ROUTE 221 CORRIDOR MANAGEMENT STUDY
BEDFORD COUNTY, VIRGINIA

JUNE 2002
Executive Summary

The Route 221 Corridor Management Study was prepared to provide a plan by which Bedford County can preserve and enhance this major transportation resource, while also accommodating and enhancing economic development. The 5.15-mile corridor extending from Jefferson Ridge Parkway west to Route 663 (Perrowville Road) has 214 access points (including roads and driveways on both sides of Route 221). Traffic volumes in 2002 ranged from 18,000 vehicles per day in the southern portion of the corridor to just over 25,000 vehicles per day at the northern end. Development, new access points, and traffic volumes are expected to grow substantially over the next 20 years. Traffic volumes in the year 2025 are expected to range between 29,000 vehicles per day in the south and 39,000 vehicles per day in the north, an increase of approximately 60 percent.

This study’s plans and guidelines for managing Route 221 will support economic development, promote travel efficiency, and enhance traffic safety in the corridor. A conceptual Corridor Circulation Plan describes a proposed area circulation system that can be used to guide the expenditure of public and private transportation funds, and that anticipates potential changes in the corridor, as well as the need for improvements to support these changes. Guidelines for coordinated actions by various stakeholders (corridor businesses and landowners, Bedford County, and the Virginia Department of Transportation) provide the mechanism for realizing a vision for the Route 221 corridor: a safe, efficient, and attractive gateway that supports long-term economic development for Bedford County.

The recommended plans and guidelines include:

- **Implementing regulations that support long-term, sustainable economic development and preserve the mobility function of Route 221**: Additions to the Bedford County Comprehensive Plan are recommended, as is the implementation of overlay zoning that provides incentives for shared or indirect access to Route 221.

- **Roadway design that supports the improvement of Route 221 as Bedford County’s Gateway into the City of Lynchburg**: Control of access and roadway improvements will both increase the attractiveness of Route 221 as a gateway corridor into Lynchburg. A Corridor Circulation Plan will provide motorists with safe options to turning left onto and off of Route 221 for many trips and to using Route 221 for short, local trips. Once local circulation options are developed, improvements can be made to the cross-section of Route 221 to enhance its safety, efficiency, and appearance. These improvements would include the installation of a landscaped median. The full range of roadway and access improvements to Route 221 will greatly enhance this Bedford County Gateway Corridor.
Section 1: Introduction

Route 221 (Forest Road) in Bedford County is a major thoroughfare that is critical to the economic vitality of the County and surrounding region. This roadway serves local residents going to work, to shop, and to other activities, as well as local businesses that rely on Route 221 to bring customers to them and to carry their goods to other markets. Route 221 also serves as the major connector between the City of Bedford and the City of Lynchburg. Maintaining Route 221 as a safe and efficient corridor for both local and regional traffic is important to its role in supporting the economic vitality and quality of life in eastern Bedford County and the City of Lynchburg. This study investigated ways for Bedford County to manage this important resource for the benefit of its citizens and businesses, both now and into the future.

1.1 Study Approach

The primary goal of this study was to promote long-term economic development in the corridor while maximizing traffic flow and safety. Route 221 is an important economic resource for Bedford County and it is important to develop ways to best take advantage of this resource for the county as a whole and for the long term. The Virginia Department of Transportation has developed engineering plans for widening the current two-lane portions of Route 221 (from south of the railroad bridge to Route 663). Construction is underway for improving the intersection of Route 221 with Route 663 and widening the portions of Route 221 immediately on either side. Funding for the remainder of the currently designed project has been delayed due to Virginia’s current transportation financial constraints. Beyond these projects (and particularly for any potential improvements for the current 4-lane section of Route 221 between the railroad bridge and the City of Lynchburg), any other improvements to Route 221 would occur only as funds become available or as changes in land uses occur. This study’s approach, therefore, focused more on planning and responding to change than on major, immediate changes in the corridor. With this approach, the study identified opportunities, whether from changes in traffic patterns or safety, or through changes in land use, and provides guidance on how best to capitalize on these opportunities.

