1.0 PURPOSE OF AND NEED FOR ACTION

1.1 NEED FOR ACTION

Federal legislation initially designated Interstate 73 (I-73) as a high priority corridor in the Intermodal Surface Transportation Efficiency Act of 1991(ISTEA), Title I, Section 1105. Additional legislation establishing the general location of I-73 is found in the National Highway System (NHS) Designation Act of 1995: "In the Commonwealth of Virginia, the Corridor shall generally follow 1) United States Route 220 from the Virginia-North Carolina border to I-581 north of Roanoke; 2) I-581 to I-81 in the vicinity of Roanoke". Title III, Section 332 of the NHS provided the legal mechanism for adding I-73 to the Interstate system even though the Interstate system had essentially been completed. "Any segment of such routes shall become a part of the Interstate System at such time as the Secretary determines that the segment – (i) meets the Interstate System design standards…. and (ii) connects to an existing Interstate System segment." Additional reference to I-73 as a high priority corridor as well as funding was provided in the Transportation Equity Act for the 21st Century of 1998 (TEA-21). The Transportation Equity Act for the 21st Century was enacted on June 9, 1998 with amendments added as the TEA-21 Restoration Act of July 22, 1998. Both the June legislation and July amendments are now incorporated into federal code as TEA-21.

In establishing high priority corridors, Congress found that the construction of the Interstate Highway System connected the major population centers of the nation and greatly enhanced economic development. Congress also found that many regions of the nation are not now adequately served by the Interstate System or comparable highways and require further highway development in order to serve the travel and economic development needs of the region.

National Congressional concerns for improved goods movement between the nation's regions, state priorities for improved access and economic development to regions currently under served by the federal interstate system, and local safety and economic development goals provide the need for the I-73 Location Study (see Figure 1.1-1). With the passage of TEA-21, Congress provided funding to conduct preliminary engineering on the section of I-73 from the Virginia/North Carolina state line to the City of Roanoke *(since then, additional funding has been provided by Congress as part of the 'Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users' to construct part of I-73 in the vicinity of Martinsville and for engineering and right-of-way acquisition in Roanoke County)*. The Federal Highway Administration (FHWA) is the lead federal agency for the I-73 Location Study covering those termini. The I-73 location in Virginia established by Congress generally follows U.S. Route 220 from the Virginia-North Carolina border to I-581 south of Roanoke. The location continues along I-581 to I-81 north of Roanoke and traverses I-81 to the proposed "smart highway" in the vicinity of Ironto. The study area follows the "smart highway" to U.S. Route 460 in the vicinity of Blacksburg and continues along U.S. Route 460 to the West Virginia state line (see Figure 1.1-2).

Interstate concerns that led to the designation of the I-73 high priority corridor by Congress include:

- The need for improved transportation facilities for goods movement which link the port of Charleston, South Carolina with Detroit, Michigan and Sault Ste. Marie, Michigan;
- The need for an effective and efficient roadway which facilitates interstate travel between Michigan, Ohio, West Virginia, Virginia and North and South Carolina;
- The need for a safe and direct transportation link for business trucking between North Carolina's Piedmont Triangle and the Roanoke Valley's I-581 and I-81 corridors; and
- The need for an interstate transportation facility to foster planned economic development between southwestern Virginia and the Piedmont Triad regions and between Virginia communities from the City of Roanoke to the North Carolina state line.

In designating I-73 as a high priority corridor in ISTEA, the Congressional intent of the route as an interstate facility was established. With additional legislation and amendments, Congress has designated the section of I-73 from Charleston, South Carolina to Portsmouth, Ohio as a future part of the Interstate subject to the conditions that the section to be added meets Interstate design criteria and connects to an existing Interstate

segment. Accordingly, the Interstate design standard is being used as the preferred design alternative for I-73 in Virginia for assessing impacts.

