



Lexington 2020 Transportation Plan

Developed for the
Transportation Planning Division

of the

Virginia Department of Transportation

in cooperation with the

U.S. Department of Transportation, Federal Highway Administration

and the

City of Lexington

October 2003

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INTRODUCTION

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

Effective transportation systems are essential to continued economic growth and development in the Lexington region as well as Virginia as a whole. 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 Lexington local government for specific transportation projects, and when implementing projects on the VDOT-maintained roadway system. The recommendations in this *Lexington 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

Lexington, the county seat of Rockbridge County, is located in the Shenandoah Valley in west-central Virginia. Lexington is approximately 45 miles north of Roanoke, 140 miles west of Richmond, and 190 miles southwest of Washington, D.C., and is home to many state and national historic landmarks. The city serves as the retail, service, governmental, and educational center for the area.

Lexington was established in 1778, and was named by the Virginia legislature after the Battle of Lexington, which was fought in Massachusetts in 1775. The community was incorporated in 1841. In 1860, the city was connected by water to Richmond via the James River, the Maury River, and a network of canals, and served as an important port into the late 1800s. The city was raided during the Civil War by Union forces, and Virginia Military Institute (VMI) was burned in retaliation for the VMI cadets' participation in the Battle of New Market.

The addition of major shopping centers both inside Lexington and to its north on Route 11 has changed the character of the retail trade within its boundaries. Once containing the staples of 19th-century commerce, Lexington's downtown is now a collection of shops and restaurants housed in restored buildings with brick sidewalks and old-fashioned lantern street lamps that serve the many visitors and tourists who visit the city.

The service industry, manufacturing, and educational institutions provide Lexington with a majority of its jobs. Most of the Lexington work force is employed locally at one of several small manufacturing plants, one of two educational institutions or in the rapidly growing tourism industry.

A subset of the city's roadway network is designated 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 Lexington 2020 Transportation Plan is the thoroughfare system, but local streets were analyzed as well. Also, in addition to roadways, improvements to the following other modes of transportation have been evaluated as part of this study: parking; bicycle and pedestrian facilities; intercity rail, bus, and air travel; transit and paratransit; taxi; and the movement of goods.

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DEMOGRAPHIC OVERVIEW

In the last U.S. Census conducted in 2000, the population of the City of Lexington was recorded as 6,867. This represents a slight drop from the city's 1990 population of 6,959. Based on input from local officials, the city's population is expected to increase slowly through the 20-year horizon of this study.

The primary industries in the Lexington area relate to education. Virginia Military Institute and Washington and Lee University are both located near the city's central business district, and are the city's major private employers. Representatives from both institutions predicted that employment will remain relatively stable through the 2020 horizon year of this study.

SUMMARY OF APPROACH AND ANALYSIS METHODS

This transportation plan was developed using a process that included:

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

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

The recommendations are divided into three phases. Phase One recommendations relate to existing deficiencies and the most immediate transportation needs of the area. Phase Two recommendations apply to an interim year of 2010, and Phase Three recommendations are long-term projects (year 2020). Projects in all three phases are intended to accommodate travel demands to the horizon year of 2020.

PHASE ONE: BASE YEAR (2000) RECOMMENDATIONS

The study identified current deficiencies in the Lexington transportation system. Aspects of potential deficiencies in the existing transportation system included traffic flow and safety concerns, parking, and goods movement by truck. Five projects were identified as short-term, immediate improvements and are described below.

South Lee Highway and Main Street

This location experienced a high number of accidents, as determined by the safety analysis done for this study. The recommendation is to install warning signage to improve safety.

PHASE TWO: INTERIM YEAR (2010) RECOMMENDATIONS

The interim year recommendations for the *Lexington 2020 Transportation Plan* 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. Two projects were identified as interim improvements for Lexington.

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Nelson Street from Glasgow Street to Lewis Street

To improve traffic flow in Lexington's central business district, the recommendation is to convert Nelson Street from two-way operation to one-way operation so that traffic flows only in the southeast direction. This recommendation is one of three recommendations that will convert Nelson Street and Washington Street/Lewis Street into a one-way pair, with eastbound traffic on Nelson and westbound traffic on Washington Street/Lewis Street. (The other two are listed below.)