While managing Route 221 will be important for Bedford County as a whole, this study recognizes that those who own businesses, live, or work immediately along Route 221 will be most affected by changes to the road. The changes could be positive and/or negative, depending on location, type of land use, and type of change. As a result, a group of corridor businesses and residents were identified and their input was solicited. This group initially helped to identify concerns; later in the study they were asked to provide feedback on initial study recommendations.

Finally, this study incorporated an emphasis on the implementation process. Study recommendations are intended to be comprehensive, viable, and realistic. This document describes the study process and recommendations, but also includes detailed information on the implementation of the recommendations.

1.2 Managing Route 221

As indicated above, Route 221 is an important economic resource for Bedford County. Vehicles on Route 221 are potential customers, or people going to work, or commercial vehicles carrying goods to markets. In general, properties directly on Route 221 are best positioned to make use of this resource, particularly if they have direct access to traffic going in both directions. It is in the immediate and short-term interest of these adjacent property owners and, indirectly, local jurisdictions, to exploit the value of the road. The result is typical “strip” development, with property owners seeking the maximum level of access to and from the road. Exhibit 1 shows an example of this type of development, with its attendant high density of driveways and median crossovers.

Exhibit 1: “Strip” Development on Route 221

The downside to this type of development is that, by exploiting the roadway resource, its value will become depleted. Route 221 will become more congested, and motorists getting on and off the road along its length will create speed variations and safety concerns. In general, Route 221 will become less safe, traffic lights will be added, traffic will move at slower speeds, and the road will become less attractive. Customers may start avoiding businesses in the corridor, not because the roadway design limits access (with medians, for example), but because they believe that they cannot get to and from roadside businesses quickly and safely. In addition, the total economic development of the corridor will be limited by the amount of available frontage property. Property that is not directly on Route 221 will not only not have access to the road, but its value will be harmed by the congested conditions and general unattractiveness of Route 221 itself.
The alternative to exploiting the economic resource of Route 221 is to manage it. Managing this resource will provide both higher and more sustainable long-term economic benefits to Bedford County. Exhibit 2 provides a snapshot example of the Route 221 corridor with long-term planning and management. By constructing additional roads for property access, twice as much land is open for development. The result is increased options for the location and spacing of buildings, as well as the potential for additional open space and visual amenities. Separating the longer distance traffic (which will remain on Route 221) from the shorter trips going to and from properties (which will use the parallel access roads) will improve traffic flow and safety. Fewer driveways and median breaks on Route 221 will increase its attractiveness as a gateway into Bedford County. Improved traffic flow on Route 221 will also enhance the overall corridor’s attractiveness, benefiting the entire corridor and not just the properties immediately on Route 221.

**Exhibit 2: Corridor Management on Route 221**

--- Smoother, safer traffic flow on Route 221
--- Gateway visual treatment on Route 221 enhances property values
--- Additional property available for development

--- Section 2: Study Corridor Transportation Conditions

Route 221 is designated as a state primary route, and connects the cities of Lynchburg and Bedford. It has also developed as a major commercial corridor in the Lynchburg area. The specific study area for this project extends from Route 663 (Peroowville Road) in Bedford County east to the City of Lynchburg corporate limits. In order to assess the effects of traffic and roadway conditions as Route 221 enters the City of Lynchburg, traffic data was also collected at the first signalized intersection in the City, at Jefferson Ridge Parkway. Route 221 is two lanes from Route 663 east to the railroad bridge between Route 620 and Route 1415, where it becomes four lanes with a center turn lane, or flush median.

On the 5.15 miles from Route 663 to Jefferson Ridge Parkway, there are currently 214 access points on both sides of Route 221 (including roads and driveways). On average, the corridor now has an access point every 127 feet (41.6 access points per mile). Traffic volumes in 2002 ranged from 18,000 vehicles per day in the southern portion of the corridor to over 25,000 vehicles per day at the northern end. Development continues in the Route 221 corridor, and additional access points can certainly be expected by the year 2025.