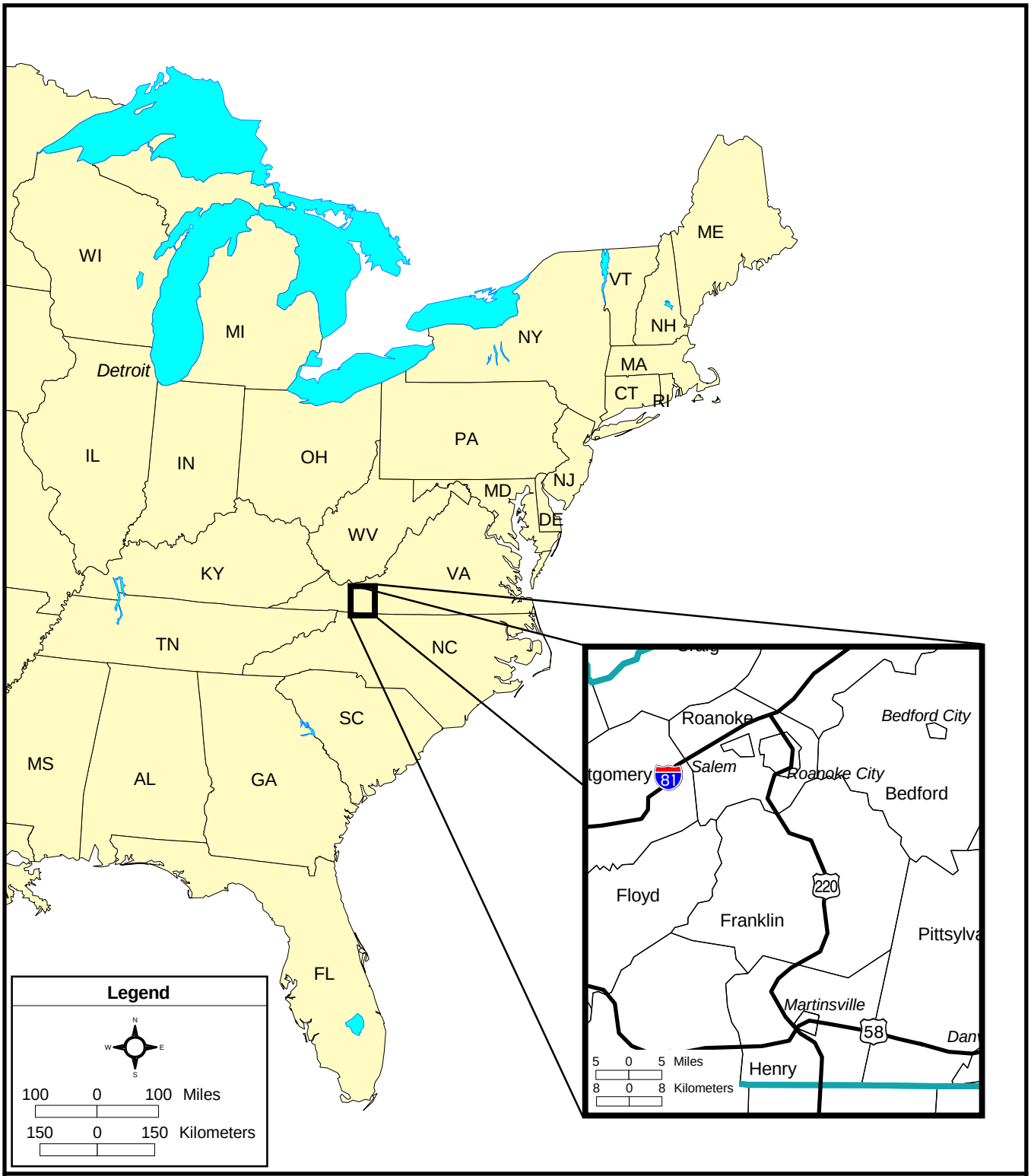
This document evaluates only the location of I-73 from the Virginia-North Carolina border to I-81 in the vicinity of Roanoke. A study to determine the location of I-73 from I-81 to the West Virginia State line will be conducted at some future date as funding becomes available. Current and future transportation concerns in the I-73 corridor and the study area include:

- The high percentage of truck traffic on U.S. Route 220;
- The designation of U.S. Route 220 as a Surface Transportation Assistance Act (STAA) roadway that allows for oversized trucks on a roadway with identified sight distance problems;
- The high accident rates on U.S. Route 220 between Route 419 and the North Carolina border;
- Steep road grades on portions of U.S. Route 220;
- The number of crossovers with no turn lanes or with turn lanes in only one direction on U.S. Route 220 which increases the risk of accidents; and
- Access to Blue Ridge Parkway on-ramps from the south and to other area historic and natural resources.

1.2 PURPOSE OF THE I-73 LOCATION STUDY

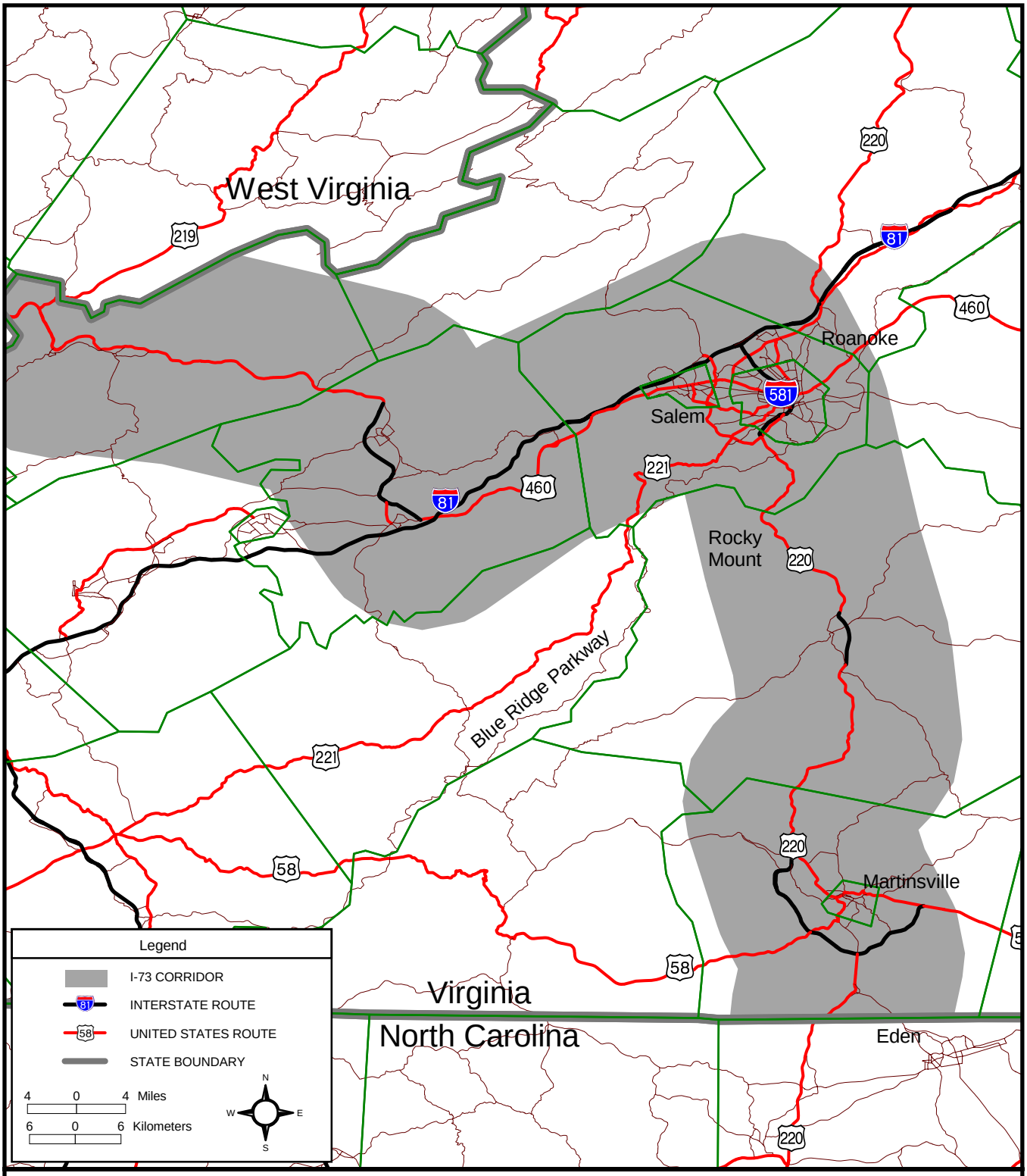
The purpose for the Congressionally designated NHS "priority corridors" is to link regions and support economic growth. Economic growth in the cities, towns and counties along U.S. Route 220 has and continues to be constrained by the limited transportation access to major markets and suppliers. U.S. Route 220 safety issues, (its present geometric configuration, the uncontrolled access and the high percentage of truck traffic on the road) have resulted in transportation deficiencies that require timely consideration and resolution. The I-73 Location Study is intended to identify and evaluate potential solutions to the economic, safety needs, and transportation deficiencies of the study area. The location study process and this document provide a basis for selecting an alternative to meet these goals. Purposes for the I-73 Corridor as drawn from federal, state and local initiatives include:

1. Safety improvements along the U.S. Route 220 corridor are a major purpose in the evaluation of transportation alternatives for I-73. U.S. Route 220's safety issues, its present geometric configuration and its uncontrolled access are all perceived to limit the study area's ability to transport goods and people safely and efficiently.
2. Provisions for economic growth, economic vitality and maintenance of existing economic competitiveness in the corridor are collectively a second I-73 purpose. The cities, towns and counties along U.S. Route 220 have and continue to be constrained by the limited transportation access to major markets and suppliers. The local jurisdictions with the support of the Commonwealth of Virginia have sponsored Enterprise Zones that provide the economic incentives for development. Due to safety concerns and limited capacity, U.S. Route 220 currently cannot serve the corridor's transportation needs to achieve these economic objectives.
3. A third purpose is to improve operations, access and capacity for vehicular and freight movement through the corridor and to other locations in the Michigan to South Carolina target market. The high percentage of truck traffic in the U.S. Route 220 corridor is comparable to that experienced on Virginia interstate highways. This volume of trucks operating on a rural primary road with steep grades, poor site distances, dangerous crossovers and uncontrolled access, contributes to a safety problem in the corridor and constrains freight dependent economic activity.
4. A fourth purpose is to enhance general mobility and transportation linkage through both the immediate Roanoke to North Carolina study area and through the broader Michigan to South Carolina travel shed. The objective is to support travel origins and destinations within and through the corridor. Mobility enhancements accrue to transportation alternatives that improve travel speed, reduce travel time, reduce travel delay and reduce operational costs.
5. A fifth and final purpose is to address the Congressional intent that the portion of I-73 from Charleston, South Carolina to Portsmouth, Ohio be included as part of the Interstate system.



I-73 Location Study

FIGURE 1.1-1
REGIONAL LOCATION MAP



I-73 Location Study

FIGURE 1.1-2
I-73 CORRIDOR IN VIRGINIA

Specific objectives of the I-73 Location Study purposes are to:

- identify the location of a "high priority", I-73 link in the NHS;
- reduce conflicts between local traffic and truck traffic on U.S. Route 220 and improve transportation safety in the U.S. Route 220 Corridor between I-581 and North Carolina;
- enhance goods movement into and through the study area by providing efficient transportation for truck traffic by separating existing and projected U.S. Route 220 truck volumes from local traffic;
- improve transportation infrastructure between North Carolina's Piedmont Triad, and the area served by both the Virginia West Piedmont Planning District Commission and Roanoke Valley-Alleghany Regional Commission;
- support local economic initiatives and existing and planned business and industry; and
- enhance mobility and access through southwestern Virginia and the national high priority corridor.

1.3 SAFETY ISSUES

1.3.1 U.S. Route 220 Safety Analysis

VDOT calculates what is called a "critical accident rate" based on the number of accidents per 100 million vehicle miles traveled (VMT). A different "critical accident rate" is used for urban (337 accidents per million VMT) and rural (112 accidents per million VMT) principal arterials. These rates are specifically computed for divided roadways with no access control based on functional classification and the number of lanes.

Safety on U.S. Route 220 is a top issue for study area community leaders and residents. Existing U.S. Route 220 was constructed in the 1950s and 1960s to then acceptable design standards that are less than those used today. The appropriate critical accident rate threshold for most of U.S. Route 220 is the rural designation (112). The U.S. Route 220 Safety Report From: Route 419 to North Carolina State Line (VDOT, Traffic Engineering Department, September 27, 1994) identified 17 locations along U.S. Route 220 with critical accident ratings. The highest accident rate location is in Henry County between Darwyn Drive and Route 902. Data on accidents and fatalities on U.S. Route 220 for the three years during January 1, 1995 through October 31, 1997 found 1,089 total accidents and 16 fatalities in Roanoke, Franklin, and Henry counties (Robert Hoffrichter, VDOT, January 1998). Table 1.3-1 indicates the locations and accident rates for all locations that exceeded the thresholds.