Lewis Street from Nelson Street to Washington Street

To improve traffic flow in Lexington's central business district, the recommendation is to convert Lewis Street from two-way operation to one-way operation so that traffic flows only in the northwest direction.

Washington Street from Nelson Street to Lewis Street

To improve traffic flow in Lexington's central business district, the recommendation is to convert Washington Street from two-way operation to one-way operation so that traffic flows only in the northwest direction.

Lee Highway and Nelson Street

The intersections formed by the Lee Highway ramps and Nelson Street were determined to be deficient from both a safety and a geometric standpoint. The recommendation is to improve the geometry of this interchange to eliminate both deficiencies. The recommended improvements at this location include:

- Widening the End of each Off Ramp to Provide Two-Lane Approaches to Nelson Street
- Widening Nelson Street near the Two Intersections to Accommodate Traffic Going to and Coming from the Lee Highway Ramps
- Install Traffic Signals at Both Intersections when Warrents are Met

Walker Street from Houston Street to Nelson Street

A field review of this roadway segment revealed geometric deficiencies, including narrow pavement and lack of sidewalks. The recommendation is to upgrade the roadway to current VDOT standards and construct sidewalks along 0.20 miles of Walker Street.

North Lee Highway and Main Street

Main Street in the vicinity of this interchange is anticipated to be operationally deficient by 2020. To improve traffic flow and ease of movement, the recommendation is to construct ramps to allow for travel from northbound Main Street to southbound Lee Highway, and from northbound Lee Highway to southbound Main Street.

PHASE THREE: FUTURE YEAR (2020) RECOMMENDATIONS

The Phase Three recommendations in the *Lexington 2020 Transportation Plan* are intended to support the economic and business needs of the community while enhancing both the appeal and traffic operations of the Lexington downtown area. One project fits in this category for Lexington.

Ross Road from the West Corporate Limits to Jackson Avenue

A field review of this roadway segment revealed geometric deficiencies. The recommendation is to upgrade the roadway to current VDOT standards.

OTHER MODES AND GOODS MOVEMENT

In developing the *Lexington 2020 Transportation Plan*, the availability of modes of transportation other than private automobiles was also considered.

Lexington has a fairly wide variety of other modes of travel available for a city of its small size. Paratransit service and taxi service are both directly available in Lexington itself. Also, within a short drive of Lexington there are a number of other modal options. Intercity passenger rail service is available in Clifton Forge, 30 miles to the west, and in Staunton, about 35 miles to the north. Commercial air service is available out of the Lynchburg area, about 40 miles to the southeast. Lexington also has two walking trails.

Intercity bus service is available in nearby Buena Vista. However, Greyhound used to stop in Lexington until the late 1990s. This proved very convenient for students from Washington and Lee University and Virginia Military Institute. This report recommends that the City continue efforts to bring intercity bus service back to Lexington itself.

Most goods movement in and through Lexington is accomplished by truck. While truck flow through the City is generally adequate, several of the proposed roadway recommendations will improve truck access for shippers by reducing congestion and making turning movements easier.

LOCAL PROJECTS

The City of Lexington identifies, plans, and implements transportation projects as part of its capital improvement process. Five local projects were identified by the City for inclusion in this Plan.

Main Street and Henry Street

Increase intersection capacity to accommodate projected traffic growth. A traffic signal should be installed when the warrants set forth in the Manual on Uniform Traffic Control Devices (MUTCD) are met.

Main Street and Diamond Street

Increase intersection capacity to accommodate projected traffic growth. A traffic signal should be installed when the warrants set forth in the MUTCD are met.

Washington Street and Randolph Street

Increase intersection capacity to accommodate projected traffic growth. A traffic signal should be installed when the warrants set forth in the MUTCD are met.

Jordan Street (bridge) over Woods Creek

This bridge is deficient because it has a sufficiency rating of less than 50. The recommendation is to reconstruct this bridge to meet current VDOT standards.

Anderson Drive (bridge) over Woods Creek

This bridge is deficient because it has a sufficiency rating of less than 50. The recommendation is to reconstruct this bridge to meet current VDOT standards.