Traffic in the corridor will also continue to grow. Traffic forecasts, developed using the Lynchburg region’s computerized transportation model, show that traffic volumes in the corridor by the year 2025 will range from a low of about 29,000 vehicles per day to close to 40,000 vehicles per day. These traffic forecasts are primarily a function of expected changes in land use (i.e., increases in population and employment in Bedford County and the Lynchburg region as a whole).

Traffic engineers evaluate the traffic operations of roads based on the concept of level of service. The analysis rates traffic operations as a level of service rating from A to F, with A representing excellent traffic flow with minimal delays and F representing failure in traffic operations and very long delays. For most areas in the state, VDOT rates levels of service A, B, or C as acceptable and levels of service D, E, or F as unacceptable. This level-of-service analysis using grades A through F was used for roadway segments and signalized intersections. Unsignalized intersections were analyzed using a planning-level approach, which rates intersections as operating at conditions that are under, near, or over capacity. Under- and near-capacity operations are judged as acceptable, while over-capacity conditions are judged to be unacceptable.

A total of 7 intersections in the corridor (all signalized) were analyzed for traffic operations for both 2002 and 2025 traffic. Turning movements for each of the intersections that were analyzed for this study are included in Appendix A.

A summary of traffic operations on Route 221 in 2001 and 2020 is shown in Exhibit 4. In general, 2002 traffic operations are acceptable with the exception of two intersections in the western part of the study corridor (Route 663 and Route 811). For the year 2025, the projected increases in traffic on Route 221 will substantially increase the delay for motorists trying to get onto Route 221 from side streets. The result is that, for six of the seven intersections analyzed, delays for the side street traffic will exceed the planning-level threshold for acceptable delay. These results indicate that there will likely be an increase in the number of traffic signals on Route 221 to accommodate this side street
It is important to note that the installation of traffic signals is based on actual, not projected, traffic and safety data. The actual number and locations of additional traffic signals in the study corridor cannot be pinpointed, but the projected increases in traffic will almost certainly result in a substantial increase in their number.

---

### Exhibit 3: Summary of Roadway Conditions

<table>
<thead>
<tr>
<th>Segment Endpoint</th>
<th>Distance (miles)</th>
<th>Daily Traffic 2002</th>
<th>Daily Traffic 2025</th>
<th>Number of Access Points</th>
<th>Access Points per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>To</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA 663</td>
<td>VA 811</td>
<td>0.95</td>
<td>21,500</td>
<td>32,800</td>
<td>21</td>
</tr>
<tr>
<td>VA 811</td>
<td>VA 609</td>
<td>0.50</td>
<td>18,100</td>
<td>29,100</td>
<td>7</td>
</tr>
<tr>
<td>VA 609</td>
<td>VA 620</td>
<td>0.80</td>
<td>18,100</td>
<td>29,100</td>
<td>19</td>
</tr>
<tr>
<td>VA 620</td>
<td>VA 1415</td>
<td>0.70</td>
<td>18,100</td>
<td>29,100</td>
<td>9</td>
</tr>
<tr>
<td>VA 1415</td>
<td>VA 1426</td>
<td>0.50</td>
<td>23,500</td>
<td>39,900</td>
<td>11</td>
</tr>
<tr>
<td>VA 1426</td>
<td>VA 1425</td>
<td>0.20</td>
<td>25,400</td>
<td>37,400</td>
<td>5</td>
</tr>
<tr>
<td>VA 1425</td>
<td>VA 621</td>
<td>0.50</td>
<td>22,300</td>
<td>34,100</td>
<td>21</td>
</tr>
<tr>
<td>VA 621</td>
<td>Jefferson Ridge Parkway</td>
<td>1.00</td>
<td>23,500</td>
<td>39,900</td>
<td>11</td>
</tr>
<tr>
<td>VA 621</td>
<td>Jefferson Ridge Parkway</td>
<td>1.00</td>
<td>23,500</td>
<td>39,900</td>
<td>11</td>
</tr>
<tr>
<td>TOTALS (Average for Daily Traffic)</td>
<td></td>
<td></td>
<td></td>
<td>131.0</td>
<td>83.0</td>
</tr>
</tbody>
</table>

