

WATERLOO AREA PLAN

ADOPTED
15 August 1995



Clarke County
Comprehensive Plan
Implementing Component
Article 4

b.

CLARKE COUNTY BOARD OF SUPERVISORS



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CLARKE COUNTY ORDINANCE (Approved August 15, 1995)

At a regular meeting of the Board of Supervisors of Clarke County, Virginia, held at the Circuit Courthouse of said County on August 15, 1995 at 7:30 p.m.

On motion by Supervisor Dunning, the Board of Supervisors adopted the following ordinance by a unanimous vote.

BE IT ORDAINED By the Board of Supervisors of the County of Clarke, Virginia, that the Waterloo Area Plan shall be adopted as part of Chapter Three, Article Four of the Clarke County Comprehensive Plan and the following amendments shall be made, effective as of August 16, 1995:

- a. The official Clarke County Zoning Map shall be amended so that the properties identified as Tax Map Parcels 20- A -36 (7.1 acres), 28- A -16 (6.0 acre portion), 28-A-20 (8.3 acre portion), 29-A-16 (1.8 acres), 29-A-3 (6.8 acre portion), 29-A-4 (.7 acres) be rezoned from Agricultural-Open Space-Conservation Zoning District to Highway Commercial Zoning District (CH) and Historic Access Corridor Overlay Zoning District (HC), located at the intersection of US Routes 50/17 and 340, Greenway Magisterial District.
- b. The Clarke County Zoning Ordinance, Section 3-A-14, Highway Commercial District Regulations, shall be amended so that Motel and Hotel uses are allowed as Permitted Uses instead of Uses requiring a Special Use Permit.
- c. The Clarke County Zoning Ordinance, Section 6-H, Improvement and Minimum Standards for Site Development Plans, shall be amended so as to establish standards for Stormwater Management.

Text of the above referenced amendments may be found in the Waterloo Area Plan.

ATTEST:

David L. Ash, County Administrator

WATERLOO AREA PLAN COMMITTEE

Jane Harris Ghramm, Chair
Samuel R. Buckley
A. R. Dunning, Jr.
Carol Galbreath Flues
Rebecca McCoy
Beverly B. McKay
Lawrence Russell
H. R. Weir
Ian R. D. Williams

COUNTY BOARD OF SUPERVISORS
COUNTY PLANNING COMMISSION

COUNTY ADMINISTRATIVE STAFF

Clarke County Department of Land Use Planning
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I . Process

The Waterloo Area Plan is a component of the Clarke County Comprehensive Plan adopted in August 1994. Chapter 4 of the Comprehensive Plan identifies the need for three area plans for the economic development sites identified in the Goals and Objectives chapter of the Plan: the intersections of Routes 340 & 7, Routes 340 & 50 (Waterloo), and Routes 340, 522, & 277 (Double Tollgate). These three sites were chosen to provide for commercial and/or light industrial activity in order to broaden the tax base of the county. Objective 6, Policy 3 of the Comprehensive Plan states regarding these areas: "An Area Plan should be prepared prior to any rezoning action to identify the specific boundaries and mix of uses, how public services are to be provided, and how proposed activities will be integrated with surrounding uses, especially agriculture." The recommendations outlined below should govern development at Waterloo.

In February 1994, before amending the Comprehensive Plan, the Board of Supervisors resolved for the Waterloo area:

- 1 . to endorse commercial development;
- to formulate a comprehensive plan for development;
- to use waste-water recycling technology for the waste-water needs; and
- to give high priority to encouraging private sector investment.

In response, the County Planning Commission established the Waterloo Area Plan Committee in October 1994. The purpose of the Committee was to recommend the appropriate types of uses and amount of commercial acreage that would generate the most net revenue for the county, given the nature of the area's physical conditions, public facilities (access, water/sewer, stormwater), and existing development pattern. The Committee was comprised of nine members, three from the Planning Commission (Ghramm, McKay, and Dunning) and six property owners in the general area. One of the members (Dunning) is also a member of the Board of Supervisors. Two of the Committee members (Ghramm and Williams) are also members of the Clarke County Sanitary Authority, which is responsible for operating the public water and sewer services in the county. The professional backgrounds of the nine members include community and transportation planning, construction, farming, historic preservation, investment banking, law, real estate, English composition, and volunteer work.

The Committee held nineteen meetings starting in October. Forty-four property owners in the immediate vicinity of the intersection were notified by post card of every meeting. In addition, every member of the Board of Supervisors, Planning Commission, and County Economic Development Committee was notified by post card. Every meeting was covered by at least one, and often two or three, local newspapers, and notices of the meetings were listed in those papers. The first meeting was held during the day at Waterloo, and the members of the Committee walked all four quadrants of the intersection. Ten meetings were held in the Board of Supervisors' Meeting Room in Berryville. In accord with the Committee's goal of encouraging public participation, seven meetings were held at the Lone Oak Restaurant at Waterloo.

