system. Pedestrian facilities for those areas of town with pedestrian demand have recently been expanded by a Town-sponsored streetscape enhancement project. The project widened existing segments of sidewalk within the North Main Street commercial district and replaced 1,500 to 1,800 linear feet of sidewalk along Patrick Avenue. Continued monitoring of pedestrian demand, safety, and opportunities to provide improved connectivity in the pedestrian system are recommended.

While the shipment of goods and raw materials for industries in Stuart is accomplished primarily by truck, local interviews indicate that there are some exceptions. CMI Industries occasionally uses air freight to ship goods and Elastotec estimates that it uses air freight once per month. For Stuart Flooring and International Paper, the nature of the company's goods makes it heavily reliant upon trucks. Using container trucks, Stuart Flooring does however use rail for long distance shipping of finished products and delivery of some raw materials. Because Stuart is not served directly by rail or air freight service, connections to each of these modes is via truck. This Plan makes no recommendations regarding goods movement.

## LOCAL PROJECTS

The $1.3 million streetscape enhancement project conducted by the Town in 2000 and 2001 provided much-needed infrastructure improvements. The project was primarily financed with a $700,000 Community Development Block Grant from the Commonwealth and $150,000 from funds allocated through the Transportation Equity Act for the 21st Century (TEA-21). The remaining costs of the project were paid with local funds. The project involved such streetscape improvements as the addition of new streetlights, benches and trash receptacles; sidewalk widening and repair; facade enhancements; and new stormwater and sewer lines. The following two recommendations also were identified as local projects:

### Mayo Court (Route 1001) and Staples Avenue (Route 1010)

Implement truck restrictions in order to alleviate safety concerns along these residential streets. The improvement includes the installation of road signs directing trucks to alternative routes through town.

### North Main Street (Route 1009)

Investigate the feasibility and benefits of converting angle parking on North Main Street to parallel parking.

## ENVIRONMENTAL OVERVIEW

An environmental overview was conducted for the projects recommended in the *Stuart 2020 Transportation Plan*. No environmental features were identified in Stuart that would preclude the implementation of any of the included recommendations.

## LOCAL COORDINATION AND CITIZEN PARTICIPATION

The development of the *Stuart 2020 Transportation Plan* included coordination meetings with Town staff and a public meeting held with VDOT representatives, Town officials, and Stuart residents.

The three coordination meetings held for this study were: (1) a kick-off meeting and (2) an existing conditions

meeting and (3) a draft recommendations meeting. The kick-off meeting, held in April 1999, enabled the project team to discuss the purpose and scope of the study, the schedule for data collection and plan preparation, and the coordination process. At the second meeting (existing conditions), held in September 2000, the project team presented the results of the base year and horizon year traffic analysis and discussed potential projects to meet projected transportation needs. A draft set of transportation improvements was reviewed with Town officials and VDOT representatives through a series of phone conversations and electronic mail correspondences in March 2001.

A public meeting was held on Wednesday, September 18, 2002 in the Stuart Town Hall to present the draft transportation plan to Town officials, citizens, and other interested parties. Meeting participants were invited to provide comments on the draft Plan that were considered in the development of the final *Stuart 2020 Transportation Plan*.

## PLAN ADOPTION

The Stuart Town Council voted to adopt the *Stuart 2020 Transportation Plan* on November 20, 2002.

## ADDITIONAL INFORMATION

Detailed information on the development of the *Stuart 2020 Transportation Plan* and the study recommendations will be included in the *Stuart 2020 Transportation Plan Technical Report*. This document will be available for review at the Stuart Town Hall. The technical report will also be available in Richmond at the central office of VDOT's Transportation Planning Division, the VDOT Richmond District office in Colonial Heights, and the VDOT residency office in Martinsville.

Projects included in the VDOT Six-Year Program are not part of the *Stuart 2020 Transportation Plan*. The Six-Year Program can be reviewed online at http://www.VirginiaDOT.org.