Note: NB = Access points adjacent to northbound lanes, SB = Access points adjacent to southbound lanes

---

### Exhibit 4: Summary of Intersection Operations

<table>
<thead>
<tr>
<th>Intersecting Route</th>
<th>Existing Traffic Control</th>
<th>Traffic Operations 2002</th>
<th>Traffic Operations 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 663</td>
<td>Signal Unacceptable Unacceptable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA 811</td>
<td>Signal Unacceptable Unacceptable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA 1415</td>
<td>Signal Unacceptable Unacceptable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA 1246</td>
<td>Signal Unacceptable Unacceptable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA 1245</td>
<td>Signal Unacceptable Unacceptable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VA 621</td>
<td>Signal Unacceptable Unacceptable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jefferson Ridge Parkway</td>
<td>Signal Unacceptable Unacceptable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Section 3: Route 221 Corridor Management Plan

In order to address both existing and projected transportation problems in the corridor, as well as maximize the long-term economic benefit of the corridor, a comprehensive plan to manage Route 221 was developed. This management plan combines roadway capacity and safety improvements, access management principles, and a corridor circulation plan. While some changes and improvements can be made relatively quickly, others will take time and money, and still others will be necessary only if and when certain changes take place in the corridor. The Route 221 Corridor Management Plan, therefore, categorizes recommendations as short-term (5 to 10 years to implement), mid- to long-term (15 to 20 years to implement), and others that have an indefinite planning horizon (they are intended to guide changes and/or will be implemented if and when such changes occur). The overall Corridor Management Plan is described in this section. Location-specific improvements are shown on the aerial photography in Exhibits A1 to A4 in Appendix A.

#### 3.1 Roadway Improvement Plan

Route 221 is a critically important road for Bedford County as the primary connection between Bedford City and Lynchburg. Its importance comes from its ability to move people and goods safely and efficiently and most of the funding for construction and maintenance of Route 221 is dedicated to ensuring that it maintains this ability. The Corridor Management Plan includes recommendations to enhance the safety and functionality of Route 221 through Bedford County. Elements of the roadway improvement plan include (the approximate timing of these recommendations is included in italics after each):

- Turn lane improvements at Perrowville Road, Thomas Jefferson Road, Guntree Road, Enterprise Road, and Cottontown Road as illustrated in Exhibit 5 – short/mid-term planning horizon
- Over time, construct a system of parallel roads that can serve localized traffic along Route 221 and focus access to a limited number of signalized intersections. – mid/long-term planning horizon
- Widen Route 221 from 2 through traffic lanes to 4 through lanes between just west of Enterprise Drive and just west of Perrowville Road. Over the long-term, this section of Route 221 should also include a landscaped median (see proposed typical section in Exhibit 6). – long-term planning horizon
- Widen Route 221 from 4 to 6 lanes between the City of Lynchburg and just west of Enterprise Drive. Construct a landscaped median with this improvement (the proposed typical section for this improvement is depicted in Exhibit 7) – long-term planning horizon
- Add traffic signals when warrants are met – long-term planning horizon
- Construct multi-use trails (pedestrian/bicycle) on both sides of Route 221 along the entire corridor (priority would be from north to south) – long-term planning horizon
Exhibit 6: Typical Cross-Section – Route 221 (Route 663 to West of Enterprise Drive)

Exhibit 7: Typical Cross-Section – Route 221 (West of Enterprise Drive to City of Lynchburg)

Total estimated right-of-way width extending from the outside edges of the bicycle/recreational trail would be 92'-102'.

Total estimated right-of-way width extending from the outside edges of the bicycle/recreational trail would be 116'-126'.
3.2 Access Management Plan

An effective corridor management plan must balance the property access and through traffic mobility functions of Route 221. This should be accomplished through the strategic location of access points and allowed vehicular turning movements. The access management plan portion of the corridor plan focuses on guidelines to prevent the overcrowding of driveways, traffic signals, and median crossovers that will ultimately overburden Route 221 with excessive vehicular conflicts. The following guidelines are recommended:

- Prohibit left turns onto and off of Route 221 between Graves Mill Road and Gristmill Drive – short/mid-term planning horizon
- Install landscaped median along the entire corridor with median crossovers located only at signalized intersections – long-term planning horizon
- Maintain a minimum spacing between traffic signals of 2,500 feet – long-term planning horizon

Considering these traffic signal spacing guidelines and the characteristics of the Route 221 corridor, recommendations for specific traffic signal/median crossover locations were developed. The characteristics include the existing location of Route 221 junctions with key roadways and the recommended location of planned parallel circulation roadways described in the following section. The installation of new traffic signals should be limited to locations depicted on Exhibits A2 through A4 in Appendix A.