The initial charge of the Committee was to identify the appropriate types of land uses and amount of commercial acreage. A real estate valuation and economic advisory company was retained as marketing consultant to assist the Committee in making these determinations. With the determination of the appropriate level of development based on short and long term market conditions, the Committee then sought to identify what road, sewer, and stormwater improvements would be necessary. Civil engineering services were retained to assist in making these determinations. Clarke County staff assisted the Committee with regard to taxation and other cost issues. Finally, the Committee addressed the issues of appearance and public safety.

This report constitutes the Committee's recommendations for the Waterloo Area to the Planning Commission. The Commission will in turn recommend a final document to serve as the Waterloo Area Plan for Board of Supervisors' action. The full reports of each consultant are included as Appendices to this document.

II. Land Use

As one of three primary highway intersections in Clarke County, the Waterloo intersection was judged by the County Comprehensive Plan as an appropriate area to provide for business activities to encourage economic development.

Recommendations of the Marketing Consultant

The most appropriate use for the area is highway commercial. Light industrial uses are not recommended, because of limitations on access to the east and a lack of support services in the area. Based on highway commercial development and traffic patterns in Clarke, Frederick, and Loudoun Counties, the consultant concluded that:

1. a total of 26 acres of commercial activity would meet market demands for the next 15 years, including the 6 acres of highway commercial uses existing at the intersection;
2. the first third of this 15 year period would see highway-oriented businesses, the second third would see a mix of uses serving both highway and local population, and the final third would see more uses designed for the local population in southern Clarke and Frederick Counties;
3. at full development in 15 years, an estimated \$250,000 (year 2015 dollars) in annual local tax revenue is anticipated. In 1995 dollars, this amount equals approximately \$100,000, or 1% of the \$10 million of local revenue in the \$17 million 1995/6 County budget;
4. most commercial development is anticipated on the north side of Route 50, because of the distance to any concentration of commercial activity to the east;
5. the 5 acre residential portion of the 9 acre commercially zoned area about 1/2 mile north of the Waterloo intersection should be down-zoned, because of its limited commercial potential due to its distance from Route 50; and
6. property values of land rezoned should change substantially only after public sewer service is provided (public water became available in September 1994).

Additional Recommendations:

1. Basic agreement with all the general recommendations of the marketing consultant in regard to the potential types of highway commercial activities and amount of highway commercial acreage. Some uses were deemed less likely than others, but all were considered possible.
2. Agreement with the observation of the marketing consultant in regard to lesser suitability of the Waterloo area for light industrial uses. The consultant indicated in the 340/7 Area Plan process that that intersection was the best location in the County for light industrial uses, with the proximity of the Norfolk Southern Railroad and four lane primary highways to the west, north, and east. In addition, the road improvements under construction to the east will provide a direct limited access highway to Washington Dulles International Airport and on to the core of the Washington metropolitan area.
3. Agreement with the consultant's observation that the most attractive location for highway commercial development is on the north side of Route 50. The traffic generating potential of the 1-66, Route 17, Route 50, 1-81 corridor may have been underestimated by the consultant, thereby affecting the estimated timing of some site development.

4. Provision of more land zoned for commercial uses than the recommended 26 acres in order to allow for more competition, more options for developers, and more flexibility in parcel configurations. It should be noted that the estimate of tax revenue is based on the market consultant's forecast of 26 acres of commercial use. Approving more than 26 acres of commercial zoning may generate additional revenue.
5. The proposed new VDOT Park and Ride lot provides a logical eastern boundary to commercial activity in the southeast quadrant.
6. Generally equal distribution of commercial zoning among the four quadrants of the intersection in size and shape, following parcel lines or extensions of parcel lines.
7. Establishment of additional commercial zoning concurrently with adoption of the Plan to demonstrate the County's support for economic development at this intersection. Piecemeal rezoning on a parcel- by-parcel basis would not be consistent with this support. No major negative tax impacts that might result from rezoning of the 14.3 acres assessed at Use Value were identified.
8. Amendment of the text of the Highway Commercial Zoning District so that hotel and motel uses are Permitted Uses, instead of uses requiring a Special Use Permit. Such uses were recommended by the marketing consultant for this intersection and are typically found in areas of highway commercial activity.

Recommended Ordinance Changes

1. The County Zoning Map shall be amended to show approximately 49 acres of land in the Highway Commercial Zoning District at Waterloo (see attached map): 11.6 acres - NW corner, 12.4 acres - SW corner, 11.2 acres - SE corner, 13.9 acres - NE corner.
2. The Highway Commercial Zoning District shall be amended so that Hotel and Motel uses, currently allowed by Special Use Permit, are allowed as Permitted Uses.

III. Marketing, Tourism, and Taxation

Promotion of commercial development of the Waterloo intersection should be left to the private sector. The limited fiscal benefit to the County of development in the area does not warrant expenditure of public resources to market land in a location where significant interest has already been shown by property owners and realtors. However, the promotion of visitor-related activities in the County would have a positive impact on the highway commercial business anticipated in this area and on local tax revenue.