Information on the Six-Year Program can also be found by contacting the VDOT Resident Engineer at the Martinsville Residency Office in Martinsville, Virginia (540-483-5262).

# Stuart 2020 Transportation Plan

| Route | Facility Name | From | To | Road Segment Length | Recommendation | Estimated Cost [1] | Existing Typical Section | Recommended Typical Section | Average Daily Traffic | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Year 1999 | Year 2010 | Year 2020 |
| VA T-1009, U.S. 58 | Intersection of N. Main Street and Blue Ridge Avenue | | | N/A | Improve turn radius in southeast quadrant of intersection. | $38,000 [2] | N/A | N/A | N/A | N/A | N/A |
| | US 58 Connector Extension | US 58 Connector | VA 8 at South Corporate Limits | 0.20 | Extend U.S. 58 Connector on new alignment across Mayo River, includes cost for new bridge. | $2,700,000 [3] | N/A | U4 | N/A | N/A | 8,000 |
| VA T-1009, VA T-631 | Intersection of Main Street and Dobyns Road | | | N/A | Improve turn radius in northwest quadrant of intersection. | $50,000 [4] | N/A | N/A | N/A | N/A | N/A |
| VA 8, VA T-631, VA T-681 | Intersection of Main Street, Patrick Avenue, and Commerce Street | | | N/A | Add right-turn lane on northbound approach in conjunction with reconstruction of bridge over the Mayo River. | $111,000 [5] | N/A | N/A | N/A | N/A | N/A |
| VA 8 | Mayo River Bridge | | | 0.04 | Reconstruct bridge. Coordinate with improvements to intersection of Main Street, Patrick Avenue and Commerce Street to provide sufficient bridge width for northbound right-turn lane. | $1,260,000 [6] | U2 | U3 | 10,300 | 12,900 | 7,700 [10] |
| VA T-1001, VA T-1010 | Mayo Court and Staples Avenue | Dobyns Road | Blue Ridge Street | N/A | Institute truck restrictions. Install signs. | $2,000 [7] [9] | N/A | N/A | N/A | N/A | N/A |
| VA T-1009 | North Main Street | Rye Cove Street | Blue Ridge Street | N/A | Study parking and traffic impacts of converting angle parking to parallel parking. | $10,000 [8] [9] | N/A | N/A | N/A | N/A | N/A |
| | | | ESTIMATED TOTAL THOROUGHFARE SYSTEM COST | | | $4,159,000 | | | | | |

Notes:

[1] The cost estimates included in this table are planning-level costs in year 2000 dollars. These cost estimates are based on statewide unit cost averages and should be used for planning purposes only. Actual construction and right-of-way costs may vary based on local conditions.

[2] Assumes a unit cost for improving turning radius of $25,000, with an additional 50 percent for right-of-way and utilities.

[3] The unit cost for an urban 4-lane roadway is assumed to be $4.8 million per mile, with an additional 50 percent for right-of way and utilities.

[4] Assumes a unit cost for improving turning radius of $25,000, with an additional 100 percent for right-of-way and utilities.

[5] Includes pavement reconfiguration and changes to signal system.

[6] Assumes a cost of $105 per square foot plus 50 percent for right-of-way and utilities.

[7] Cost estimate covers truck restriction signage at $500 per sign, including installation.

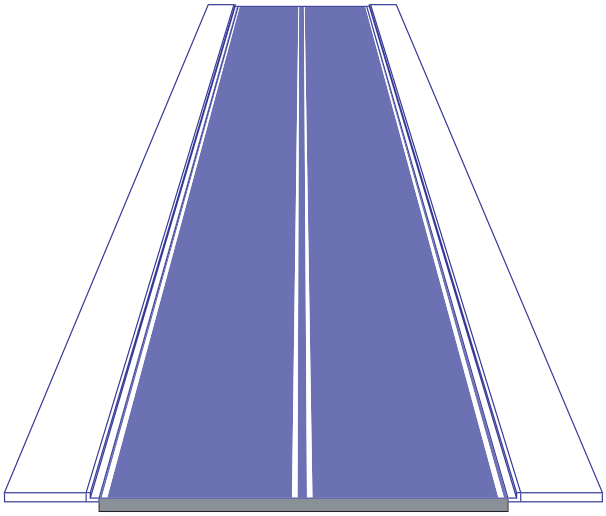
[8] Cost estimate is to perform study only.