3.3 Corridor Circulation Plan

While the Corridor Circulation Plan provides the blueprint for what the corridor will ultimately look like, the overall corridor management plan includes recommendations that first ensure that existing problems do not get any worse and then ultimately support the implementation of the circulation plan.

- Develop a system of parallel roads that can serve localized traffic along Route 221. While this would ultimately be a complete system, this roadway system could evolve as properties are developed or redeveloped. As properties develop, right-of-way to construct sections of this parallel road system should be reserved. In some cases, large developments may construct portions of the roadway to facilitate their own internal circulation in addition to serving the interests of the entire corridor. Other portions may be built by VDOT, again to facilitate overall corridor goals (for example, construction of parallel roads would reduce or put off the need to widen Route 221 itself). The recommended parallel roadways are conceptual and their actual location would be determined based on property development and engineering considerations when they are actually designed. An illustration of the recommended parallel roadway system is presented on Exhibits A2 through A4. These parallel roads should meet the following criteria:
  - Wherever possible, the parallel roads should be located between 300 to 700 feet of the centerline of existing Route 221 (generally along the rear, not the front, of the land parcels along Route 221).

- The parallel roads should provide a means for motor vehicles to access Route 221 at designated access points (Perrowville Road, Thomas Jefferson Road, Gumtree Road, Enterprise Drive, Gristmill Road, Graves Mill Road, and Cottontown Road) and should minimize the need for motorists to use Route 221 for short local trips that have both origins and destinations within the study corridor.
- The parallel roads should provide connections to and between the recommended access points.
- The parallel roads should be constructed to meet appropriate VDOT standards. These roads should be designed to serve projected levels of land development, as well as projected traffic volumes. The three types of parallel roads recommended for the corridor are:
  - a. Type I (high-volume roads): Four lanes with sidewalks and 24’ median. Total right of way is 90’. Illustrated on Exhibit 8
  - b. Type II (moderate-volume roads): Two lanes with sidewalks. Total right of way is 50’. Illustrated on Exhibit 9.
  - c. Type III (low-volume roads for access to small residential clusters): Two lanes. Total right of way is 24’. Illustrated on Exhibit 10.
- Initial consideration for this parallel roadway system should be given to connecting Graves Mill Road and Enterprise Drive (on the east, extending Route 1426; on the west, extending Route 1209).
3.4 Implementation Considerations

Bedford County should adopt an overlay zoning ordinance to implement transportation access management within the Route 221 corridor. This ordinance will:

   a. Provide favorable consideration for new development that incorporates shared entrances, inter-parcel access, or access via internal and/or secondary roads;
   b. Provide incentives and bonuses for combining access points (shared and inter-parcel access);
   c. Allow one access point per parcel and institute minimum parcel frontage requirements.

Sample language for the overlay district ordinance is provided in Appendix C.
Appendix A: Corridor Circulation Plan
Note: This aerial photograph depicts the study recommendations for a Corridor Circulation Plan. Note that the parallel roads are conceptual and the lines showing the locations for these roads represent a planning concept only. If and when these roads are constructed, the actual alignments may vary substantially from those shown.
Note: This aerial photograph depicts the study recommendations for a Corridor Circulation Plan. Note that the parallel roads are conceptual and the lines showing the locations for these roads represent a planning concept only. If and when these roads are constructed, the actual alignments may vary substantially from those shown.
Note: This aerial photograph depicts the study recommendations for a Corridor Circulation Plan. Note that the parallel roads are conceptual and the lines showing the locations for these roads represent a planning concept only. If and when these roads are constructed, the actual alignments may vary substantially from those shown.
### Appendix B: 2001/2025 AM Peak Hour and 2001/2025 PM Peak Hour Traffic Volumes at Corridor Intersections