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In addition, this Plan endorses the concept of rebuilding the pedestrian bridge over the Maury River that connects the Chessie Trail to the trails on the VMI campus, as described in the 1995 Lexington Comprehensive Plan. This bridge was washed out by a heavy rain storm in 1995. No locally funded projects are planned in Lexington other than those mentioned in other sections of this report.

ENVIRONMENTAL OVERVIEW

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

LOCAL COORDINATION AND CITIZEN PARTICIPATION

The development of the *Lexington 2020 Transportation Plan* included coordination meetings with local City officials and VDOT representatives and a public meeting held with local officials, VDOT representatives, and citizens.

The three coordination meetings held for this study were as follows: 1) a kick-off meeting, (2) an existing conditions meeting, and (3) a draft recommendations meeting. The kick-off meeting, held in November 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, held in November 2001, the project team presented the results of the base year and horizon year traffic analysis and discussed potential projects to meet projected transportation needs. During the third meeting, held in March 2002, a draft set of transportation improvements was discussed among the project team, City officials, and VDOT representatives.

A public meeting was held on November 7, 2002 to present the draft transportation plan to City officials, citizens and other interested parties. Meeting participants were invited to provide comments on the draft transportation plan that were considered in the development of the final *Lexington 2020 Transportation Plan*.

PLAN ADOPTION

The Lexington City Council voted to adopt the *Lexington 2020 Transportation Plan* by resolution on March 20, 2003.

ADDITIONAL INFORMATION

Detailed information on the development of the *Lexington 2020 Transportation Plan* and the study recommendations will be included in the *Lexington 2020 Transportation Plan Technical Report*. This document will be available for review at the Lexington City Hall and the local library. The technical report will also be available in Richmond at the central office of VDOT's Transportation Planning Division, the VDOT District office in Staunton, and the VDOT Residency office in Lexington.

Projects included in the Virginia Transportation Six-Year Program (FY 2004-2009) are not part of the *Lexington 2020 Transportation Plan*. The Six-Year Program can be reviewed online at www.VirginiaDOT.org.

Information on Six-Year Program projects for the City of Lexington can also be found by contacting the VDOT Resident Engineer at the Lexington Residency Office (540-463-3108).

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Route	Facility Name	From	To	Road Segment Length	Recommendation	Estimated Cost [1]	Existing Typical Section	Recommended Typical Section	Average Daily Traffic		
									Year 2001	Year 2010	Year 2020
11 Byp	South Lee Highway	Main Street	N/A	N/A	Install intersection warning signage	\$12,000 [2]	N/A	N/A	N/A	N/A	N/A
11 Byp	North Lee Highway	Main Street	N/A	N/A	Reconstruct interchange to add the following two movements: northbound Main Street to southbound North Lee Highway and northbound North Lee Highway to southbound Main Street	\$7,632,000 [3]	N/A	N/A	N/A	N/A	N/A
11 Byp	Lee Highway	Nelson Street	N/A	N/A	Improve geometry at ramp intersections	\$1,640,000 [4]	N/A	N/A	N/A	N/A	N/A
60	Nelson Street	Glasgow Street	Lewis Street	0.70	Restripe to make one-way (southeast)	\$42,000 [5][12]	U2	U2	7,200	8,700	10,100
	Lewis Street	Nelson Street	Washington Street	0.10	Restripe to make one-way (northwest)	\$6,000 [5][12]	U2	U2	4,600	5,100	5,600
	Washington Street	Nelson Street	Lewis Street	0.70	Restripe to make one-way (northwest)	\$42,000 [5][12]	U2	U2	4,600	5,100	5,600
	Ross Road	West corporate limits	Jackson Avenue	0.30	Upgrade roadway to current VDOT standards	\$945,000 [6][12]	U2	U2	1,370	1,800	2,200
	Walker Street	Houston Street	Nelson Street	0.40	Upgrade roadway to current VDOT standards; construct sidewalks from Nelson Street to 0.20 mile south	\$1,298,400 [6][7]	U2	U2	4,690	6,100	7,500
11 Bus	Main Street	Henry Street	N/A	N/A	Install signal	\$180,000 [8][9]	N/A	N/A	N/A	N/A	N/A
11 Bus	Main Street	Diamond Street	N/A	N/A	Install signal	\$180,000 [8][9]	N/A	N/A	N/A	N/A	N/A
	Washington Street	Randolph Street	N/A	N/A	Install signal	\$180,000 [8][9]	N/A	N/A	N/A	N/A	N/A
	Jordan Street (bridge)	Woods Creek	N/A	N/A	Reconstruct bridge to meet current VDOT U2 standards	\$136,100 [9][10]	U2	U2	N/A	N/A	N/A
	Anderson Dr (bridge)	Woods Creek	N/A	N/A	Reconstruct bridge to meet current VDOT U2 standards	\$306,200[9][10][11]	U2	U2	N/A	N/A	N/A
ESTIMATED TOTAL THOROUGHFARE SYSTEM COST						\$11,617,400 [9]					

