

**A Study of the Transportation
And Land-Use Planning Connection
In the Rappahannock-Rapidan Region**



**Rappahannock-Rapidan
Regional Commission**
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OVERVIEW

The Rappahannock-Rapidan Region, like other areas around the Washington D.C. metropolitan area, has been undergoing a change from a historically rural and agricultural region to one that is suburbanizing with new homes built primarily for commuters and retirees. Due to its proximity and accessibility to Northern Virginia and Washington, D.C., Fauquier County was the first county to experience increased levels of growth, followed by Culpeper County. Most growth has occurred around the central Towns of Warrenton and Culpeper. Madison County and Orange County have seen the beginnings of increased housing demand, while Rappahannock County remains isolated to the west and has maintained steady population levels in recent years.

Suburban development across the nation began in the 1950's as the country started to develop a national highway system and as individual car ownership became more affordable. The counties closest to Washington, D.C. were the first to develop in this way, but continued investment in auto-oriented low-density development causes the suburban sprawl to push outward into neighboring areas. As several counties in Northern Virginia develop into major employment centers, it becomes easier for employees to commute from the R-R Region. The available land and low real estate prices in the R-R Region are also very desirable when compared to the high-cost market in metropolitan areas.



A typical housing development in the Rappahannock Rapidan Region.

Source: RRRC

The R-R Region is served by several main transportation corridors that have become heavily used by commuters. These include Routes 29, 17, 15, 28, 3, 522, and 211. New bedroom communities have been spreading along the length of these corridors, especially around some of the county seats that have water and sewer utilities, as well as at major corridor intersections. Volume and congestion on the roads is affected by the increasing number of vehicles as well as an increasing number of driveways and roads that lead into the main corridors.

Transportation planning and land-use planning are directly related issues. Building new roads can provide access to undeveloped land that can now be



Route 29 has limited access in much of Culpeper County

Source: RRRRC

developed for large-scale residential projects. Expanding road capacity can likewise make an area easier for people to commute from, thereby fueling increased development even though the additional road capacity often disappears with the accompanying pace of development. In both cases, careful consideration must be given before developing or expanding the road network as these new improvements

can direct future development for years to come. Land-use planning equally drives transportation planning. As is apparent on many corridors in our region, development

of rural land for residential or other purposes can lead to congestion and unsafe roadways, necessitating improvements to the road network.

The R-R Region is at an opportune time to take advantage of the connections between transportation and land-use planning. Demand for residential development continues to increase and several jurisdictions are already considering options to improve their road networks in order to accommodate the new growth. Many residents continue to work and shop in areas surrounding the region, but town centers here are experiencing increased demand for commercial services. Towns and counties in the region have an opportunity to responsibly plan for the coming growth by examining the successes of jurisdictions in Northern Virginia and by learning from other jurisdictions in the R-R Region.

The aim of this report is to help foster a regional dialogue on the different transportation and land-use pressures confronting each jurisdiction as well as the methods they are using to address this connection. It is hoped that individual summaries of the planning process in each jurisdiction can serve as an instructional tool for its neighbors. This report also makes general planning recommendations for the jurisdictions to consider as well as providing additional resources to consult on this issue.

JURISDICTIONAL PROFILES

The towns and counties in the Rappahannock-Rapidan Region are unique in their transportation network, developmental pressures, and planning initiatives. The following sections provide a sampling of each jurisdiction's experiences and intentions in relation to the transportation and land-use connection. These summaries were compiled by meeting with one or several members of the jurisdiction's planning department staff or appropriate planning official.

Culpeper County

Culpeper County, like most areas in the region, has experienced heightened growth in recent years. This trend is largely attributable to the attractiveness of the area and the appeal to commuters moving down from the Washington, D.C. metropolitan area as well as to retirees who are looking for a higher quality of life. Culpeper County has been identified as one of the top one hundred fastest growing counties in the nation according to U.S. Census figures. Most development has been occurring around the Town of Culpeper because of the utility services it provides, and along the major transportation corridors such as Routes 29, 211, and 522.

The increase in development has been driven by existing zoning in the County. Past revisions of Culpeper County's Comprehensive Plan and zoning ordinance have made ample amounts of land available for development or have allowed for the possibility of rezoning for development, especially residential. The County is currently finalizing revisions to the Comprehensive Plan, many of which are in response to accommodating the traffic that has come from the increased residential development.

Because of the rate at which land is being developed, developers are already looking for new parcels that can be developed as a result of new roadways the County may be planning. These new roadways often open previously unreachable parcels to development.

The County's hot spots for development include the Northridge developments along Ira Hoffman Lane. This area is located just north of the Town of Culpeper between Routes 29 and 229. There are over 300 residential units going in at three different Northridge developments. Ira Hoffman Lane, which is relatively new, has other housing developments proposed to be built along it. With the housing filling in, there have been two successful commercial rezonings (one large property, one small)—the demand for commercial properties was created by the housing being built. As evidence of one case of cooperation between the County and developers, a land owner had donated the right of way for Ira Hoffman Lane through the Northridge development because he owned the land

surrounding it. When Ira Hoffman Lane was built, designated access points on the road were created to accommodate the through-traffic using the road.

South of the Town of Culpeper, zoning for residential and commercial was already in place when the Route 299 corridor was expanded to four lanes (an example of existing zoning driving transportation). The commercial zoning parcel there is one of the last few large commercial properties in the County and can accommodate a big-box retailer in the future. When Route 299 was expanded as a four-lane divided highway, access points were delineated to control traffic congestion (as was done along Ira Hoffman Lane north of the Town).

Also at the southern end of the Town of Culpeper is a large area of industrial zoning the County has had in place. Future plans (see Figure 1) show new road connections between Routes 29 and 522 in order to improve access to the Lovers Lane Industrial Area. The County has no current plans to four-lane Route 522.

The density of county development ringing the Town of Culpeper has added to the traffic congestion in town as people drive in for work or for services. Therefore, the County has been developing its road network to help route traffic around the Town. Since 1999 the County has been developing plans (along with the Town of Culpeper) to develop a loop around the Town (see Figure 2). This loop would allow through-traffic to bypass the Town, providing for better circulation through the County and also alleviating the congestion occurring on Main Street. The eastern portion (along McDeavitt Drive) is largely built and runs roughly between Routes 3 and Business 29. The northeast corridor is also completed along Ira Hoffman Lane. The northwest portion connecting from Route 229 down to Route 522 has been identified as the next portion of high importance. This corridor will serve as an important connection for through-traffic from Route 522 and points west to bypass the Town of Culpeper as they commute to areas north. It will also connect the areas west to the main commercial area at the northern end of the Town. The land along this proposed corridor contains many large parcels that, once a new road provides access to them, would require rezoning to accommodate new development.

The transportation loop will exist in most places in close vicinity to the Town of Culpeper, but cannot be built close to town in the southwest area because the land is in use by the Country Club of Culpeper. Instead, the County has plans to build a connector between Routes 522 and 29 at the intersection of 641 (see Figure 3) west of the Town. It will cut through the Stoneridge development where the developer has already allowed for a right of way. Though construction of this new roadway may run through large tracts of undeveloped land, additional dense development in the area may be restricted because it is within the watershed for the town's water source and restrictions might be imposed. This area also does not have water or sewer utility service.