[9] Local project cost estimates are provided for informational purposes only, and are not included in the total cost.

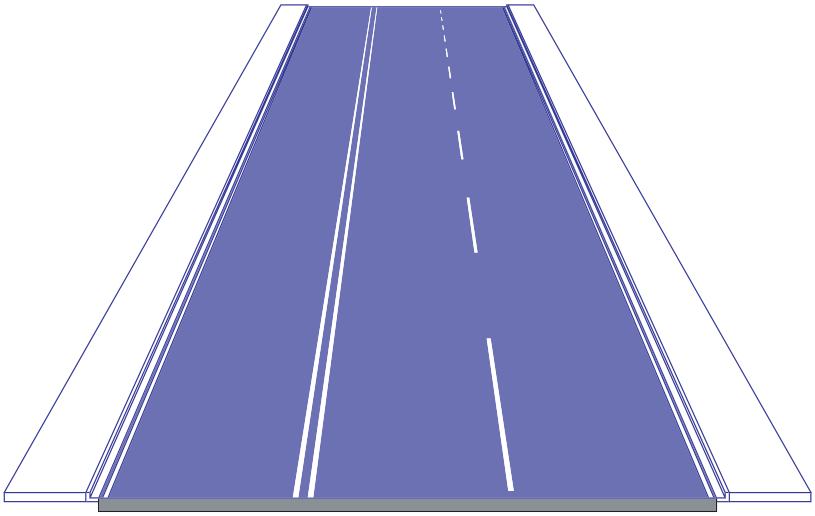
[10] Assumes that the US 58 Connector is constructed.

N/A -- Not applicable

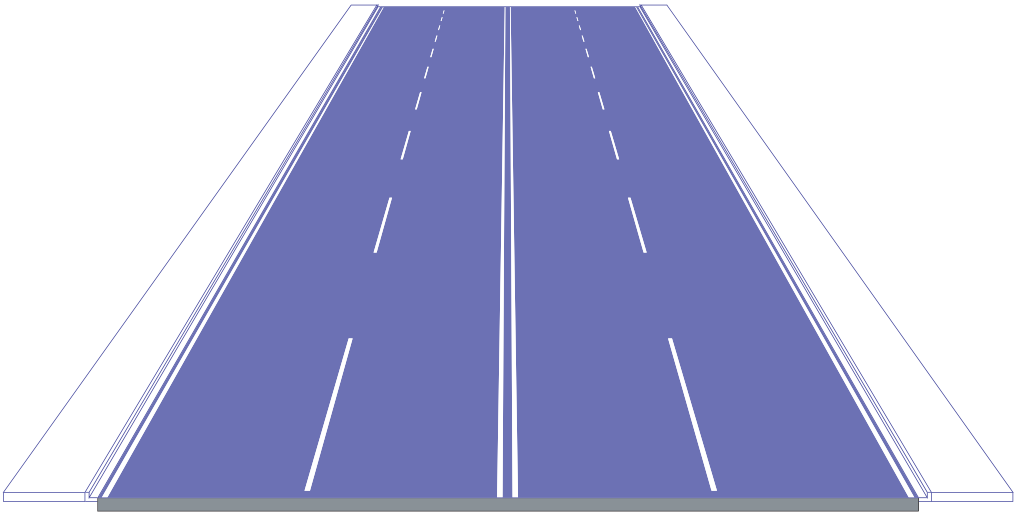
## TYPICAL SECTIONS



*U2*
Urban two-lane roadway with curb and gutter



*U3*
Urban three-lane roadway with curb and gutter



*U4*
Urban four-lane roadway withcurb and gutter

Unless right-of-way considerations preclude their inclusion, sidewalks are recommended on both sides of these urban roadways.