The County's Economic Development Committee should actively pursue the natural resources and heritage tourism potential for Clarke County as a low-cost source of tax revenues. The consultant stated: "Tourism generates a large amount of retail in a community without a corresponding high amount of public services. Primarily, visitors do not use the local public schools. Therefore, communities attempt to attract tourists as a means to increase retail sales taxes without an offsetting rise in county expenditures for public education."

The main goal is to keep visitors within the County overnight. A secondary goal is to provide greater patronage of existing attractions, which occurs if they are linked in tourism promotion material. Although the consultant found listings of various recreations and historical facilities in the County, he found little promotion of these opportunities and no package for the tourist. With several major metropolitan areas within a two to three hour drive, the tourism potential for this county is very good.

Recommendations

1. The Economic Development Committee is encouraged to work with the Berryville - Clarke County Chamber of Commerce in its efforts to fully catalogue Clarke County's possible tourist attractions, including its natural outdoor activity options, its cultural, architectural, and historic sites, its festivals and seasonal events, its restaurants and accommodations and other regional attractions that can be visited over a weekend or on an overnight trip and support the activities of the Chamber of Commerce in packaging and marketing this information. The development of a Visitor Center at Waterloo, financed primarily by benefiting businesses, to distribute tourist information is another option to investigate.
2. In order to benefit more fully from this type of marketing activity, the County should review its existing tax structure. A usual and customary source of income in many tourist areas is meal and lodging taxes. The General Assembly has authorized localities to apply a sales tax applied to meals and "Transient Occupancy". Counties may have a meals tax of up to 4%, which can be applied only after voter referendum (certain counties are exempt from this requirement). Counties may have an occupancy tax of up to 2%, which can be applied by the Board of Supervisors. Counties cannot levy the meals or occupancy tax within a Town unless the Town grants that authority. Cities and Towns may have meals and occupancy tax without a maximum. The following chart shows the pattern of this taxation in adjacent jurisdictions.

Per Cent	Clarke		Frederick		Warren		Fauquier		Loudoun	
Tax	B'ville		Winchester		Front Royal		Warrenton		Leesburg	
Meals	0%	2%	2%	4%	0%	3.5%	0%	4%	0%	2.5%
Occupancy	0%	0%	2%	4%	0%	4%	0%	4%	2%	5%

Source: 1994 Tax Rates, Weldon Cooper Center for Public Service, U of VA.

IV. Transportation

Two initial questions were posed:

1. Does the existing intersection at US Routes 340 and 50/17 have the capacity to support new commercial activities?
2. What infrastructure guidelines should be developed through a rezoning process to support future economic development in the vicinity?

The overall conclusion is that the existing infrastructure can support highway commercial development, as projected, for the next 20 years with minor intersection improvements. However, the types and intensity of new commercial activities should be staged so not to overload existing arterial operations and create unsafe or undesirable traffic conflicts.

Transportation engineers rate intersection congestion on an 'A' through 'F' scale described as Level of Service. Based on current traffic volumes, the Waterloo intersection is rated at a Level of Service 'C' at its peak hour of use. Based on the level of development anticipated by the marketing consultant and without any road improvements, the intersection would be expected to have a Level of Service of 'F' by 2015. With improvements, the intersection is expected to operate at a Level of Service 'D'.

Current daily traffic volumes were estimated to be 14,350 on Route 50/17 east of the intersection and 7,650 on Route 340 north of the intersection in 1994. With the full level of development anticipated by the marketing consultant and with anticipated increases in through (or background) traffic by 2015, it is estimated that there will be as many as 31,370 vehicles per day on Route 50/17 east of the intersection and 15,240 vehicles per day on Route 340 north of the intersection.

The VDOT Resident Engineer for the County and/or his assistant were present at several of the Committee's meetings and reviewed the transportation consultant's recommendations. They concurred with the following recommendations and commended the County for carefully addressing long-term transportation issues.

Recommendations

Public Streets - implemented by property owners

1. Driveways onto Routes 50/17 and 340 shall be at least 200 feet apart, preferably 300 feet apart, and consolidated for multiple use. Alternative access routes and interparcel connections shall be provided to increase traffic flow efficiency and public safety.
2. Each development shall provide frontage improvements to Routes 50/17 and 340 meeting VDOT standards. These improvements shall be provided in the existing public rights of way. These improvements shall include:
 - a. an additional travel lane the length of a property's frontage,
 - b. a right turn deceleration lane beginning 200 feet before an additional travel lane, and
 - c. an acceleration lane extending 200 feet from an additional travel lane on Route 50/17 west bound, west of the primary highway intersection, and on Route 50/17 east bound, east of the primary highway intersection.