Figure 1 : LOVERS LANE INDUSTRIAL AREA

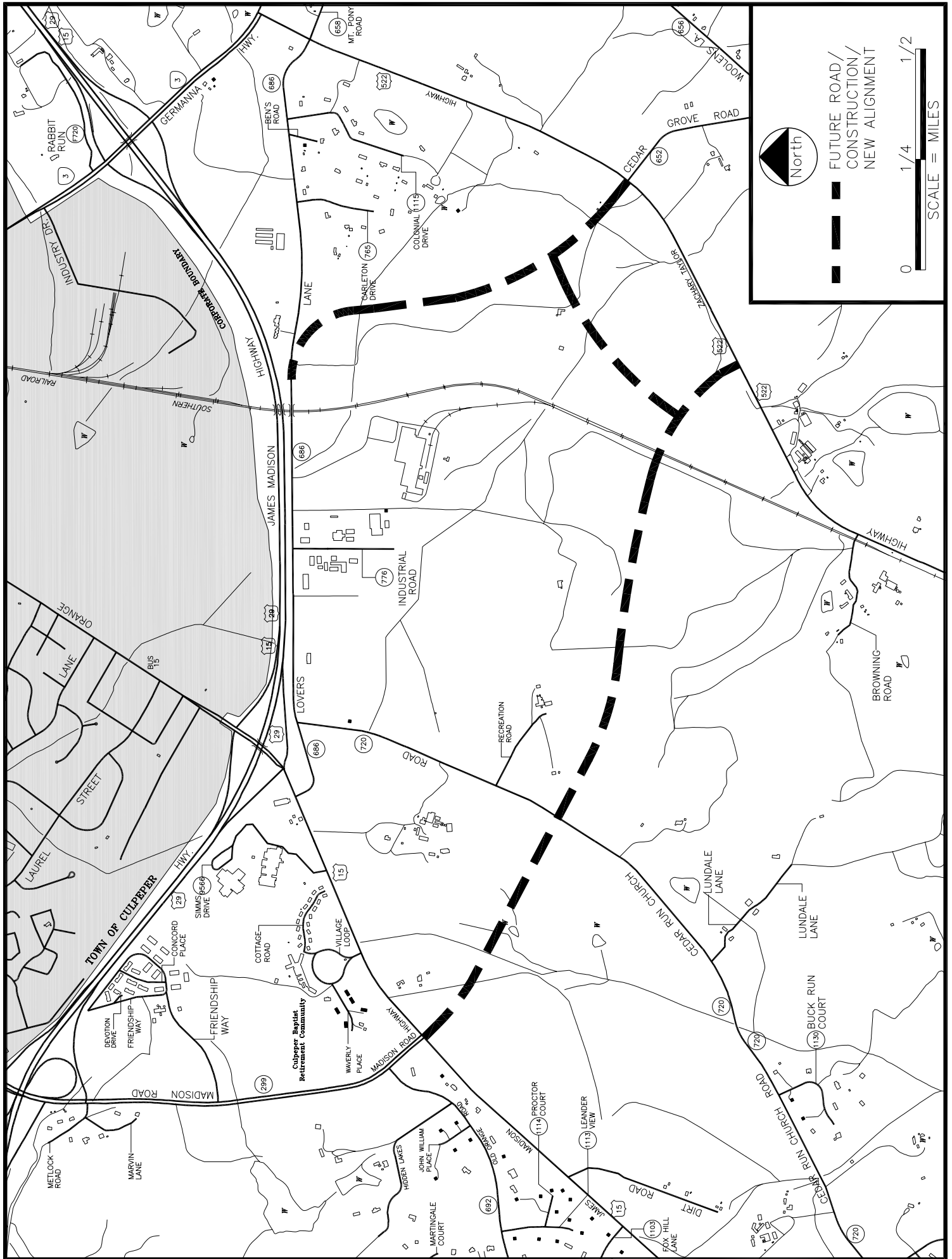
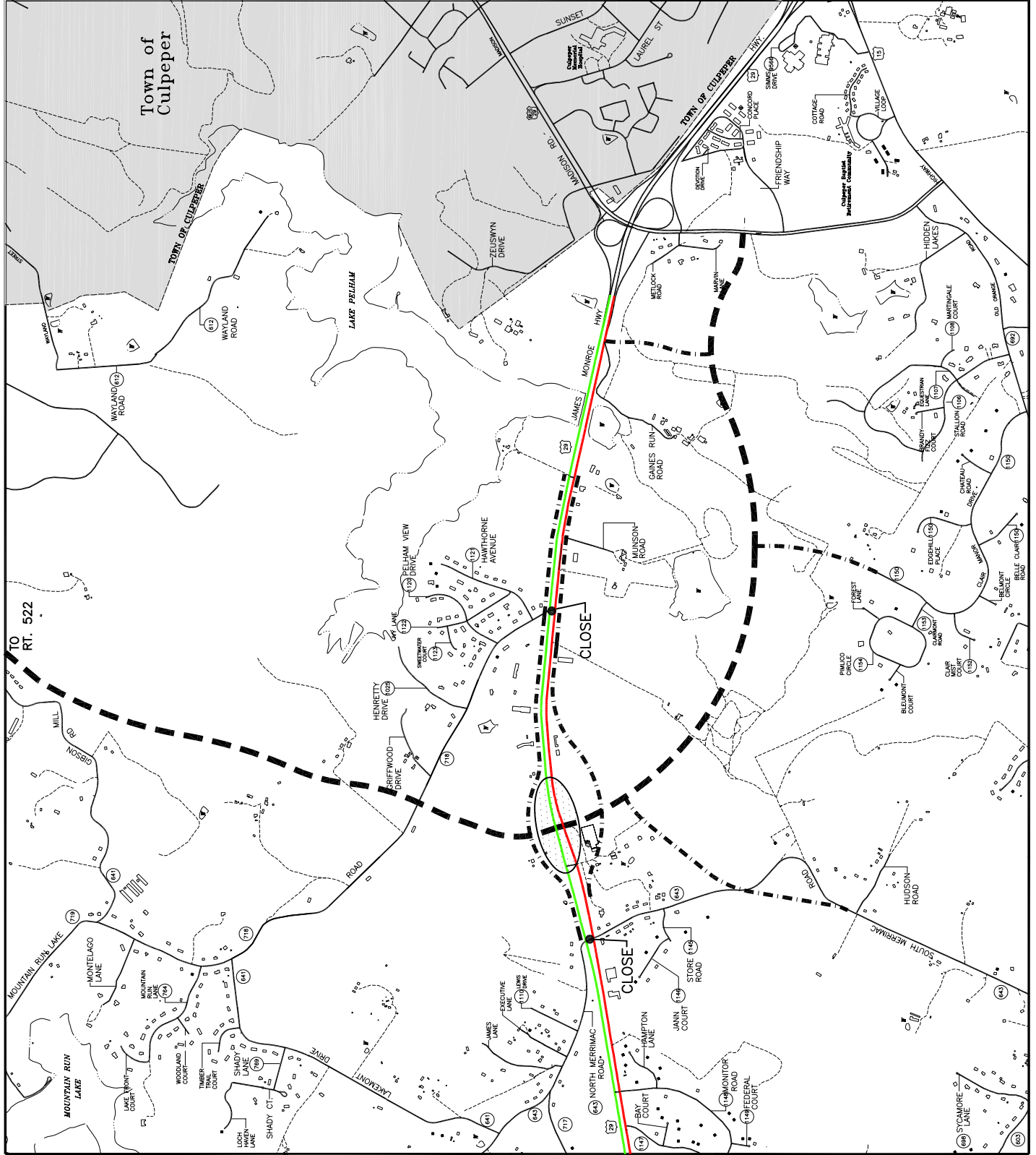