The high percentage of trucks on U.S. Route 220 contributes to both the safety needs in the corridor as well as the interstate goods movement needs for the I-73 Corridor. Based on 2003 data, trucks comprise between 14 and 17 percent of U.S. Route 220's daily traffic. These percentages are near or higher than those experienced on most sections of Virginia's interstates. For example, on I-64 truck percentages near Charlottesville are 17 percent; on I-95 north of Fredericksburg, 10 percent; on I-295 in Richmond, 11 percent; and on I-77 at US Route 58, 21 percent. U.S. Route 220 was not designed to safely handle this level of truck traffic.

Steep grades, uncontrolled access, actual speeds in excess of current design standards and poor sight distance also contribute to the safety problems on U.S. Route 220 for automobile and truck drivers.

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TABLE 1.3-1
CRITICAL ACCIDENT RATE LOCATIONS ON THE U.S. ROUTE 220 CORRIDOR

City or County	High Accident Locations (from and to)	Length (in miles)	Accident Rate (per 100 M VMT[1])
Urban Principal Arterials			
Roanoke City	Old Rocky Mountain Road/Route 862	0.36	364
Rural Principal Arterials			
Henry	Darwyn Drive / Route 902	0.35	1,138
Franklin	Route 824 / Route 613	0.31	327
Henry	Route 1301 / Route 1307	0.55	316
Franklin	Route 609/Mountain View Avenue	0.38	288
Franklin	Route 691 / Route 919	0.32	286
Henry	Route 1210 / Route 1270	0.40	273
Franklin	Route 1036 / Route 619	0.47	272
Henry	Route 817 / Route 669	0.48	266
Henry	Double Branch Road / Henry Memorial Parkway	0.50	255
Roanoke	Route 674 / Route 679	0.35	223
Franklin	Route 930 / Route 697	0.30	217
Franklin	Route 956 / Route 635	1.05	298
Henry	Mountain Top / Route 987	0.30	182
Franklin	Route 824 / N. of Maggodee Creek	0.30	173
Roanoke	Roanoke – Franklin County Line/– Route 677	0.64	163
Roanoke	Route 668 / Route 674	0.39	132

Source: Route 220 Safety Report From: Route 419 to North Carolina State Line, VDOT Traffic Engineering Department, September 27, 1994.
Note: [1] Accidents per hundred million vehicle miles traveled.

1.3.2 Existing U.S. Route 220 Roadway Deficiencies

The three counties located along U.S. Route 220 each include numerous crossovers or places where vehicles can cross the roadway. All of these locations are unsignalized crossings and in many instances the available space in the median is too small to allow for a safe turn. Many of these crossings do not have left turn pockets to store the vehicles safely away from fast moving through traffic. "On a 55 mile per hour facility, the absence of left turn lanes could severely reduce operational efficiency and, at the same time, decrease safety." (VDOT, Route 220 Safety Report, September 1994). Table 1.3-2 summarizes the crossovers by county and the feature(s) that causes them to be unsafe.

TABLE 1.3-2
NUMBER OF CROSSOVERS BY COUNTY

County / Mileage	Number of Crossovers with No Turn Lanes	Number of Crossovers with Turn Lanes in Only One Direction	Total Number of Crossovers[1]
Roanoke – 6 Miles	28	4	44
Franklin – 22 Miles	22	11	69
Henry – 24 Miles	22	4	62

Source: Route 220 Safety Report from: Route 419 to North Carolina state line; VDOT, September 27, 1994.
Note: 1. Total Number of Crossovers reflects all crossovers, including those with acceptable geometry.

U.S. Route 220 is a four-lane, divided, full-access highway. The spacing and widths of crossover areas along the corridor are too close together and too narrow. In a half-mile long portion of U.S. Route 220 just below the Blue Ridge Parkway, 11 separate crossovers are found. Four of these crossings are within 105 feet of each other and the rest are no farther than 580 feet apart. Only four of these have a left turn lane and three of these are in only one direction. A second issue related to the dangers of these crossovers is the very short width in which a vehicle is expected to wait until it is clear to proceed.

Speeding on U.S. Route 220 also contributes to the high numbers of accidents. A speed analysis was conducted in four locations, each with a posted speed limit of either 45 miles per hour (Boones Mill) or 55 miles per hour. The VDOT 220 Safety Study reports, "Ideally, the 85th percentile speed should correspond to the posted speed limit." The 85th percentile represents a statistical calculation where 85% of motorists drive at or below a given speed limit. This speed limit is generally recognized as the appropriate safe speed limit to post on the roadway. The 85th percentile will vary for various functional classifications of roadway, geometric conditions and surrounding terrain. In all four locations, the study found the 85th percentile speed exceeded the posted speed limit. The report notes, "Roadway sections with a speed differential greater than 10 miles per hour have much greater accident rates than sections with a speed differential less than 10 miles per hour." Recommendations for greater enforcement, particularly in Boones Mill were made.

1.4 ECONOMIC DEVELOPMENT CONDITIONS

The Virginia Employment Commission's Economic Information Services division prepared an economic analysis of the original corridors considered by the Commonwealth Transportation Board (CTB) for the location of I-73 through Virginia. The analysis estimated the potential growth for each alternative at potential interchanges using a rural interchange growth estimation method (Growth at Rural Interchanges, Hartgen et al., 1992). Thirteen potential corridors were evaluated. Four of the 13 corridors considered to have the most economic potential included the U.S. Route 220 Corridor south of Roanoke. The U.S. Route 220 alternatives were predicted to stimulate the greatest number of jobs. This analysis supported the decision to select the U.S. Route 220 Corridor as the I-73 Corridor by the CTB from among the 13 potential corridors in southwestern Virginia.