Public Streets - implemented by the Virginia Department of Transportation and property owners

3. The existing median crossovers on Route 340 immediately north and south of the intersection with Route 50/17 shall be closed by VDOT when average daily traffic volume on Route 340 reaches 12,000 (currently it is approximately 4,500) or when accident rates reach undesirable conditions. New development shall provide local access roads and interparcel connections to provide alternative means of access in anticipation of the closure of the crossovers. No new median crossover shall be allowed on Route 50/17 or on Route 340 within 550 to 600 feet of the arterial highway intersection.
4. VDOT shall conduct a study to determine the necessary improvements to Route 340 and to the intersection of Route 50/17 and 340 and include those improvements in the Primary System Six Year Plan for Clarke County. Studies for Route 340 improvements should consider making the route a four lane divided highway for about 1000 feet from the Route 50/17 and 340 intersection. The intersection study should consider right turn movement control, posted speed limits, and long term pedestrian access.
5. A portion of Route 665 could be abandoned, specifically that portion which is north of Route 50 and west of the Route 50 median crossover that will serve the new VDOT Park and Ride lot. Abandonment should be pursued by the adjacent property owner if it would benefit development of that property and if determined by VDOT to be excess right-of-way. Disposal shall follow standard VDOT procedures.
6. To improve the appearance and character of the area, VDOT shall review the abundance of information signs in the public right-of-way and consolidate or eliminate as many signs as possible. As part of its median beautification program, VDOT is requested to provide landscaping in the Route 50/17 median on both sides of the arterial intersection.

Private roads - implemented by property owners

7. Local access roads and interparcel connections shall be provided as illustrated in Figure 1. This figure is only a representation of these concepts, not an actual scale drawing of the location of access roads and interparcel connections. Illustrated road alignments were located to provide alternative travel routes from commercial activities to three median crossovers within the area zoned commercial: two on Route 340, 550-600 feet north and south of the intersection, and one on Route 50/17 about 1200 feet east of the intersection.
8. The alignment and design of access roads and interparcel connectors are subject to individual site design and are to be constructed as part of individual site development. However, four design features are recommended based on individual site and use characteristics:
 - a. local access roads shall be two lanes, with a minimum lane width of 12 feet;
 - b. all local access or interparcel connector roads shall serve development on both sides, that is, be "double-loaded";
 - c. the interparcel connector constructed between Route 340 and the north side of the McDonald's restaurant property shall be continued in an easterly direction to connect with the local access road for the northeast quadrant of the intersection; and
 - d. access to the interparcel connector roads for the two western quadrants should be limited to Route 340 to prevent cut-through traffic to/from Route 50.

9. If local access roads serve three or more properties, they can be designed to public street standards, assuming 40 mph subdivision street standards with no parking. Design criteria for privately maintained local access roads may include increased flexibility for curvature, driveway, building setback, and parking designs. For private roads, appropriate legal agreements to allow interparcel access between properties shall be established.
10. Local access roads shall not be designed as frontage roads parallel to Routes 50/17 and 340, because they would introduce additional turning conflicts to and from these arterial highways. The access roads shall have intersections perpendicular to Routes 50/17 and 340 and shall traverse at least 300 feet before turning and becoming parallel to the arterial highway. Driveways off the local access roads shall be at least 200 feet from Routes 50/17 and 340.