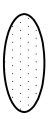


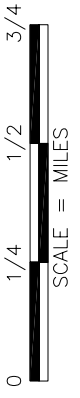


Figure 3 : ROUTE 29 SOUTH CORRIDOR



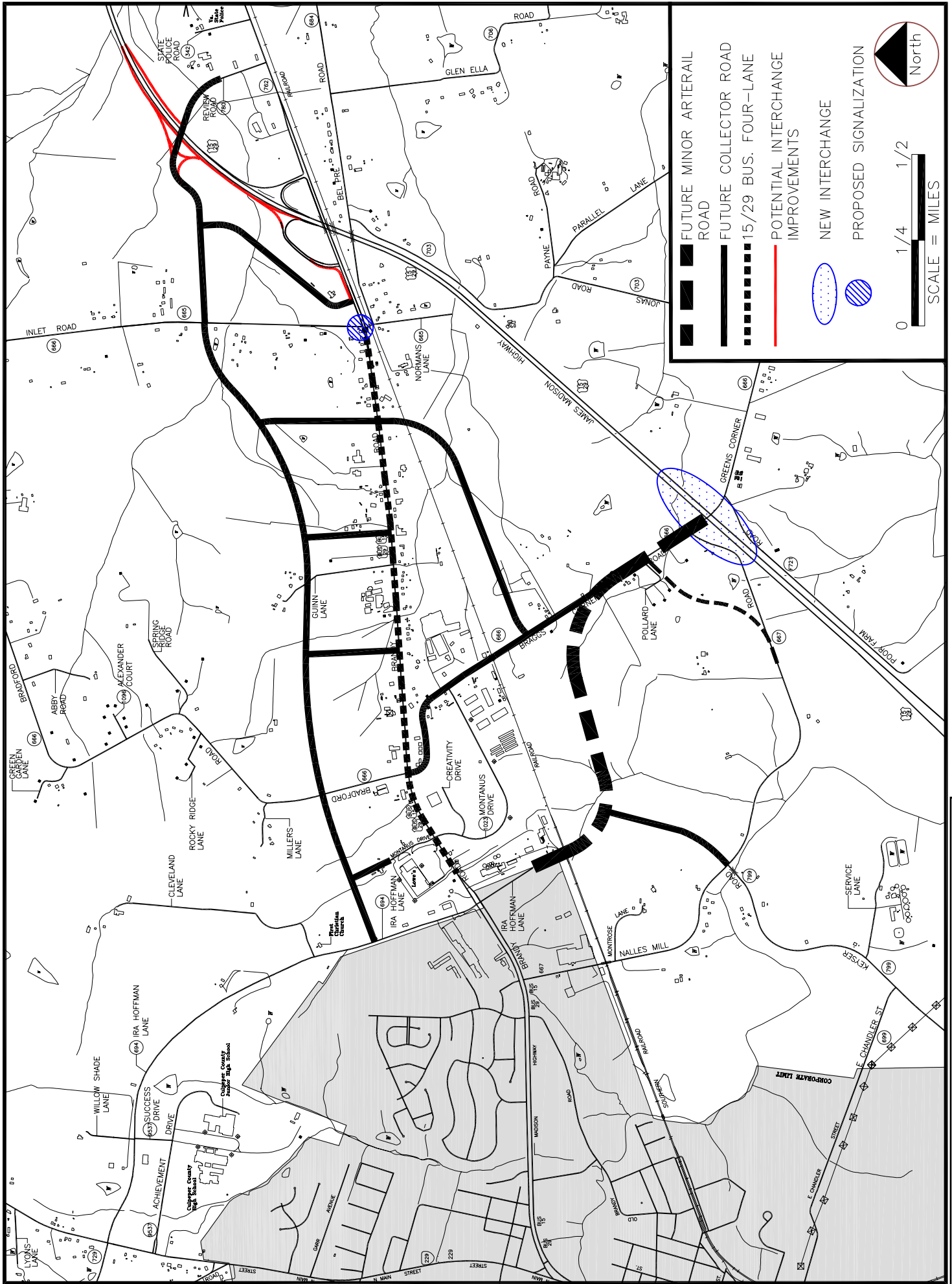
LEGEND

-  PRESERVE RIGHT-OF-WAY FOR THIRD LANE NORTH-BOUND AND SOUTHBOUND (CONTINUE TO MADISON COUNTY LINE)
-  UPGRADE LANES TO 60 MPH DESIGN SPEED
-  MINOR ARTERIAL
-  MINOR COLLECTOR/FRONTAGE ROAD
-  POTENTIAL FUTURE INTERCHANGE



PREPARED BY CULPEPER COUNTY PLANNING DEPT.

Figure 4 : ROUTE 15/29 BUSINESS CORRIDOR / INLET AREA



The County would like to increase the amount of available commercial zoning. An increased demand for commercial services has occurred because of the number of residential developments in recent years. There are property tracts of substantial size and commercial zoning located at the intersection of Routes 3 and 29 and near Routes 29 and 299. An area along Business 29 at the northern end of the Town of Culpeper is currently zoned industrial but will likely be changed to commercial because of the greater demand for that zoning.

The County is committed to preserving the restricted access of Route 29 and maintaining it as a major thoroughfare. They feel the restricted access has served its residents well and allows people to quickly get to their destinations, thereby raising the quality of life. It has been successful partly because the County has several other primary routes along which commercial development can occur. Commercial rezoning and development may occur at the interchanges of the 29 bypass, but traffic would be diverted off the bypass onto parallel access roads to maintain the through-traffic.

There are several examples of how the County proposes access roads to facilitate traffic circulation. The first example can be seen in Figure 3. It shows a new intersection with Route 29 on the proposed western loop. Nearby intersections would be closed for safety reasons and to eliminate the number of access points on Route 29. Service roads parallel to Route 29 would be created to tie in existing roads.

Another example of a proposed access road occurs along Business 29 outside the northern town boundary (see Figure 4). The industrial zoning here is expected to be changed to commercial because of evolving development demands. Already residential and big-box commercial development has taken place at the western edge of this area, adding congestion to the two-lane road with more expected to come. The County proposes four-laning Business 29 to maintain through-traffic and building a parallel access road for local service to the commercial areas. Building the parallel access road would open additional parcels up to development, but the County hopes to maintain the surrounding land zoned as rural agriculture.

In the past, Culpeper County designated several Village Centers or Planned Unit Developments (PUDs) throughout the County. These village centers are intended to consolidate rural development, provide all the needed amenities within that village center, and thereby allow the surrounding agricultural and rural areas to remain as such. This has been a contentious issue most recently with the approval of the Clevengers Village PUD and recent discussion surrounding the proposed Boston PUD.

In the most recent Comprehensive Plan revisions, the number of PUDs in the County has been reduced. Soil quality has limited development in the Brandy Station and Elkwood areas along Route 29, even though they are still in the PUD

plans. Currently, there is also no water or sewer service to accommodate dense growth. The Stevensburg area has sufficiently large parcels available to go ahead with the PUD plans and some development has already begun to occur. On the western edge of Route 522 is a proposed 1,000 unit development near Boston. Light commercial is planned in the area, but most residents will have to drive to the Town of Culpeper for shopping. Four-laning of 522 is proposed to handle the extra volume.

Clevengers Corner has been approved to develop as a PUD and will, by the end of its development, bring an anticipated 800 homes and additional commercial properties to the County. Most residents are expected to commute north for employment and for shopping. Residents are not expected to regularly travel south on Route 229 to the Town of Culpeper for services because the Town of Warrenton is closer. Many commuters are also likely to do their shopping where many of them work in Northern Virginia. There are plans for an expanded park and ride lot to accommodate commuters (the present one fills regularly). Commercial development is also slated to be phased in with the residential development. Local roads will be built within the new developments and road improvements will be made through existing developments but are not anticipated to affect traffic on Route 229, which is planned to largely remain two lanes, into the Town of Culpeper.