With this employment estimation method, job creation is partially a function of the number of interchanges in each of the corridors. Initial changes in employment were estimated between 2,278 and 2,882 jobs with total employment growth estimated between 4,095 and 5,087 jobs (An Economic Impact Analysis of the Potential Interstate I-73 Corridors, February 1994, Virginia Employment Commission, Economic Information Services). Employment forecasts are for service industry based jobs adjacent to the proposed interchanges. The forecast method employed does not evaluate other sector employment changes (such as the construction industry) or the effects of economic incentive programs within each corridor.

Jurisdictional level data from the Virginia Employment Commission (VEC) provides a comparison between the Commonwealth of Virginia and the jurisdictions that will benefit the most from the proposed I-73 alignment along the existing U.S. Route 220 Corridor (See Table 1.4-1). While the Commonwealth has shown a relatively healthy growth in employment over the 1993-00 period (20.1 percent), several jurisdictions along the U.S. Route 220 Corridor experienced either modest growth or actual declines. Franklin and Roanoke counties experienced a higher percentage growth than the Commonwealth during this time. The City of Roanoke had only a 4.4 percent increase in employment from 1993 to 2000. The City of Martinsville and Henry County experienced a loss in employment during this time period. The job loss in Martinsville was substantial (over 20 percent). These two localities have the greatest need for improved accessibility for economic sustainability and growth. The U.S. Route 220 Corridor as a whole grew by only 7.3 percent.

TABLE 1.4-1
U.S. ROUTE 220 CORRIDOR EMPLOYMENT SUMMARY

LOCATION	1993 Employment	2000 Employment	1993-2000 Absolute Change	1993-2000 Percent Change
Franklin County	11,199	13,977	2,778	24.8%
Henry County	23,476	22,039	-1,437	-6.1%
Roanoke County	24,484	32,319	7.835	32.0%
Martinsville City	16,306	12,999	-3,307	-20.3%
Roanoke City	72,817	76,027	3,210	4.4%
Salem City	21,955	25,223	3,268	14.9%
U.S. Route 220 Corridor Total	170,237	182,584	12,347	7.3%
Virginia	2,862,650	3,438,246	575,596	20.1%

Source: VEC

Table 1.4-2 shows the percent change in employment by sector for the jurisdictions associated with the U.S. Route 220 Corridor. While the Commonwealth experienced a decrease in manufacturing employment between 1993 and 2000, several jurisdictions within the U.S. Route 220 corridor experienced declines. Manufacturing declines were the greatest in Henry County and in the cities of Martinsville and Roanoke. The 15.2 percent decline in manufacturing employment represents a loss of 6,805 jobs in the U.S. Route 220 Corridor. Henry County and the City of Roanoke showed limited growth in retail and wholesale trade while the Commonwealth had a significant amount of growth in these sectors. The City of Salem exhibited a decline in retail and wholesale trade. The cities of Martinsville and Roanoke experienced minor growth in finance, insurance and real estate (FIRE) services in contrast to what has been the fastest growing employment sector in the Commonwealth.

TABLE 1.4-2
U.S. ROUTE 220 CORRIDOR 1993-2000 PERCENT CHANGE IN EMPLOYMENT BY SECTOR

LOCATION	Agriculture, Mining, and Construction	Manufacturing	Retail and Wholesale Trade	Fire[1] and Services	Transport, Utilities, and Other[2]	Total Employment
Franklin County	31.2%	-2.9%	61.0%	47.6%	32.6%	24.8%
Henry County	4.0%	-13.3%	4.9%	20.9%	1.1%	-6.1%
Roanoke County	9.4%	20.7%	22.4%	46.9%	33.0%	32.0%
Martinsville City	4.0%	-64.0%	25.6%	5.4%	17.0%	-20.3%
Roanoke City	38.0%	-18.4%	2.5%	7.0%	7.8%	4.4%
Salem City	25.8%	14.0%	-2.6%	29.9%	20.2%	14.9%
U.S. Route 220 Corridor	25.3%	-15.2%	9.0%	19.0%	14.6%	7.3%
Virginia	34.3%	-3.6%	17.9%	35.9%	11.9%	20.1%

Source: VEC
[1]FIRE: Finance, Insurance, and Real Estate
[2]Other includes Government and Unclassified

Economic development activities and incentive programs exist along the U.S. Route 220 Corridor. Local governments in the corridor have Virginia Enterprise Zones in place, which provide tax and other incentives to attract and promote industrial development. More than 4,260 acres have been included in these Enterprise Zones in the study area. The West Piedmont PDC has an extensive economic development strategy that has identified transportation in the U.S. Route 220 Corridor as a barrier to continued economic growth in the study area's southern portion. The West Piedmont PDC has designated Martinsville and the immediate areas of surrounding Henry County as a primary economic growth center. Portions of Franklin County including Boones Mill, the Town of Rocky Mount, Sydnorsville, Collinsville, and Ferrum along U.S. Route 220 are shown as secondary growth centers.