Site Plans - implemented by property owners

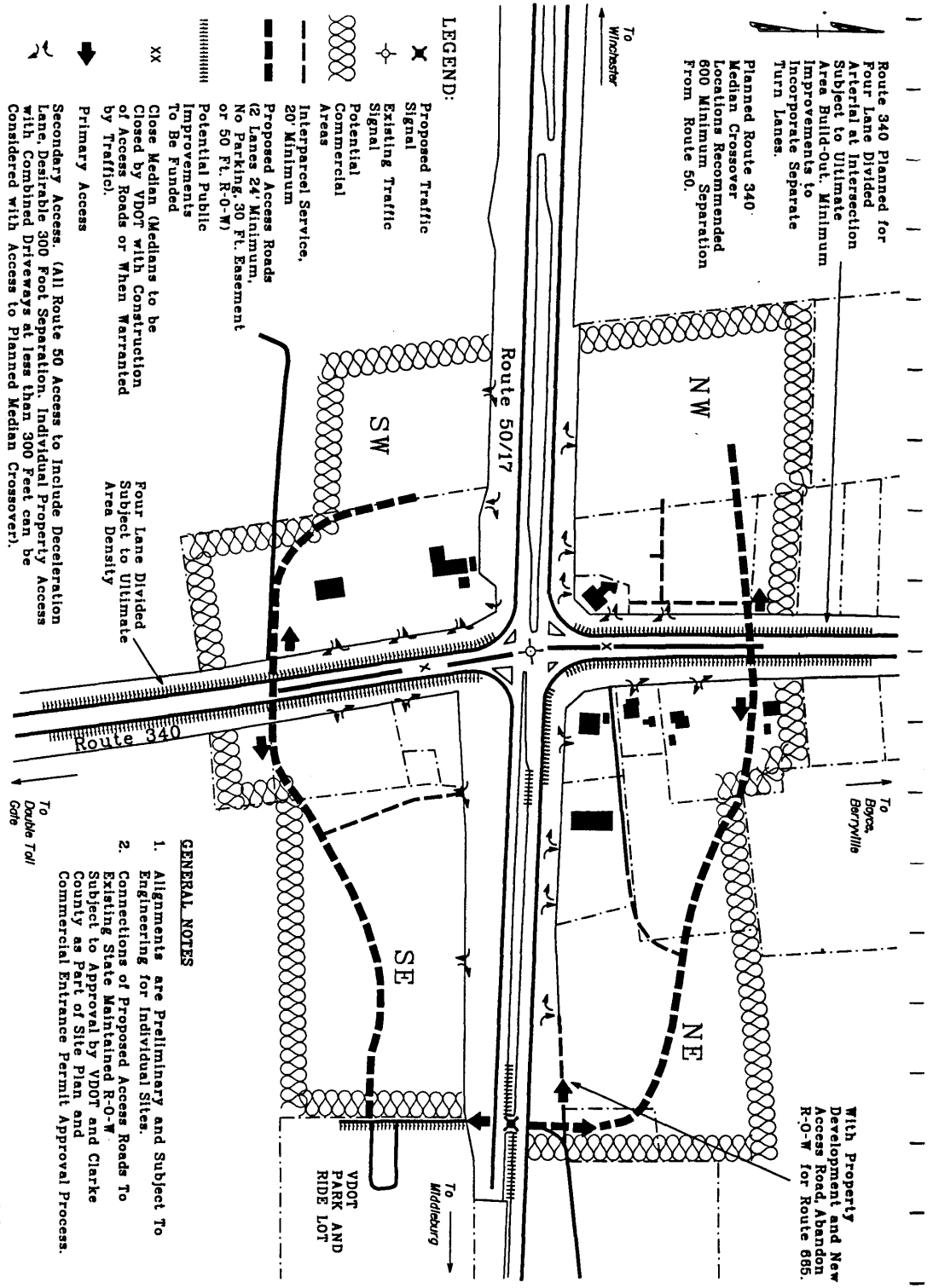
11. Pedestrian traffic, both within each quadrant and among quadrants, must be addressed to avoid accidents and to provide visitors and residents with safe and attractive access to all businesses at the intersection, without having to drive within or among the quadrants. Direct and continuous walkways that are permanently marked shall be provided from parking areas to each business and between businesses in each quadrant. Pedestrian activity should be monitored, and when demand warrants, pedestrian crosswalks activated by push-button should be installed across Routes 50 and 340.
12. All site plans shall designate the projected average daily trip generation for the proposed uses, based on VDOT standards. Developments with projected trip generation in excess of 3,000 vehicles per day shall, in addition to direct access from Routes 50/17 and/or 340, provide secondary access/egress to these routes.

Recommended Ordinance Changes

No specific amendments are recommended for the Zoning Ordinance at this time. The current language in the ordinance, particularly relating to site development plans, is believed to be sufficient.

CONCEPTUAL ACCESS PLAN

Figure
 1



Route 340 Planned for Four Lane Divided Arterial at Intersection Subject to Ultimate Area Build-Out. Minimum Improvements to Incorporate Separate Turn Lanes.

Planned Route 340 Median Crossover Locations Recommended 600' Minimum Separation From Route 50.

With Property Development and New Access Road, Abandon R-O-W for Route 685.

LEGEND:

- X Proposed Traffic Signal
- ⊕ Existing Traffic Signal
- Potential Commercial Areas
- Interparcel Service, 20' Minimum
- ▬ Proposed Access Roads (2 Lanes 24' Minimum, No Parking, 30 Ft. Easement or 50 Ft. R-O-W)
- ||||| Potential Public Improvements To Be Funded
- XX Close Median (Medians to be Closed by VDOT with Construction of Access Roads or When Warranted by Traffic).
- ➔ Primary Access

Secondary Access. (All Route 50 Access to Include Deceleration Lane, Desirable 300 Foot Separation. Individual Property Access with Combined Driveways at less than 300 Feet can be Considered with Access to Planned Median Crossover).

Four Lane Divided Subject to Ultimate Area Density

GENERAL NOTES

1. Alignments are Preliminary and Subject To Engineering for Individual Sites.
2. Connections of Proposed Access Roads To Existing State Maintained R-O-W Subject to Approval by VDOT and Clarke County as Part of Site Plan, and Commercial Entrance Permit Approval Process.

V. Stormwater

Three initial questions were posed:

1. What will be the impact of future development on the receiving channel?
2. What will be the impact of future development on existing drainage structures, including culverts and storm sewer network?
3. What type of stormwater detention, site specific or regional, is best suited to the area and its future use?

The general area at the intersection of Routes 50/17 and 340 is characterized by rolling topography with moderate to poorly drained soils. Aside from the few commercial developments in the immediate vicinity of the Waterloo intersection and a few residential dwellings along Route 340, most of the land is pasture.

The area proposed for commercial development is part of a 534 acre area draining toward a 5'x5' box culvert under Route 50 adjacent to the Norfolk Southern Railroad.