Along with updating their Comprehensive Plan, Culpeper County is revising their Future Land Use Plan. Changes in the documents are largely in reaction to existing development occurring around the Town of Culpeper, along Route 29, and around Clevengers Corner. As the County attempts to direct development to certain areas, they have also shifted focus from areas which had not been developing as densely as previously anticipated. Future road planning, which will direct development patterns, will also influence how the land use plan will need to be further changed. The updates to the future urban services map was primarily driven by zoning, but also to keep in line with how the transportation network has been developing by encouraging development in areas with a good transportation base and one that would not direct them through the Town of Culpeper.

Town of Culpeper

The majority of land in the Town of Culpeper has already been built out. Recent levels of development have been less dense than what the zoning allows for, which developers have preferred because single family homes are currently more marketable and can be built and sold more quickly. One can argue, however, that the lower densities increase suburban sprawl. Some developments, like The Meadows and Cornerview, have variable residential

densities, as well as the Lakeview development, which also has a commercial component.

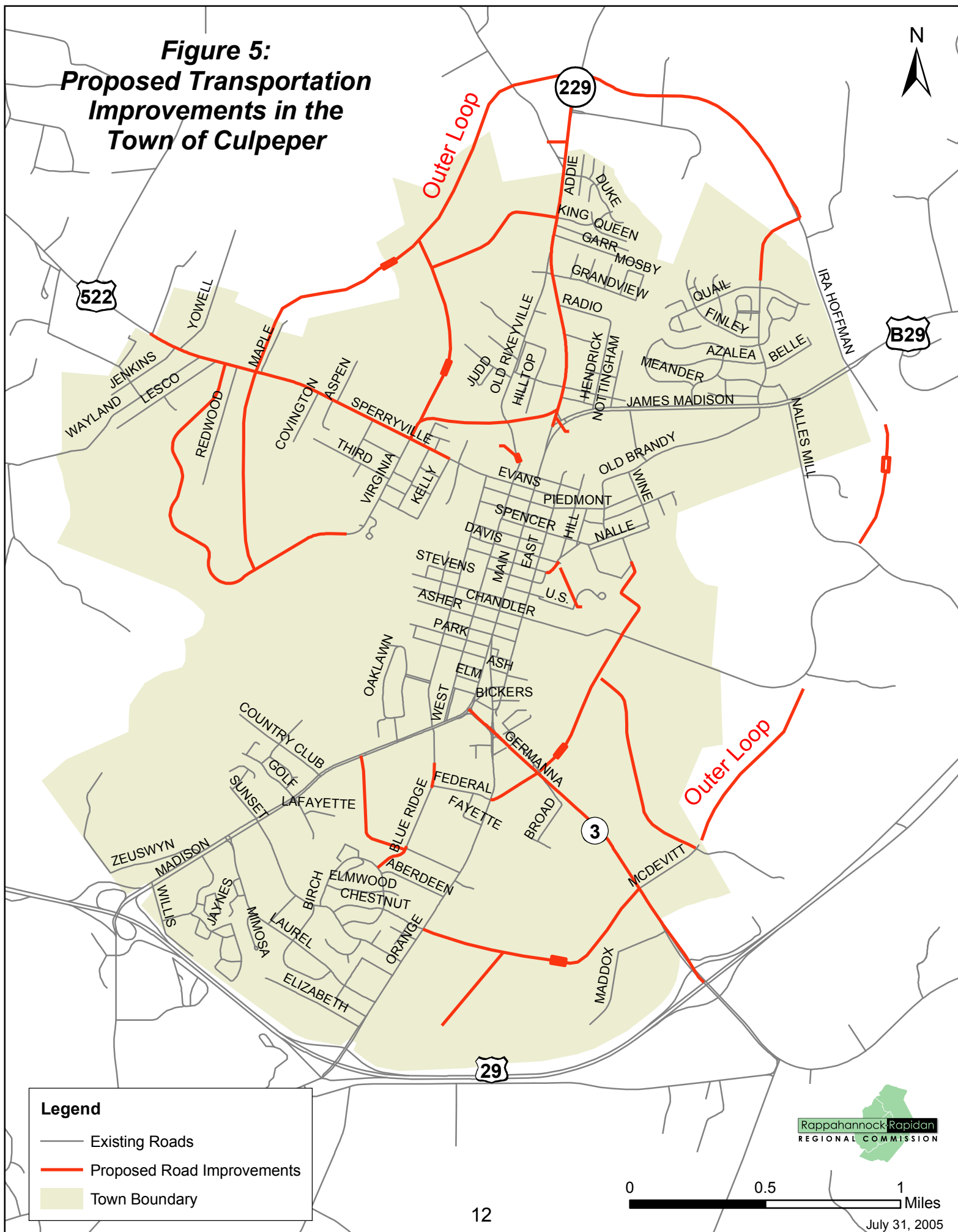
In past years, the Town has had a surplus of water and sewer utilities that allowed for suburban development to form in Culpeper County around the Town boundaries. However, with the level of surplus utilities in question, the Town has revised their policy to first provide for existing properties in town, then to a town reserve for future properties, and finally to county commercial and industrial development. The Town prefers to support commercial development in the County as it is outlined in the Comprehensive Plan.

The ring of development located in the County has increased the pressures on the Town to provide services and has added to the traffic congestion. One of the most problematic areas is the traffic signal at the intersection of Routes 522 and Business 29. Much of this traffic is through-traffic heading north to employment centers in Northern Virginia or to the commercial areas at the northern end of town. Main Street, which is the main north – south corridor, has also been experiencing regular congestion and as a result, traffic is beginning to utilize the residential side streets as alternate routes.

To help alleviate some of the traffic congestion in town, the Town of Culpeper has been working with Culpeper County on building an outer connector or loop that would circulate traffic around town instead of through it (see Figure 5 for proposed road improvements in and around the Town). The main purpose of the connector is to alleviate traffic on Main Street by diverting traffic from Route 522 onto Route 229 and onto Business 29 east past Main Street. The connector was moved out into the County further west than what the town map currently shows (see Culpeper County section for more details). The Town has also proposed smaller feeder roads between Routes 522 and 229 to help improve local traffic circulation. Developing land use may have necessitated building the connector, but the availability of funding is dictating how quickly it can be built. The Town feels that building the connector won't drive further development inside the Town because it lies in county property and is more of a traffic avoidance route. However, there are a few undeveloped parcels of significant size in this area.

The Town of Culpeper Parks and Recreation Department is developing a master trails plan that will allow for alternate transportation systems in the Town. This will work alongside the adopted sidewalk plan and bikeway plan. In one specific example, they are looking at developing a trail along the Bald's Run floodplain that would run from Business 29 to the high school and middle school at the north end of town. The Town will have to negotiate with local land owners to gain approval for this use; the landowners are currently restricted from developing in the floodplain and the Town would assume liability for the land. The Town has also maintained good partnerships with the Lakeview, Redwood, and Wayland developers. As outlined in the Comprehensive Plan, they honored the

**Figure 5:
Proposed Transportation
Improvements in the
Town of Culpeper**



designation of land for 9000 linear feet of trail system that will connect with Yowell Meadow Park.

The Town has a local bus service that circulates through various stops. Future multi-modal transportation options might include the Virginia Railway Express commuter train to Northern Virginia and Washington D.C.

The Town will be updating its 2003 Comprehensive Plan in the near future and will be looking at including more mixed-use planning and Smart Growth guidelines.