Roanoke City and County include a strong service-oriented economy. Roanoke County established its first economic development strategy in 1985 (Economic Development Strategy: 2000 and Beyond, April 1998). The 1992 plan identifies the development pattern in the vicinity of the six I-81 interchanges in Roanoke County and targets these areas for future development. It "recognized the imbalance of the County's tax base with its 83 percent residential to 17 percent commercial/industrial ratio" (1992-1994 Roanoke County Economic Development Strategy, Roanoke County, May 2, 1992). The strategy further notes "the absence of any intersecting major north-south primary highway" as one of the contributing factors that influenced the existing disproportionate ratio of residential to commercial development. The strategy identifies economic development potential along Alternative U.S. Route 220 and the Route 419 intersection with U.S. Route 220 as potential development areas which could be affected by decisions made on the I-73 Location Study. The most recent plan Economic Development Strategy 2000 and Beyond, adopted in 1998, has a mission statement to aggressively seek new business development and investment in Roanoke County. One of the nine activities identified to meet the goals and objectives of this mission statement is to work with VDOT to locate the I-73 corridor in Roanoke County.

Tourism and travel accounted for over 5,100 jobs in the Roanoke Valley in 1997 with the majority of these jobs located within the City of Roanoke. The County's economic development strategy notes the absence of tourist attractions in the Roanoke Valley portions of the study area. Growth in the resort and retirement communities at Smith Mountain Lake has increased demand on the study area's road systems. The 1992-

1994 Roanoke County Economic Development Strategy (Roanoke County, May 2, 1992) identifies the economic development potential along the U.S. Route 220 Corridor.

The economic base in Henry and Franklin counties along the U.S. Route 220 Corridor is predominantly manufacturing. While manufacturing jobs still dominate the job market in Franklin County, the number of manufacturing jobs declined from 40.9 percent to 35.3 percent of the total jobs between 1980 and 1990. Tourism in Franklin County was estimated to support 390 jobs in the County. Manufacturing accounts for the largest employment in Henry County. Manufacturing dominates the economy of Martinsville, Bassett, Stanleytown, Fieldale, Villa Heights, Collinsville and Ridgeway. Much of the manufacturing segment serves the textile and furniture industries in Henry County.

Henry County and Martinsville are currently experiencing serious job losses in their textile and manufacturing base. Reflected in the VEC data presented in Tables 1.4-1 and 1.4-2 are several plant closings and layoffs in 1999. According to the Patrick Henry Economic Development Council, job reductions at Tultex, Pluma, 5 B's, Ashmore Sports and Hampton Industries have resulted in the loss of 2,530 jobs in 1999 and early 2000. This is a continuation of a trend starting earlier in the decade. The Martinsville and Henry County region have lost 3,198 textile and manufacturing jobs since 1997. Several companies such as Mehler Engineered Products and Old Dominion Lumber have indicated that they were interested in developing in the county. Some existing companies such as Stanley Furniture and American of Martinsville have plans for expansion. Nautica recently announced the opening of a 300-employee plant in Martinsville to start-up in April of 2000. A key element to maintaining existing jobs and to supporting the growth of the manufacturing industry in this area will be the ability to move supplies and products to and from other regions using a good transportation network in a safe, efficient and timely manner.

1.5 FREIGHT MOVEMENT, CAPACITY AND ACCESS

Goods movement is an important factor in traffic generation, capacity and composition. Table 1.5-1 compares U.S. Route 220's percent truck volumes with other Virginia interstates and selected primary highways. The percentage of trucks on U.S. Route 220 is much higher than experienced on similar rural principal arterials. Study area businesses and manufacturing operations contribute to the truck volumes. Textile, furniture, manufactured housing, aggregate quarries, and window manufacturing are located in the study area. The study area's central and southern portions maintain substantive capital investment in manufacturing operations. U.S. Route 220 serves as the only access to the north and west with links to I-81 and I-64.

TABLE 1.5-1
PERCENT TRUCKS ON U.S. ROUTE 220 AND SELECTED ROUTES

Route	Percent Trucks
U.S. Route 220 – South of Rocky Mount	14 %
U.S. Route 220 – Near North Carolina state line	17 %
I-64 – West of Lexington	23 %
I-64 – East of Charlottesville	17 %
I-77 – South of US 52	21 %
I-81 – North of I-581	21 %
I-95 – North of Fredericksburg	10 %
I-95 – Near North Carolina state line	17 %
I-295 – West of US 360	11 %
I-581 – South of Hershberger Rd	7 %
U.S. Route 29 – South of Lynchburg	8 %
U.S. Route 58 – East of Martinsville	8 %

Sources: 2003, VDOT Permanent Traffic Count Locations.

Table 1.5-2 presents forecast 24-hour traffic volumes or Average Daily Traffic (ADT) for the year 2025 compared to existing conditions. ADT volumes along I-581 and U.S. Route 220 would range from 18,200 to 113,400. ADT volumes on other roadways in the study area generally indicate modest increases in traffic, however, some reductions in traffic also are forecast to occur.