The stream that will receive the area's run-off is an intermittent tributary of Westbrook Run, which flows into Roseville Run, the receiving stream for the Boyce Town Sewage Treatment Plant. Roseville Run connects with Page Brook at Powhatan School, about 1/2 mile downstream from Prospect Hill Spring, the water source for the Boyce, Millwood, Waterloo, and White Post areas. Page Brook and Roseville Run combine to form Spout Run, which passes through Millwood on its way to the Shenandoah River.

Existing development at the Waterloo intersection initiated the development of a stormwater system. This system, built in the last five years, drains the F&M Bank site, the Sheetz convenience store, and McDonald's restaurant. An older series of pipes and culverts under Routes 50/17 and 340 drains the ditches along the public roadways.

A change from vacant rural land to more intense commercial land use inevitably results in a decrease of pervious surface and an increase in impervious surface. A predominantly wooded or pasture site converted to grass and asphalt might increase the peak discharge rate 2 to 5 times. Also, the overall volume can increase by as much as 50%. Although the individual effect from a small site may seem inconsequential, the collective effect from a number of sites throughout the watershed can be substantial on the environment, in the form of flooding for example, if mitigation controls are not implemented.

In addition, increased development affects water quality. Hydrocarbon residues (grease and oil on pavements), tire particulates, metal part flakes (like those from brake shoes), and trace metals (like zinc and lead from galvanized downspouts, and flashing and roofing materials) are flushed into the surface water system even by inconsequential storms of less than 1/2 inch of rainfall. Such contaminants can cause toxic, organic, nutrient, and pathogenic sediment, and radiological and aesthetic pollution problems. Because the flow of such pollutants into the receiving waters is dictated by storm events, land use, and land cover, pollutants enter the surface water system at highly irregular rates.

The resolution of stormwater challenges can be achieved either individually on each site or communally through a shared detention area. Individual ponds can be tailored to the needs of each site and must be maintained by each owner, not by the public. Individual ponds, however, collectively use more land (in more valuable locations) than community ponds (in more remote locations).

A community pond allows more intensive concentrations of development because of its off-site location. However, a community pond requires a high degree of coordination among property owners to meet the expenses of design, construction, and maintenance. There are currently twelve property owners in the area to be zoned commercial at the Waterloo intersection, with an average 4.1 acres per owner. It is reasonable to expect that many of these acres will be subdivided further. Because of the number of owners, the relatively small amount of property, per owner, and the uncertain pace of projected development, coordination would be challenging. The role of coordinator is often assumed by the public sector. Given the limited fiscal benefits to the County of development at Waterloo and the limits of intentionally small government, Clarke County is not in a position to take on this responsibility.

Recommendations

1. Commercial development usually evolves in a piecemeal fashion and many of the sites in this area could be parcels of less than 1 acre. To coordinate the overall drainage design as new developments take place, a Master Drainage Study shall be created for this area to avoid potential drainage problems. Each development shall be responsible for a portion of the Master Drainage Study as part of the development approval process. This approach would distribute stormwater management expenses over a larger number of participants over a longer period. No one development would be burdened with a disproportionate cost. The extended study period would give flexibility to adapt each necessary drainage improvement to new and diverse development.
2. Public Standards for stormwater management facilities shall be increased to levels commonly used in more developed jurisdictions, in order to minimize to the extent possible any stormwater impacts off of each commercial site:
 - a. stormwater management facilities may be on-site or off-site, with coordination left to the property owners;
 - b. stormwater management facilities shall be designed to accommodate the 2 year and 10 year storm event of 2 hour duration;
 - c. conveyance channels shall be designed to convey the 2 year storm without erosion; and
 - d. overland relief shall be designed for the 100 year storm event to limit damage to structures.
3. Best Management Practices shall be established to control pollutants in stormwater. Such practices focus primarily on channeling run-off into landscaped or grassed areas. Best Management Practices should be used on each site to control the run-off from at least 70% of the disturbed site area.
4. VDOT shall include in any plan for improvements in the public right of way a comprehensive review of their drainage facilities. There is considerable evidence to suggest that, due to the age of their structures, there are measurable reductions in their original capacity, and that they are too small for existing development levels. The 18 inch pipes under Route 340 on the north and south sides of Route 50 are of particular concern. VDOT should include in the next update of the Primary System Six Year Plan for Clarke County a drainage study for this area and program the funds for improvements as necessary.

Recommended Ordinance Changes and other Board Actions

The Site Plan Section of the County Zoning Ordinance shall be amended to incorporate the new standards for stormwater management described above. The Board of Supervisors should ensure VDOT definitively addresses the public stormwater deficiencies in this area in the next update of the Primary System Six Year Plan.

VI. Water

Public water was provided to the Waterloo area in September 1994. This service was the side effect of an effort by the Virginia Department of Environmental Quality to address well pollution problems in the White Post area, south of Waterloo. The service is operated by the Clarke County Sanitary Authority. Current available capacity is more than sufficient to serve projected uses.