Fauquier County

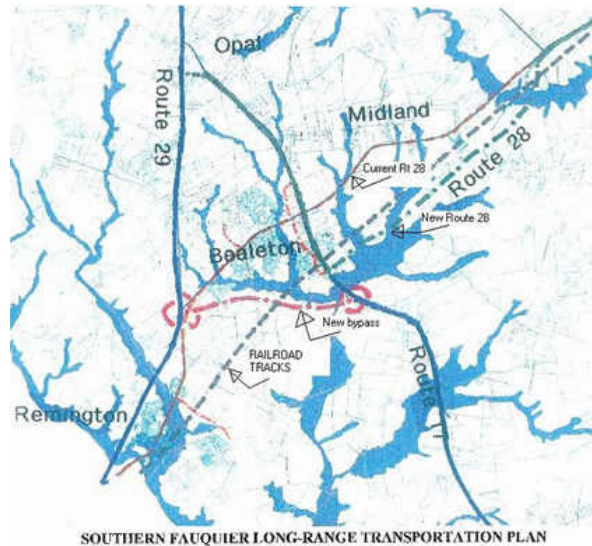
Fauquier County is the closest county in the region to the Washington D.C. metropolitan area. It can easily be reached by commuters traveling on I-66 and Routes 29, 28 or 17, and for this reason it was the first county in the region to begin its transition from a rural county to one that is suburbanizing and developing at a pace faster than ever before. In response to this expanding land use and increasing traffic congestion, Fauquier County hired a long-range planner and a traffic consultant to plan for the development. The County and the Town of Warrenton have used the same traffic consultant, which promotes a high level of coordination on transportation issues.

There are 9 service areas in Fauquier County where development is centered. Most of these occur along the Route 29 corridor. Fauquier County wishes to keep a low level of development in the western portion of the County. Much of the land to the west of the Town of Warrenton is zoned rural, including the area around Clevengers Corner, and is not expected to undergo significant levels of suburban development.

Dense residential development has been occurring in several areas: along Route 29, especially in New Baltimore in northern Fauquier County; around the Town of Warrenton; around Bealeton (Routes 17 and 28); and recently around the Town of Remington.

A proposal for re-routing traffic around Bealeton

The Bealeton intersection at Routes 17 and 28 is an area of major concern for efficient transportation planning and smart land usage. It is a heavily suburbanizing area and both routes are congested commuter corridors—Route 28 heads towards Manassas and Route 17 connects with I-95 further south. Originally, VDOT's plans to improve traffic circulation in the area involved building a four-lane interchange in the middle of the developing residential neighborhoods. This presented several problems because numerous driveways and subdivision streets already had access to this road, and the County felt a four-lane road would encourage speeding and would be incompatible with the 35 M.P.H. residential arterials on either side. A nearby school with driveway access to Route 17 created additional safety concerns. As an alternative, the County would like to develop the Route 17 and 28 intersection as a town center area, focusing on the properties that currently have commercial zoning at the main intersection. To alleviate the traffic congestion on the commuter routes, the County proposes a bypass that will route traffic south around Bealeton and connect it with Route 29.



Traffic around and through the Town of Warrenton is also a concern for Fauquier County. In earlier comprehensive plans, there was an arterial connector planned to link Routes 211 north to Routes 29 and Route 17 west of the Town of Warrenton for through-traffic. The proposal was dropped from the Fauquier County Comprehensive Plan, but remains in the Town of Warrenton Comprehensive Plan. Instead, the County is relying on the redevelopment of Broadview Avenue to help with the through-traffic, including additional volume created by the Clevengers Corner development in Culpeper County. See the Town of Warrenton section for more details.

Fauquier County is working with the Town of Warrenton to build a connector road to the west of the Town where much residential development has been occurring just outside of the Town boundary. Originally, Timber Fence Parkway had been slated as a bypass, but adjacent sub developments were allowed to tie into it, thereby reducing its effectiveness as a thoroughfare. The County is considering building a connector road that will service local traffic throughout the sub developments. It is not planned to facilitate regional travel between Route 211 and Route 17. That traffic will be directed to Broadview Avenue once it is redeveloped for through-traffic.

The County is interested in maintaining the current level of service on Route 29 for through-traffic. However, it has inherited two commercial zoning problem areas from past comprehensive plans and zoning efforts. The first area occurs in Opal, which is at a busy intersection south of the Town of Warrenton and where Routes 17 and 29 meet. Around this intersection is a stretch of commercial properties with several driveway access points directly onto Route 29. There are already proposed plans to build parallel access roads along Route 29 on each side for the commercial traffic. Two new lights are proposed to be constructed where traffic will be able to turn onto these access roads. The other area of concern regarding commercial properties along Route 29 is in New Baltimore at the northern stretch of Route 29. It is a similar problem and may use a similar solution, though nothing has been proposed at this time.

Regarding the larger issues linking transportation planning and land use planning, land use is not the problem in Fauquier County as development proceeds with very light suburban and rural density. The largest problem is the lack of a local traffic network. Traditional-style development encourages isolated neighborhoods with cul-de-sacs that feed into arterial streets, which then feed into the main roadways. Developing greater linkages between neighborhoods and differently zoned areas would improve traffic circulation.

There is existing language in the Comprehensive Plan to encourage mixed-use growth and improved traffic networks, but not all of the entities (different county departments, land owners, developers, etc.) are aware of these methods and how they can be effectively used. These different entities need to be educated on such issues and must reach a common understanding before these growth management solutions can be successfully implemented.

Town of Warrenton

Since the 1959 land annexation to the existing town boundaries, the population of the Town of Warrenton has grown fourfold. Most land in the Town has already been built out. Recently, the Town has been experiencing traffic congestion due to pressures coming from development in Fauquier County, particularly the new subdivisions on the on the east side of the Town and the increased traffic anticipated on Route 211 west of town. Additional traffic pressures and commercial needs will occur as the Clevengers Corner village center is built west of the Town of Warrenton in adjoining Culpeper County.

The Town of Warrenton expects a heavy increase in local traffic as Clevengers Corner is phased into development. Currently, Business 211/Frost Avenue experiences 21,380 average vehicle trips per day entering town (year 2000 data). According to Town figures, a projected 34,100 vehicle trips are expected by 2010

(+59.5%) with nearly 50,000 vehicle trips on Broadview Avenue, which is fed by Route 211. The Town is more concerned with traffic heading from Clevengers Corner to Route 17 north than traffic headed through town. Broadview Avenue is the most direct route to get to Route 17 and it is already heavily congested. Originally built as a bypass for the Town, it has since become a busy commercial corridor.

The Town is attempting to return Broadview Avenue to its arterial character. The Town Comprehensive Plan identifies plans for redeveloping Broadview Avenue as a boulevard with a center mall to restrict cross-traffic and turn movements to facilitate the through-traffic coming off Route 211. The adjacent commercial areas would be redeveloped by removing most driveway access points to Broadview Avenue and consolidating access along service lanes through the center of the properties to accommodate local commercial traffic. This redevelopment is believed to be sufficient to handle existing county traffic and for future trip projections in the near term resulting from the Clevengers Corner village center in Culpeper County.

The Town and County are working together on developing a new collector road on the western side of town. The Town originally desired to connect routes 211 and 17 through a four-lane right of way with restricted access to maintain a sufficient level of service for through-traffic. The road network through existing developments on the western edge of town was designed for this, but currently is not linked to the arterial road network. This presents a danger because there are no collector roads to connect with local arterials, making it difficult for emergency vehicles to efficiently service the area. Traffic from Olde Gold Cup and Silver Cup Subdivisions (269 lots, combined) currently use other subdivision streets to find a way to the rest of the Town street system. An existing portion of Timber Fence Parkway is already access restricted to function as a collector street and reduce the impact on other residential streets. Restricting the entire corridor when built would help to control further sprawl in this area.

The Town's water and sewer plant is operating at near capacity and is not allowing further hookups from outside of town boundaries. However, there are already a number of housing projects approved on the eastern side of town that must use Town streets for egress. This is an area of major concern for the Town. Current town estimates show over six hundred housing units that have been approved for construction. These developments have limited transportation outlets and must currently use Meetze Rd. or Academy Hill Road Extended to Walker Dr., the latter of which is already burdened as a major north-south corridor for commuters. Future traffic plans are examining a possible connector between Academy Hill Extended (into the County) and Rt. 605 (Dumfries Rd) to relieve the residential congestion around town, as well as connecting with other arterial corridors in the area. The Town and County are also looking at other options to improve road circulation north of town.