#### Exhibit B-1: 2001 AM Peak Traffic Volumes at Route 221 Intersections

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>NBL</th>
<th>NBT</th>
<th>NBR</th>
<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
<th>EBL</th>
<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 663</td>
<td>712</td>
<td></td>
<td></td>
<td>210</td>
<td>414</td>
<td>569</td>
<td></td>
<td></td>
<td></td>
<td>787</td>
<td></td>
<td>889</td>
</tr>
<tr>
<td>VA 811</td>
<td>497</td>
<td>386</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1295</td>
<td>65</td>
<td>238</td>
</tr>
<tr>
<td>VA 1415</td>
<td>81</td>
<td>80</td>
<td>651</td>
<td>3</td>
<td>14</td>
<td>9</td>
<td>38</td>
<td>950</td>
<td>61</td>
<td>319</td>
<td>608</td>
<td>37</td>
</tr>
<tr>
<td>VA 1426</td>
<td>107</td>
<td>3</td>
<td>22</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>1548</td>
<td>105</td>
<td>17</td>
<td>811</td>
</tr>
<tr>
<td>VA 1425</td>
<td>268</td>
<td>67</td>
<td>73</td>
<td>10</td>
<td>24</td>
<td>22</td>
<td></td>
<td></td>
<td>1372</td>
<td>195</td>
<td>65</td>
<td>572</td>
</tr>
<tr>
<td>VA 621</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>339</td>
<td>2</td>
<td>302</td>
<td></td>
<td></td>
<td></td>
<td>737</td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>

**Abbreviations:**
- NBL = northbound left
- NBT = northbound through
- NBR = northbound right
- SBL = southbound left
- SBT = southbound through
- SBR = southbound right
- EBL = eastbound left
- EBT = eastbound through
- EBR = eastbound right
- WBL = westbound left
- WBT = westbound through
- WBR = westbound right

*For purposes of this table, Route 221 is assumed to be an east-west road.*

#### Exhibit B-2: 2025 AM Peak Traffic Volumes at Route 221 Intersections

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>NBL</th>
<th>NBT</th>
<th>NBR</th>
<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
<th>EBL</th>
<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 663</td>
<td>1002</td>
<td></td>
<td></td>
<td>295</td>
<td>583</td>
<td>897</td>
<td></td>
<td></td>
<td></td>
<td>1241</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>VA 811</td>
<td>1004</td>
<td>608</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2045</td>
<td>102</td>
<td>375</td>
</tr>
<tr>
<td>VA 1415</td>
<td>199</td>
<td>100</td>
<td>1604</td>
<td>5</td>
<td>22</td>
<td>14</td>
<td>60</td>
<td>1496</td>
<td>96</td>
<td>503</td>
<td>958</td>
<td>58</td>
</tr>
<tr>
<td>VA 1426</td>
<td>107</td>
<td>3</td>
<td>22</td>
<td>12</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>2440</td>
<td>105</td>
<td>17</td>
<td>1278</td>
<td></td>
</tr>
<tr>
<td>VA 1425</td>
<td>268</td>
<td>67</td>
<td>73</td>
<td>10</td>
<td>24</td>
<td>22</td>
<td></td>
<td></td>
<td>1372</td>
<td>155</td>
<td>90</td>
<td>826</td>
</tr>
<tr>
<td>VA 621</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>535</td>
<td>4</td>
<td>477</td>
<td>90</td>
<td>1531</td>
<td>2</td>
<td>0</td>
<td>1066</td>
<td>99</td>
</tr>
<tr>
<td>JRP</td>
<td>233</td>
<td></td>
<td></td>
<td>35</td>
<td>71</td>
<td>2098</td>
<td></td>
<td></td>
<td></td>
<td>1162</td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>