VII. Sewer

The County Board of Supervisors has been actively pursuing the provision of public sewer in the Waterloo area in the form of an aerated lagoon/land application system. The Board's work has included both technical and financial aspects of providing such service. A location for a Waterloo sewage/septage facility has been identified, and the property owner has shown a willingness to work with the County. As the Board of Supervisors will be commencing a separate public hearing process for the approval of this facility, provision of sewer service is not addressed by this Plan. However, it has been determined that the 25,000 gallon daily capacity of the proposed system will support approximately 30 to 50 acres of commercial uses, consistent with the proposed rezoning.

VIII. Safety

The Waterloo area is a residential community and an agricultural district, as well as a commercial intersection. Public safety is a concern not only for businesses and their daytime customers, but also for and by the full time residents.

Increased amounts of crime could result from increased commercial activity. The County Sheriff's Office in Berryville makes every effort to serve this area fully. Despite increased numbers of calls in recent years, the Sheriff has indicated that the population and general activity levels in this area do not yet warrant the establishment of a substation or addition of personnel. However, he will continue to monitor the situation and respond as demand for crime control warrants and as the budget permits. Call boxes on each quadrant are also recommended.

Increased traffic volume could result in increased numbers of accidents. Residents have already witnessed an increase in minor vehicular accidents occurring primarily on Route 340 in recent years with new development and are concerned that road improvement may not always keep up with land development. The Sheriff also indicated his concerns, primarily at crossovers. Signs and access improvements will help, but enforcement is also a key factor.

Fire and rescue services, although close geographically at Boyce, need to be reviewed as more commercial development occurs. Types and sizes of equipment may need adjustment as the number and scale of businesses increase.

IX. Appearance

An attractive commercial area is good for business, because tourists are more likely to stop and entrepreneurs are more likely to invest. The Historic Access Corridor Overlay District provides a solid foundation on which to build an attractive commercial area. All properties to be zoned commercial shall also be in the Historic Access Corridor Overlay District. County site plan regulations concerning underground utilities and signage shall be strictly enforced. All area businesses are encouraged to coordinate signs where possible. Businesses are encouraged to go beyond the minimum landscaping requirements to enhance the area further. Route 50 median plantings by VDOT, local groups, and garden clubs are encouraged. Efforts to preserve and maintain the Trenary family cemetery are also supported.

X. Implementing Actions

ZONING MAP AMENDMENT

The Clarke County Official County Zoning Map shall be amended so that the properties identified as Tax Map Parcels 20-A-36 (7.1 acres), 28-A-16 (6.0 acre portion), 28-A-20 (8.3 acre portion), 29-A-1 (1.8 acres), 29-A-3 (6.8 acre portion), 29-A-4 (.7 acres) be rezoned from Agricultural-Open Space-Conservation Zoning District to Highway Commercial Zoning District (CH) and Historic Access Corridor Overlay Zoning District (HC), located at the intersection of US Routes 50/17 and 340, Greenway Magisterial District.

ZONING ORDINANCE AMENDMENTS

3 District Regulations

3-A Schedule of District Regulations

3-A-14 Highway Commercial District (CH)

3-A-14-a Permitted Uses and Structures

3-A-14-a-(1) Principal Uses and Structures

3-A-14-a-(1)-(o) { Motels and Hotels }

3-A-14-a-(3) Uses and Structures Permitted with Special Use Permit

3-A-14-a-(3)-(i) Hotels

3-A-14-a-(3)-(j) Hotels

ALL SUBSEQUENT SECTIONS WILL BE RENUMBERED

6 Site Development Plans

6- H Improvements and Minimum Standards

6-H-8 Stormwater Management

{1. A Drainage Study shall be prepared for each proposed site plan. The Study shall address in detail all pertinent drainage issues upstream of the proposed development to ensure no property damage from backwater flooding, resulting from development and downstream of the proposed development as a minimum to the downstream end of the pipe system where it first crosses VDOT right of way or to an adequate channel.

a. An adequate channel is defined as "a watercourse that will convey a chosen frequency storm event without overtopping its banks or causing erosive damage to the bed, banks and overbank sections of the watercourse." A receiving channel may be considered adequate if the total drainage area to the point of analysis in the channel is 100 times greater than the contributing drainage area of the project site. For natural channels, the 2 year storm event is used to verify that stormwater will not overtop the channel banks nor cause erosion of the channel bed or banks.