There are several other transportation updates that are needed in the Town's traffic network. The Town and County agree that an interchange needs to be installed on Route 15/29 at the southern entrance to the Town. This intersection is a major access point to the region via Route 15/29. It also leads to a high-volume commercial area (Wal-Mart and Home Depot), the community college, and possible adjacent, large-scale county housing developments in the future.

Increased vehicular traffic on Shirley Avenue has caused some problems because it is a north-south arterial for the Town running from Route 15/29 to the Routes 211 intersection. VDOT has plans for the four-lane development of Shirley Avenue as proposed in the 2020 Transportation Plan. The current road capacity has prohibited some development, such as the expansion of Wal-Mart. (Wal-Mart has offered to help pay for some road improvements if it would allow them to expand their facility).

Regarding multi-modal transportation, the Town has a completed sidewalk and pedestrian trail plan that helps to reduce local traffic congestion in town and provides recreation opportunities for residents.

The Town of Warrenton's Comprehensive Plan is scheduled for review in 2006. The existing plan has laid out solid ideas for traffic circulation in the Town that can be expanded to accommodate future land use and transportation opportunities. The planning staff is not anticipating major changes in the plan, but will assess growth and development limitations in and around the Town to see if that will necessitate revisions in Plan elements. They will also be revising the zoning ordinance in 2005 and encouraging mixed uses in the central district of town.

Madison County

Land use in Madison County is overwhelmingly agricultural and forested in nature, with 1992 Comprehensive Plan estimates showing only 2.7 percent of the land as developed. Development has been scattered around the County, mostly along the major transportation corridors and has primarily been of single-family homes. Though a few have been developed over time, Madison County has not yet felt the demand of larger-scale subdivisions that have been occurring in Culpeper and Fauquier Counties. This is due in part to Madison County's distance from Northern Virginia and due to the lack of sewer and water utilities in Madison County.

Madison's Comprehensive Plan lists the maintenance of agriculture and forestry as the highest priority land use in the rural areas of the County. There are strategies outlined for economic development and the development of improved transportation networks while taking into consideration the need for preserving

open spaces, maintaining agricultural and forestry lands, and regulating the number of outlets onto major roadways.

The Comprehensive Plan recommends that residential development be limited in agricultural and conservation areas and instead encouraged in areas that currently have public utilities or are planned to have utilities in the future. Water and sewer services currently exist in and around the Town of Madison, but are of a limited capacity. It is possible that the Rapidan Service Authority might look towards private companies to collaborate and contribute towards the building of additional water and sewer facilities. Brightwood, in the northern end of the County, could be a desirable place as many parcels in that area are available for development.

Some roadways in the County have been built with designated access points to the flanking land, though the land has not yet been developed. The Comprehensive Plan calls for maintaining the safety and efficient traffic flow on several major corridors and specifically recommends a minimum of 900 feet between entrances on Route 29 and 600 feet between entrances on Routes 15, 230, and 231.

Build out analyses along Madison's major traffic corridors would help analyze traffic trends and could help direct future development. Current transportation planning in Madison is based on outdated reports (1980 and 1981 transportation studies are referenced in the Comprehensive Plan, for example) and outdated levels of traffic volume that likely underestimate the volume of recent trends. The Comprehensive Plan is in the process of being updated.

When considering future road construction or improvements, it would be advantageous to consider incorporating bike lanes on suitable roads. A bikeway is any road or path which in some manner is specifically designated as open to bicycle travel, whether such facilities are designated exclusively for bicycles or to be shared with other transportation modes. Bicycles are most commonly used for recreation, but also for commuting and personal errands. Where suitable terrain exists and there are no conflicts in uses, many proposed greenways will be able to accommodate bicycles. Madison County's scenic byways could be perfect for a greenway system and an important way to drive tourism in the County. Over time, bikeways could be expanded into an off-road system.

Language exists in the Comprehensive Plan for the County to designate growth areas and to define design standards for certain areas. This could be facilitated by the addition of a future land use plan to the Comprehensive Plan. Also, designating corridor overlay districts would be helpful to define the building standards in historic, transportation, and natural areas. An overlay district for watersheds would also be desirable to help target impaired waters in Madison County.

Town of Madison

The Town of Madison is nine-tenths of a mile long and thirteen-hundred feet wide. Nearly all the land has been developed. The Town is serviced by eight streets, with Main St. being the main artery for the Town. No parallel roads to Main St. exist as alternative roadways. Main St. is heavily used for services within the Town as well as a route for people to head from Route 29 to Route 231 North.

Main St. is currently burdened by a high volume of truck traffic, and the Town would like to be able to redirect the traffic off Main St. However, there are no parallel streets for through-traffic to travel on. The lack of parking within the Town is also a major issue because it is difficult for commercial enterprises to succeed when visitors cannot park. Presently, there is a committee working on this issue.

The Town would like to engage in a dialogue with Madison County regarding future expansion of the Town boundaries. The Town feels this is a necessary solution to several of their problems: more land is needed to create parking in order to attract commercial enterprises, undeveloped land is needed to allow for the construction of commercial properties, and additional land would allow for the expansion of the Town's transportation network and help to ease traffic congestion. Much of the land in the Town is also developed for religious or governmental purposes, thereby eliminating revenue from the Town's tax base; expanding the town boundaries would allow for additional tax revenue. Water and sewer service is provided to the Town by the Rapidan Service Authority.

It is advisable that the Town form overlay districts and architectural review standards before town expansion occurs in order to preserve and complement the Town's historic buildings and small-town charm.

Orange County

Orange County is located in the southern portion of the Rappahannock-Rapidan Region. Because it is one of the furthest removed counties in the region from the Washington D.C. metropolitan area, it has not yet felt significant pressures of suburban development from that area, though it has felt some pressure from adjoining areas. Orange County is also distanced from the major commuting corridors such as Route 29 and I-95, making it more difficult for suburban commuters to get to.

When looking at long range planning, Orange County sees itself as a link in a larger, regional plan where residents can receive all their services within the

County and visitors can quickly travel through to other places. Long-range plans may include a Gordonsville bypass that would allow traffic from Route 15 South quick access around Gordonsville, to the Town of Orange, and through Route 20 to Route 3. The intersection of Routes 3 and 20 could be moved west with an eventual extension of Route 20 to Route 17. In Orange County, Route 20 is the major concern for development and for maintaining through-traffic. While increased levels of development along Routes 15 and 33 are not anticipated in the next several years, the County recognizes these corridors could experience elevated levels of growth as development within the region continues to spill over into the County.

The County is currently revising their Comprehensive Plan. Part of the revision involves creating a future land use map to show the types or densities of development and the areas in which the County wishes development to occur--primarily along the Route 3 corridor and around the Towns of Gordonsville and Orange.

The Route 3 corridor has been identified as an area of development in past comprehensive plans. The corridor is a four-lane divided rural highway with access to public water and sewer. Development has already been occurring along the roadway and the County would like for future residential, commercial, and business developments to locate there so residents can receive all their services within the County instead of having to travel outside for shopping and employment.

The County has been meeting with land owners and land developers along Route 3 to coordinate the development of water, sewer, and transportation services in that area. The County wants to protect Route 3 as a thoroughfare and is working to educate the owners and developers about the importance of connecting developments, limiting crossovers, and limiting access points to the main road. The current subdivision ordinance recommends connecting subdivisions, but this does not always happen because subdivisions are built at different times.