**Abbreviations:**
- NBL = northbound left
- NBT = northbound through
- NBR = northbound right
- SBL = southbound left
- SBT = southbound through
- SBR = southbound right
- EBL = eastbound left
- EBT = eastbound through
- EBR = eastbound right
- WBL = westbound left
- WBT = westbound through
- WBR = westbound right

*For purposes of this table, Route 221 is assumed to be an east-west road.*

#### Exhibit B-3: 2001 PM Peak Traffic Volumes at Route 221 Intersections

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>NBL</th>
<th>NBT</th>
<th>NBR</th>
<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
<th>EBL</th>
<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 663</td>
<td>776</td>
<td></td>
<td></td>
<td>295</td>
<td>583</td>
<td>897</td>
<td></td>
<td></td>
<td></td>
<td>1241</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>VA 811</td>
<td>783</td>
<td>608</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2045</td>
<td>102</td>
<td>375</td>
</tr>
<tr>
<td>VA 1415</td>
<td>199</td>
<td>100</td>
<td>1604</td>
<td>5</td>
<td>22</td>
<td>14</td>
<td>60</td>
<td>1498</td>
<td>96</td>
<td>503</td>
<td>958</td>
<td>58</td>
</tr>
<tr>
<td>VA 1426</td>
<td>107</td>
<td>3</td>
<td>22</td>
<td>12</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>2440</td>
<td>105</td>
<td>17</td>
<td>1278</td>
<td></td>
</tr>
<tr>
<td>VA 1425</td>
<td>268</td>
<td>67</td>
<td>73</td>
<td>10</td>
<td>24</td>
<td>22</td>
<td></td>
<td></td>
<td>1372</td>
<td>155</td>
<td>90</td>
<td>826</td>
</tr>
<tr>
<td>VA 621</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>535</td>
<td>4</td>
<td>477</td>
<td>90</td>
<td>1531</td>
<td>2</td>
<td>0</td>
<td>1066</td>
<td>99</td>
</tr>
<tr>
<td>JRP</td>
<td>233</td>
<td></td>
<td></td>
<td>35</td>
<td>71</td>
<td>2098</td>
<td></td>
<td></td>
<td></td>
<td>1162</td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>

**Abbreviations:**
- NBL = northbound left
- NBT = northbound through
- NBR = northbound right
- SBL = southbound left
- SBT = southbound through
- SBR = southbound right
- EBL = eastbound left
- EBT = eastbound through
- EBR = eastbound right
- WBL = westbound left
- WBT = westbound through
- WBR = westbound right

*For purposes of this table, Route 221 is assumed to be an east-west road.*

#### Exhibit B-4: 2025 PM Peak Traffic Volumes at Route 221 Intersections

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>NBL</th>
<th>NBT</th>
<th>NBR</th>
<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
<th>EBL</th>
<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 663</td>
<td>976</td>
<td></td>
<td></td>
<td>295</td>
<td>583</td>
<td>897</td>
<td></td>
<td></td>
<td></td>
<td>1241</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>VA 811</td>
<td>987</td>
<td>608</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2045</td>
<td>102</td>
<td>375</td>
</tr>
<tr>
<td>VA 1415</td>
<td>199</td>
<td>100</td>
<td>1604</td>
<td>5</td>
<td>22</td>
<td>14</td>
<td>60</td>
<td>1498</td>
<td>96</td>
<td>503</td>
<td>958</td>
<td>58</td>
</tr>
<tr>
<td>VA 1426</td>
<td>107</td>
<td>3</td>
<td>22</td>
<td>12</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>2440</td>
<td>105</td>
<td>17</td>
<td>1278</td>
<td></td>
</tr>
<tr>
<td>VA 1425</td>
<td>268</td>
<td>67</td>
<td>73</td>
<td>10</td>
<td>24</td>
<td>22</td>
<td></td>
<td></td>
<td>1372</td>
<td>155</td>
<td>90</td>
<td>826</td>
</tr>
<tr>
<td>VA 621</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>535</td>
<td>4</td>
<td>477</td>
<td>90</td>
<td>1531</td>
<td>2</td>
<td>0</td>
<td>1066</td>
<td>99</td>
</tr>
<tr>
<td>JRP</td>
<td>233</td>
<td></td>
<td></td>
<td>35</td>
<td>71</td>
<td>2098</td>
<td></td>
<td></td>
<td></td>
<td>1162</td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>