TABLE 1.5-2
FORECAST AVERAGE DAILY TRAFFIC

Route and Location	1997 Conditions[1]	2025 Conditions[1]
I-81 - South of I-581	48,800	58,300
I-81 - North of I-581	57,900	63,300
I-81 - North of U.S. Route 220	36,600	40,900
I-581 - South of I-81	76,000	86,500
I-581 - North of U.S. Route 460	75,100	95,300
I-581 – U.S. Route 11 to U.S. Route 460 (estimated)	89,300	113,400
I-581 - Route 24 to U.S. Route 11 (estimated)	76,200	96,700
U.S. Route 220 - Route 24 to Wonju Street (estimated)	58,300	70,600
U.S. Route 220 - Wonju Street to Route 419	48,600	55,900
U.S. Route 220 - South of Route 419	32,300	37,000
U.S. Route 220 - South of Boones Mill	27,100	27,200
U.S. Route 220 - South of Rocky Mount	17,500	18,200
U.S. Route 220 - South of Sydnorsville	19,600	19,800
U.S. Route 220 - South of Route 605	21,400	21,800
U.S. Route 220 - South of Bassett Forks	20,400	20,800
U.S. Route 220 - Martinsville Bypass South of U.S. Route 58	13,400	22,000
U.S. Route 220 - North of Ridgeway	12,900	20,100
U.S. Route 220 - North of North Carolina state line	11,400	19,200
U.S. Route 460 - East of Alternate U.S. Route 220	37,800	46,500
U.S. Route 460 – West of Alternate U.S. Route 220	21,900	20,200
Route 24 - East of U.S. Route 220	12,200	41,600
U.S. Route 221 - East of U.S. Route 220	18,100	21,900
Route 40 - West of Rocky Mount	4,500	4,900
Route 40 - East of Rocky Mount	7,900	10,400
Route 122 at Route 40 - East of Rocky Mount	5,400	6,600
Route 57 - West of U.S. Route 220	12,500	12,500
Route 57 - East of Martinsville	9,700	9,700
U.S. Route 58 - West of U.S. Route 220 Bypass	8,000	9,900
U.S. Route 58 - East of U.S. Route 220 Bypass	17,900	16,600

Note: [1] From the statewide traffic model.

Level of service (LOS) for roadways in the study area is summarized in Table 1.5-3. Operating conditions for the year 2025 indicate that the LOS generally deteriorates over the I-581 and U.S. Route 220 facilities. This is particularly acute in the urbanized area of the corridor in Roanoke. Some of the two-lane highway traffic would notably increase in year 2025 and result in a decrease in service operations. The Route 40, Route 122 and Route 24 LOS are anticipated to deteriorate by 2025. Regardless of the outcome of I-73, it was assumed that I-81 north and south of I-581 would be increased from four to eight lanes. Similarly, it was assumed that I-81 north of U.S. Route 220 would be increased from four to six lanes consistent with programmed improvements for I-81, which have been put on hold pending the outcome of the I-81 Tier I EIS. Improvements to I-81 have not been eliminated from planning documents.

TABLE 1.5-3
LEVEL OF SERVICE ANALYSIS SUMMARY

Route and Location	Peak Hour Level of Service (Peak Hour Directional)	
	1997 Conditions	2025 Conditions
I-81 – South of I-581[1]	D	C
I-81 – North of I-581[1]	E	C
I-81 – North of U.S. Route 220[1]	C	B
I-581 – South of I-81	C	D
I-581 – North of U.S. Route 460	C	F
I-581 – U.S. Route 460 to U.S. Route 11	D	F
I-581 – U.S. Route 11to Route 24	D	F
U.S. Route 220 – Route 24 to Wonju Street	D	F
U.S. Route 220 – Wonju Street to Route 419	B	D
U.S. Route 220 – South of Route 419	C	D
U.S. Route 220 – South of Boones Mill	B	C
U.S. Route 220 – South of Rocky Mount	A	A
U.S. Route 220 – South of Sydnorsville	A	A
U.S. Route 220 – South of Route 605	A	B
U.S. Route 220 – South of Bassett Forks	A	B
U.S. Route 220 – Martinsville Bypass South of U.S. Route 58	A	B
U.S. Route 220 – North of Ridgeway	A	B
U.S. Route 460 – East of Alternate U.S. Route 220	C	D
U.S. Route 460 – West of Alternate U.S. Route 220	B	B
Route 24 – East of U.S. Route 220	A	D
U.S. Route 221 – West of U.S. Route 220	E	E
Route 40 – West of Rocky Mount	C	E
Route 40 – East of Rocky Mount	D	E
Route 122 – at Route 40 East of Rocky Mount	C	C
Route 57 – West of U.S. Route 220	E	E
Route 57 – East of Martinsville	E	D
U.S. Route 58 – West of U.S. Route 220 Bypass	A	A
U.S. Route 58 – East of U.S. Route 220 Bypass	A	B

Note: [1]Improvements to I-81 in the vicinity of Roanoke are currently under study. For the purposes of this analysis, it was assumed that I-81 would be improved from 4 to 8 lanes after the year 2003.

LOS along existing I-581 and U.S. Route 220 through downtown Roanoke (from Orange Avenue to Wonju Street) is expected to deteriorate to unacceptable levels. LOS F, complete failure, is anticipated in the sections from north of Orange Avenue (U.S. Route 460) to Wonju Street based on future traffic volumes and no improvements to capacity along the existing highway.

1.6 MOBILITY AND LINKAGE

1.6.1 Congested Flow Speed Comparison

An analysis of congested flow speeds along U.S. Route 220 and other study area roadways was conducted as part of the I-73 alternative analysis. Congested flow speeds along existing U.S. Route 220, south of Route 419 will have an average speed of 49.2 mph. System wide, future 2025 conditions indicate that travel speeds will decrease from those currently experienced. (See Table 1.6-1)

TABLE 1.6-1
CONGESTED FLOW SPEED (MPH)

Study Area	1997 Existing Conditions	2025 No Build Conditions
Average Congested Flow Speed	51.2	49.2

1.6.2 Vehicle Miles Traveled Comparison

An analysis of existing VMT through the study area indicates, along study area roadways, VMT currently stands at 4.42 million vehicle miles per day. Future 2025 conditions indicate that VMT will increase to 5.25 million vehicle miles per day (See Table 1.6-2).

TABLE 1.6-2
VEHICLE MILES TRAVELED (VMT)

Study Area	1997 Existing Conditions	2025 No Build Conditions
Study Area VMT	4.42	5.25

Note: VMT expressed in 100 million vehicle miles traveled per day

1.6.3 Vehicle Hours Traveled Comparison

An analysis of existing and forecast vehicle hours traveled (VHT) throughout the study area is summarized in Table 1.6-3. VHT is an indication of the congested travel times multiplied by the traffic volumes along the roadways within a defined study area. VHT will increase by approximately 41 percent in the year 2025.