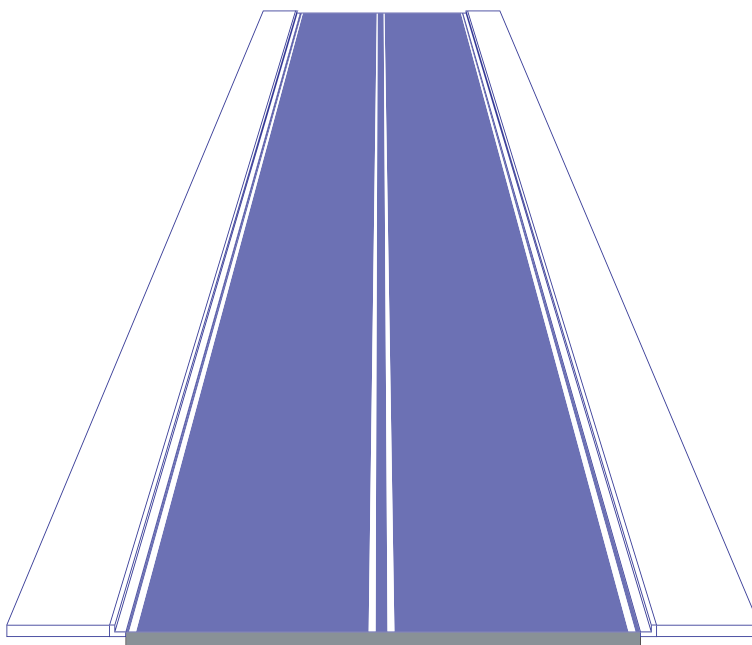
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Notes:

- [1] Cost estimates included in this table are planning level costs in year 2000 dollars, 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 of \$3,000 per sign.
- [3] Assumes construction of a new 3-lane 150-foot bridge structure, two new traffic signals, and approximately 0.68 miles of roadway reconstruction (U2 typical section) plus 50 percent for right of way and utilities. Plus 200 percent of total cost for maintenance.
- [4] Assumes 500 feet of pavement for each ramp (dual lanes) plus 300 feet for two Nelson Street approaches. Construction at \$2 million per mile plus 50 percent for right-of-way and utilities. The cost for traffic signals at the two intersections is estimated to be \$300,000.
- [5] Assumes a unit cost of \$60,000 per mile.
- [6] Assumes a unit cost of \$2,100,000 per mile plus 50 percent for right-of-way and utilities.
- [7] Assumes a unit cost of \$64,000 per mile for sidewalk.
- [8] Assumes a unit cost of \$180,000 for signal installation.
- [9] Local project, not included in total cost for thoroughfare system.
- [10] Assumes a unit cost of \$105 per square foot of bridge deck.
- [11] Recommendation located on campus of Virginia Military Institute.
- [12] The one-way pair system and the improvements to Ross Road are not supported by the City of Lexington. Some relief for the deficiencies that these recommendations are intended to address may be provided by the construction of a bypass that extends from South Lee Highway to the north and west, tying into Route 60 west of Lexington. It is likely that most or all of such a bypass would be located in Rockbridge County. The study area for the next transportation plan update should be expanded to include portions of Rockbridge County, and include the County in coordination efforts, so that such a bypass can be considered for inclusion in the long-range transportation plan.

N/A Not Applicable

TYPICAL SECTIONS



U2

Urban two-lane roadway with curb, gutter, and sidewalk