Water and sewer capacity is currently sufficient for pending development in the Route 3 corridor. However, the Rapidan Service Authority (RSA) needs to develop plans for future expansion of their utilities. It is possible that coordination with private entities could lead to the cost-effective development of new facilities.

Route 20 is another key component in Orange County's traffic network. In the 2006 fiscal year, the Regional Commission will be coordinating a study examining existing traffic and land use patterns between Route 522 and Route 3 to document physical and operational deficiencies and identify opportunities for improvement. The objective is to enhance safety and services along this length of the corridor, with consideration given to four-laning, possible realignment of the corridor, and providing adequate turning lanes at secondary road

intersections and elsewhere as needed. Because the roadway runs through Wilderness Battlefield, coordination with the National Park Service will be critical to the success of this effort. Encouraging limited access for Route 20 will be examined, though there are already numerous outlets onto the road.

Immediately outside the Town of Gordonsville, there are several new developments, some approved and some yet to be considered, that will have a significant impact on traffic in and around the Town. Up to 786 units total may be built, the majority of which will be for a proposed age-restricted community. In preparation for the submission of a rezoning application for one of these new developments, a traffic impact analysis is being prepared for the area by a private consultant. Increased traffic is expected on Route 33 and will impact the Gordonsville traffic circle. Recently, the Virginia Commonwealth Transportation Board approved the placement of preliminary engineering funds for the Gordonsville Bypass project in the State's Six-Year Plan for Primary Roads. The bypass would be for through-traffic only and would connect Route 33 west of the Town of Gordonsville, around the eastern portion of the Town, to Route 15 south. In addition to serving as a vital link in the transportation network for the region, the Gordonsville Bypass would play a key role in the County's plans to provide a transportation network through the County that will help to recruit businesses because of the increased access to the County. The County is aware that such roads could bring further residential development, but because it is located at a distance from Route 29, I-95, and other major corridors, Orange County has been more isolated from development than other counties in the region.

Outside of the Route 3 corridor, Orange County has plans to allow commercial development along the Route 15 corridor between Orange and Gordonsville, in addition to locating "rural village centers" at several of the major road intersections in the County. These are expected to develop because they are centered in areas of higher residential density and have been noted as nodes of basic services on the future land use plan. The County anticipates larger-scale commercial development will occur in and immediately around the Towns. Much of the County is intended to remain as agriculture-conservation and agriculture-residential.

Orange County has seen little growth of significant size outside of the Route 3 corridor. The Andrewsia property, located to the west of the Town of Orange, could be an exception if built.

The County recognizes the important connection between land use development and transportation planning. Presently, the County's priorities are to first make basic decisions about the road network and road improvements and then to look at land use patterns. They feel they still have time to plan for the future while other communities have been forced to react to the growth.

Town of Orange

The greatest areas of development in the Town of Orange are occurring in the northwest and southwest portions of the Town and within Orange County to the west of the Town. Like many other comprehensive plans, the Town's new 2026 Comprehensive Plan Draft calls for a dense urban core with densities feathering out toward the edges. The Town is limited in the number of north-south traffic corridors, and as a result, experiences congestion along Madison Road (Route 15), which is a major route for commuters and through-traffic. Long-range planning started only recently with the hire of a planner about one year ago. Before then, the Town was not able to fully analyze the land use and transportation planning connection.



*A proposed plan for the Round Hill
PUD*

Source: Piedmont Environmental Council

Unlike many other towns in the region, the Town of Orange still has several opportunities for development on open land; estimates by the Town are up to 1000 residential units. There is available acreage of significant size for subdivision already zoned in varying densities. The Round Hill property is at the northern end of town along Route 15 and is zoned for low density residential. The Town is considering plans that would allow it to develop as a Planned Unit Development with greater densities in the center of the project.

Present transportation planning priorities for the Town include maintaining the current service level of through-traffic in town with about fifteen second stops at traffic lights. To accomplish this, the Town first wants to focus on developing an internal grid system of roads through the Town. Currently, they are limited by a single north-south thoroughfare on Madison Road (Route 15). Two major projects dealing with improved traffic circulation through town are in the beginning stages of planning. The first is the extension of May-Fray Avenue to Madison Road. This would help alleviate some traffic congestion on Madison Road as well as provide increased access to the commercial properties there. The second project under consideration is a western low-speed connector. The western connector is outlined in the Comprehensive Plan to serve local traffic and there are no plans to limit access to the road. Currently, there is no support for a limited-access bypass for the Town, though sentiment could change if the number of housing developments increases.

The Town and County are exploring a joint planning area around the Town. While still in concept stage, it would include requirements for joint proffers in which developers would have to consider service requirements by both the Town and the County.

A new sewer plant needs to be built for the Town to handle future developments and meet water quality goals to protect the Chesapeake Bay. Currently there is enough capacity for developments that have been approved and limited capacity for new projects. A few industries have recently shut down, freeing up additional water capacity. The County would like additional service capacity to accommodate County growth, but they are unsure about their level of future requirements. A new water reservoir is proposed in the Town's Draft 2026 Comprehensive Plan.

Unlike other towns in the region, there has not yet been a significant amount of dense development surrounding the Town of Orange. One area of concern is the proposed Andrewsia development, which would accommodate about 200 homes close to the sewer plant located to the west of the Town along Spicer's Mill Road.

One planning priority of the new Comprehensive Plan is a sustainable approach about growth while maintaining the current level of traffic service (that is, without extending vehicles' stopped time at traffic lights). In the future, the Town would like to conduct build-out analyses of the current Town footprint and the Joint Planning Area with a yoked transportation study designed to protect the A-B Level of Transportation Service assets. The analyses will allow them to avoid the plight of other communities in which LOS assets are incrementally lost during a rapid growth phase

Rappahannock County

Rappahannock County is located in the western portion of the Rappahannock-Rapidan region and is therefore removed from the major commuting corridors leading to the Washington D.C. metropolitan area. Because of this distance, it has experienced low demand for development and the County population has remained relatively stable in recent years even though surrounding counties have grown at a significant rate.

The five main towns of the County are located along the major routes of 522 and 211. The towns typically have dense residential buildings in their center and then radiate outward with decreasing levels of density. There is a substantial amount of undeveloped land that is zoned for development around the town of Amissville, but there has been little demand for development. Other areas in the County have very little undeveloped zoned land, often due to steep slopes, rocky soil, or other natural prohibitive factors. A dense community development oriented towards seniors can be envisioned for Sperryville.

The outlook of Rappahannock County's Comprehensive Plan has been consistent since its inception. The main goal outlined in the document is the preservation of the County's rural and agricultural nature. Because agriculture and tourism are the County's largest marketable commodities, future development is required to support and complement these initiatives.

Similar to past trends, minimal growth is expected for Rappahannock County because of its remoteness and lack of job or commercial centers. This could change in the future if places such as Gainesville, VA become large job centers because people's commutes from Rappahannock County would be shorter. Conversely, future development and resultant traffic congestion in the counties in between could make it even more difficult for a potential commuter to reach Rappahannock County.

Large scale developments in Culpeper County (particularly Clevengers Corner and the Boston area) lie on the main corridors of 522 and 211 entering Rappahannock County. These will not encourage future land development in Rappahannock County, but will lengthen the through trips of those leaving Rappahannock. It will bring some conveniences closer to Rappahannock residents, which is desirable. The resulting road congestion may also serve to further isolate Rappahannock County, which most of its residents seem to prefer, and cause less demand for development within Rappahannock.

The County does not have much interest in promoting more commercial zoning or conveniences within the County because it does not have sufficient population to support such ventures. Also, its residents have become acclimated to combining their commuting and commercial trips.