**Abbreviations:**
- NBL = northbound left
- NBT = northbound through
- NBR = northbound right
- SBL = southbound left
- SBT = southbound through
- SBR = southbound right
- EBL = eastbound left
- EBT = eastbound through
- EBR = eastbound right
- WBL = westbound left
- WBT = westbound through
- WBR = westbound right

*For purposes of this table, Route 221 is assumed to be an east-west road.*
Appendix C: Proposed Zoning Overlay District Ordinance

Section XX – Highway Corridor Overlay District

XX.1 Purpose and Intent
The purpose of this district is to protect and promote the public health, safety and general welfare by preventing or reducing traffic congestion and/or changes in the public streets; maintaining the function of arterial highways, primary highways, and secondary collector roads to encourage the most desirable development and use of land in accordance with the Comprehensive Plan, to improve pedestrian and vehicular circulation, to encourage architectural designs which result in functional and attractive relationships between buildings, the street system, and the surrounding areas.

XX.2 District Boundaries
1. The Highway Corridor District Boundaries shall be as follows: U.S. Route 221 from Route 621 to Route 663.
2. In lieu of a metes and bounds description, the District boundaries shall be described by fixing the point of beginning to the centerline of the highway and the point of ending shall be one-thousand (1000) feet from the centerline of the nearest two lanes.

XX.3 Establishment of Districts
The Highway Corridor Overlay District shall be in addition to and shall overlay all other zoning districts where it is applied so that any parcel of land lying in whole or part in the Highway Corridor Overlay District shall also lie within one of more of the other zoning districts provided by this ordinance. The effect shall be the creation of new zoning districts consisting of the regulations and requirements of both the underlying district(s) and the Highway Corridor Overlay District.

XX.4 Administration
The administration of the section shall be through site plan requirements and through sections of the Subdivision Ordinance.

XX.5 Permitted Uses
All uses permitted by right or by special exception/use in the underlying zoning district(s).

XX.6 Lot Area and Other Dimensional Requirements
The lot dimensions and other dimensional requirements shall be the same as those requirements set forth in the underlying zoning district(s) except that the minimum front setback shall be sixty-five (65) feet from the centerline of the nearest two lanes unless a greater setback is required by the underlying zoning district.

XX.7 Design Requirements
All uses shall be subject to the limitations and development standards set forth in the underlying zoning district(s) and shall be subject to the following limitations:

1. Such uses shall have access designed so as not to impede traffic on Route 221, which is intended to carry through traffic. To such end, access via the following means may be given favorable consideration:
   a. By the provision of shared entrances, inter-parcel travel-ways or on-site service drives connecting adjacent properties or through access points and existing and future transportation improvements as shown in Route 221 Corridor Management Plan, as incorporated into the Comprehensive Plan;
   b. By access from a public highway other than that on which the property is fronted;
   c. By the internal streets of a commercial, office, or industrial complex.

2. One point of access shall be permitted for each lot with a minimum of 850 feet of frontage. One additional entrance or road may be permitted for each additional 1,250 feet if approved by the Planning Commission. The form of this access will be determined by the Planning Commission; this access shall be as defined in the Route 221 Corridor Management Plan, as incorporated into the Comprehensive Plan. The Planning Commission may modify this requirement if it finds that it best accomplishes the purposes of Section XX.1.

Existing parcels of land shall not be denied access to a public highway if no reasonable joint or cooperative access is possible, at the time of development.

3. A bonus shall be given for combining access points when two adjacent property owners agree. The total lot size and road frontage normally required will be reduced by 15 percent for both landowners. In addition, the required number of parking spaces will be reduced by 15 percent for each development. Site circulation and safety standards will still be enforced.

4. Pedestrian circulation shall be provided for and coordinated with that generated from or using adjacent properties.

5. Parking areas shall be landscaped both externally and internally.

6. A landscape plan shall be required with any site plan for commercial or industrial development or major subdivisions plat.