TABLE 1.6-3
COMPARISON OF FORECAST VEHICLE HOURS TRAVELED

Study Area	1997 Existing Conditions	2025 No Build Conditions
Study Area VHT	54,100	76,300

1.7 STUDY CORRIDOR PLANNING EFFORTS

Recent transportation studies discussed below include improvements or needs in the U.S. Route 220 Corridor, including I-73.

1.7.1 Smith Mountain Lake Corridors Study

Population and economic growth in Franklin County is led by the Smith Mountain Lake development opportunities. This development and resort attracts area residents as well as visitors from throughout the eastern seaboard and beyond. Access to these and other facilities is by low capacity, steeply graded roadways that wind their way through the terrain. Recommendations in the Smith Mountain Lake Corridors Study (West Piedmont PDC, January 1997) include the provision of direct access from Smith Mountain Lake to a future location of I-73 and further analysis to define specific improvements to the County's road intersections and Route 40.

1.7.2 Henry County Comprehensive Plan

The Henry County Comprehensive Plan (Henry County, 1995) supports the I-73 Location Study including the County's 1993 request for VDOT support of the routing of I-73 through Martinsville and Henry County. The Plan notes the highest accident rates on primary highway segments in the County are on U.S. Route 220 south of Ridgeway and U.S. Route 220 Business near Bassett Forks. However, the Plan recommendations of "four-laning and general improvements to U.S. [Route] 220" relegate these improvements to the year 2010 recommendations and do not include them in the recommendations for VDOT's Six-Year Transportation Plan.

1.7.3 Roanoke Valley Area Metropolitan Planning Organization Long-Range Transportation Plan 2025

The Roanoke Valley Area Metropolitan Planning Organization (MPO) Long-Range Transportation Plan 2025 (February 2004) includes I-73 under the "Interstate System Financially Constrained List" for preliminary engineering from the southern MPO study boundary (near Franklin County line) to I-581/Elm Avenue. The Plan also identifies I-73 on the "Interstate System - Vision List" as a 4 to 6 lane facility from the southern MPO study boundary to I-581 at Hershberger Road.

1.7.4 Inventing Franklin County's Future: 1995 Comprehensive Plan

Inventing Franklin County's Future: 1995 Comprehensive Plan (Franklin County, April 4, 1995) states:

The location of the I-73 corridor will have fundamental and long-range impacts on the County. Traffic patterns will change dramatically, as will the role of U.S. Route 220 for commuters. The current growth of highway oriented business along U.S. Route 220 may be altered by an impetus to locate businesses and services at future Interstate interchanges. Similarly, the role of Route 40 to the west of Rocky Mount may be dramatically changed, depending on whether the Interstate follows the Bypass around Rocky Mount, or is located further to the east.

The Plan includes an action item that states:

> The conceptual alignment with adjacent counties and the Comprehensive Plan process will be coordinated. The preferred alignment is anticipated to be east of Rocky Mount.

Two potential alignments are indicated in the Plan:

(1) An alignment located west of the existing U.S. Route 220 which avoids Boones Mill, follows a straighter alignment between Wirtz and Gogginsville, joins the existing U.S. Route 220 Bypass in Rocky Mount south to Route 674 and continues west of existing U.S. Route 220 to the North Carolina border.

Proposed or upgraded interchanges are located at Route 40 in Rocky Mount and at intersections with Routes 674 and 619.

(2) An alignment located east of the existing U.S. Route 220 between Kennett and Bonbrook, crossing Route 40 at Redwood, continuing south to Sontag and then south to the North Carolina border. Potential interchanges are indicated at Route 122, Route 40 near Redwood and at Route 619 near Sontag.

1.7.5 Rocky Mount 2020 Transportation Plan

The Rocky Mount 2020 Transportation Plan (2002) was developed as a joint effort between VDOT and Town of Rocky Mount. The location of the proposed I-73 as adopted by the CTB does not fall within the Rocky Mount planning area. This Plan does not list any major improvements to US Route 220.

1.7.7 TransAmerica Corridor Feasibility Study

The Transamerica Corridor Feasibility Study is the West Virginia and Virginia response to the nationwide priority corridor evaluation of the TransAmerica transportation corridor from Los Angeles to Virginia Beach begun in 1994. The feasibility study considered potential connections between Virginia Beach - Hampton Roads and spanning the Allegheny Mountains across the southern portion of the state to Beckley, West Virginia. The Transamerica Corridor bisects the study area in the vicinity of Roanoke County near U.S. Route 220 and U.S. Route 460. The I-73 Location Study currently is farther along in the design and review process than the Transamerica Corridor Study. An integral element of the TransAmerica study was demonstration of the direct relationship between transportation investments and the growth of jobs, general economic spending and fiscal revenue growth in adjacent localities.

1.7.8 Martinsville-Henry County Area 2020 Transportation Plan

The Martinsville-Henry County Area 2020 Transportation Plan was developed as a joint effort between VDOT, the City of Martinsville, and Henry County. This plan was adopted on January 27, 2004. This plan is one of several that have been developed by VDOT for small urban areas across the Commonwealth. These plans focus on major non-interstate thoroughfare roadway improvements within the planning area. In the Martinsville-Henry County Area 2020 Transportation Plan, I-73 is mentioned as being especially useful in the movement of goods. The Plan map also identifies the location of the proposed I-73 as adopted by the CTB. This Plan does not list any major improvements to US Route 220.