The County's Comprehensive Plan clearly directs development to be compatible with the County's goals of retaining its rural and agricultural values and to contribute to its agricultural and tourism based economy. The current zoning allows 1 dwelling unit per 25 acres, though many residents prefer more acreage per dwelling unit. This zoning has been in place since 1986 before the entire region felt the effects of suburban sprawl and has been effective (along with the lack of demand) in stopping sprawl from entering Rappahannock County. Little change is foreseen on these issues.

RECOMMENDATIONS

There is not a single solution to any of these problems, but a combination of solutions and new ideas. By observing how communities in Northern Virginia have developed, and by observing and cooperating on a regional scale, it is hoped that future development can occur in a manageable and beneficial way.

Following this section is a listing of resources that can provide additional ideas. Here are a few pertinent ideas:

Connect Subdivisions

Problem: Subdivisions are built in a traditional manner utilizing curved roads that often end in cul-de-sacs and where collector roads converge at one or a few outlets to the main arterial road. This leaves residents with few options for travel routes, creating congestion at the subdivision's access points.

Solution: Connecting subdivisions to neighboring subdivisions and neighboring commercial areas at multiple junctions allows for improved traffic circulation. Also, encouraging subdivisions to develop traditional transit grid patterns would allow multiple trip options, thereby dispersing congestion and shortening trips.

Encourage Multi-Modal Networks

Problem: Suburban development continues to be automobile-centered even though road congestion increases and fills new road capacity when it is built.

Solution: Include considerations for multi-modal transportation in the planning process, though it is mostly effective for town centers. Bike lanes and sidewalk improvements can reduce the number of local automobile trips. Also, encouraging a denser network of residential and commercial development will lay the framework for future bus systems and other mass transit and make them more effective when implemented.

Restrict Access Points on New Roads

Problem: Some roads or bypasses are meant to quickly conduct traffic through or around an area, but instead become congested and slow when multiple side streets and driveways tie into them.

Solution: Restrict the number of driveways, intersections, and turning points on the road or bypass. Some jurisdictions have built designated access points to new roadways as they are built. Access roads having only a few outlets onto major arterial streets can be used to service numerous collector streets.

Encourage Mixed-Use Development

Problem: The highest levels of demand are for residential development, which encourages development of a single type. This encourages auto-dependent development and causes more frequent trips often at a longer distance.

Solution: Encourage a mix of uses in village centers, which provides for a vibrant village center and allows for shorter and fewer trips. Even in more rural areas, small convenience centers of low-density commercial development can be strategically placed and can reduce the number of vehicle trips.

Increase densities in the towns and village centers

Problem: Current development occurs at low density levels, sometimes even lower than designated zoning. Often, the development is also of a single type, such as residential. This increases the rate of suburban sprawl as well as road congestion. This reinforces automobile-dependent travel as people need to travel further from their home to attain different services.

Solution: Encourage denser developments of mixed uses in towns and village centers while preserving open land in outlying areas. This will also provide a framework for multi-modal transportation such as walking or biking. It can lay the framework for future transit options such as buses, when the time comes.

Plan Designated Growth Areas

Problem: Uncoordinated development occurs in pockets throughout the county or town without consideration for utilities, the transportation network, or the natural environment.

Solution: Having a sound growth plan or future land use plan can clearly indicate where the jurisdiction would like most growth to occur. This will help facilitate planning for future water or sewer services or expansion of services. Such plans can encourage growth along planned or existing transportation networks as well as away from environmentally sensitive areas.

Create Overlay Districts

Problem: Little guidance exists for what can and can't be developed in sensitive areas, therefore there is no aesthetic cohesiveness to the development.

Solution: Create overlay districts along major transportation corridors, historical districts, watersheds, and other sensitive areas. These districts would

provide additional standards for architecture, lighting, signage, and landscaping, helping to preserve the historic, scenic, or natural features of an area.

RESOURCES

Collaborative Transit-oriented Planning Processes

Two nearby transportation planning projects could serve as valuable case studies when looking at building a transportation network of regional significance. Though U.S. 301 in Maryland and the Dulles Toll Road in Virginia are larger in scale than roadways in our region, valuable lessons can be learned from the long-range planning process surrounding these roadways.

A summary of the U.S. 301 collaborative planning project in Maryland is available online (see Bibliography). This highway corridor passes through counties similar in size and population to those in Northern Virginia and those in the R-R region. MDOT was considering the route as an eastern bypass for the Washington D.C. region, but abandoned the idea after strong public opposition arose. In 1992 MDOT initiated a collaborative planning process to study transportation issues and land use development along the corridor; 76 members from local leaders to businessmen participated. The task force's mission was to recommend transportation improvements, programs, and related growth management approaches for the corridor. The panel evaluated a series of transportation options paired with land-use scenarios (current development patterns versus market-driven or policy-driven development, also looking at light rail, expanded highways, or change of land use zonings, etc.). The task force found that highway improvement was necessary in all cases and that land use changes and other transit improvements had little affect according to the model, though the built environment would by 2020 necessitate major transit alternatives. This study serves as a good example of the type of proactive planning that could be used for Route 29, or other major corridors in the region, to collaboratively solve rising congestion issues using a variety of scenarios.

Although the Dulles Toll Road was built on a very large scale, study of its planning process could encourage regional transportation planning in the R-R Region. In 1993, Loudon County formed a toll-road technical committee to evaluate options for land use within roughly 1.5 miles on either side of a toll road. The committee was composed of diverse interests, including land owners, developers, public agencies, realtors, and environmental organizations. A for-profit company built the road and it opened in 1995. The state approved the tolls for the road and also authorized the counties to levy a gasoline tax to fund the road construction and maintenance. The corridor has restricted access to keep it free-flowing and relies on nodal development. There are a series of points along the corridor designated as areas of dense development that are meant to support bus and rail transit while helping to preserve open space in the areas between

the nodes. The density is allowed to increase once bus service arrives at the nodes and again when light rail arrives. Because planning of the roadway and corridor has initially centered around auto-oriented development, it is uncertain if future land uses will change towards mass transit or if it will continue to accommodate auto-oriented development.

Publications

Design Manual for Small Towns: Transportation and Land Use Strategies for Preserving Small Town Character by the Thomas Jefferson Planning District Commission 2003. This document helps small towns to identify existing traffic problems such as pedestrian safety, through traffic on secondary streets, and traffic congestion. It then suggests solutions that can be implemented as well as brief discussions on funding ideas and projected costs. There is also a section on future land use decisions that suggests ways to avoid these problems from developing in the future. Available at:
http://www.tjpd.org/pdf/rep_comm_designManual.pdf.

Getting to Smart Growth: 100 Policies for Implementation and *Getting to Smart Growth II: 100 More Policies for Implementation*. Freely available from www.smartgrowth.com, these books contain numerous ideas on design and policy that will help make communities more livable and more successful. Topics include a variety of transportation options, preserving open space, and strategies for mixing land uses.

BIBLIOGRAPHY

Carlson, Daniel and Don Billen. *Transportation Corridor Management: Are We Linking Transportation and Land Use Yet?* University of Washington, 1996.

Cervero, Robert. *America's Suburban Centers, A Study of the Land Use-Transportation Link*. U.S. Department of Transportation, 1988.

Moore, Terry and Paul Thorsnes. *The Transportation Land Use Connection*. American Planning Association, Washington DC, 1994.

Porter, Douglas R. *Making the Land Use/Transportation Connection in Multi-Modal, Multi-Jurisdictional Transportation Planning: The U.S. 301 Transportation Study in Maryland*. AICP Press, 1998.

<http://www.asu.edu/caed/proceedings98/Porter/porter.html>

Smart Growth Network. *Getting to Smart Growth: 100 Policies for Implementation*. 2002.

U.S. Department of Transportation, Federal Highway Administration. *Planning for Transportation in Rural Areas*. 2004.



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