- For manmade channels, the 10 year storm event is used to verify that stormwater will not overtop the channel banks and the 2 year storm event is used to demonstrate that stormwater will not cause erosion of the channel bed or banks. For pipes and storm sewer systems, the 10 year storm event is used to verify that stormwater will be contained within the pipe or storm sewer.
- b. If existing natural receiving channels or previously constructed manmade channels or pipes are not adequate, the applicant must choose one of the following options.
 1. Improve the channels to a condition where the 10 year storm event will not overtop the channel banks and the 2 year storm event will not cause erosion to the channel bed or banks. The applicant must provide evidence of permission to make the improvements.
 2. Improve the pipe or storm sewer system to a condition where the 10 year storm event is contained within the appurtenances. The applicant must provide evidence of permission to make the improvements.
 3. Develop a site design that will not cause the predevelopment peak runoff rate from a 2 year storm event to increase when runoff discharges into a natural channel or will not cause the predevelopment peak runoff rate from a 10 year storm event to increase when runoff discharges into a manmade channel.
 4. Provide a combination of channel improvements, stormwater detention or other measures which is satisfactory to the plan-approving authority to prevent downstream erosion.
 - c. Pertinent issues in the drainage study shall include but not be limited to:
 1. the impact of new development on the adequacy of the existing pipe network,
 2. the development's impact on critical outfall points further downstream than the immediate property limits,
 3. the integration of the proposed stormwater management scheme with the stormwater management facilities already in operation, and
 4. suggested off-site improvements to the stormwater management system to improve existing drainage problems.
 2. Detention shall be provided for the 2 year and 10 year storm events. Storm durations shall be not less than 2 hours for drainage areas of twenty acres or less and not less than 24 hours for drainage areas greater than 20 acres. }
 3. ~~The stormwater runoff for a developed area shall be equal to or less than the runoff rate for the area prior to development.~~
 3. { The maximum peak discharge from a stormwater management facility for the 2 year and 10 year storm event should be no eater than the peak discharges for re-development conditions for the same storms. The administrative body may require a smaller post-development peak discharge or offsite improvements if downstream conditions warrant. Such conditions include inadequate pipe capacities, potential for channel erosion, and to reduce flooding which may exist prior to development. The adequacy of downstream conditions should be evaluated, as a minimum, to the point where the drainage system crosses VDOT right of way or 1000 ft. downstream from the point where the discharge leaves the property or to a point downstream deemed acceptable by the Director.

4. Stormwater management facilities designed to detain less than the 100 year storm event shall provide adequate overland relief. Analysis for overland relief shall extend in both the upstream and downstream directions to ensure no increase in flooding to dwellings and other structures.
5. Conveyance channels leading from stormwater management facilities to natural stream beds and floodplains shall be designed to convey the peak discharge of the 2 ear storm event without eroding the natural stream bed. Furthermore the peak discharge from both the stormwater management facilities already in operation and the proposed facility shall not exceed the channel capacity or erosive velocities to:
 - a. the point where the channel discharges into VDOT right of way or
 - b. the point 1000 feet downstream from where the discharge leaves the property, which ever is less, or
 - c. a point downstream deemed acceptable by the administrative body. Channels shall be designed such that the velocity of the peak discharge in the channel from the 2 year storm event shall not exceed the permissible velocity of the type of lining used.
6. To reduce non-point source pollutants in stormwater run-off Best Management Practices BMPs shall be used to control the run-off from a minimum of 70% of the disturbed site area in a proposed development. Such BMPs include extended detention ponds wet ponds infiltration trenches, infiltration basins, porous pavement, water quality inlets and/or vegetative practices. The manual Controlling Urban Run-off - A Practical Guide for Planning and Designing Urban BMPs, Thomas Schueler, Metropolitan Washington Council of Governments, 1987, shall serve as the design standard for Best Management Practices. }
7. Dedicated easements shall be provided for all facilities.
8. Stormwater management plans shall be {reviewed and} approved {when applicable} by the Virginia Department of Transportation, {Virginia Soil and Water Conservation District,} and other appropriate state agencies.
9. {In those cases in which the drainage plans of a proposed development do not satisfy these minimum requirements because necessary off-site facilities or improvements are lacking, a building permit shall not be issued until the necessary off-site facilities or improvements are constructed or other arrangements, satisfactory to the administrative body are made.}
10. The policies and design criteria ~~for meeting this goal~~ for projects in Annexation Area B are addressed in the Berryville Area Stormwater System Master Plan. All stormwater management systems for such projects shall be designed to meet or exceed the criteria contained in the Stormwater System Master Plan.

Text to be added is shown {underlined in brackets}

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SUBDIVISION ORDINANCE AMENDMENTS

8-1 Drainage

8-1-1 Subdivisions

8-1-1-(a) Storm drainage planning shall not result in increases of flow which would cause more harm than formerly to subservient landowners.

{8-1-1-(b) For Major Subdivisions of land in the Rural Residential

Zoning District:

1. Detention shall be provided for the 2 year and 10 year storm events. Storm durations shall be assumed to be not less than 2 hours for drainage areas of twenty acres or less and not less than 24 hours for drainage areas greater than 20 acres.
2. Stormwater management facilities designed to detain less than 100 year storm event shall provide adequate overland relief for the 100 year storm event. Analysis for overland relief shall extend in both the upstream and downstream directions to ensure no damage from flooding to dwellings and other structures.
3. Conveyance channels leading from stormwater management facilities to natural stream beds and floodplains shall be designed to convey the peak discharge of the 2 year storm event without eroding the natural stream bed. The velocity of the peak discharge in the channel shall be correlated with the type of channel lining and/or soil type. The combined discharges from the stormwater facilities already in operation with the proposed facility shall not exceed the channel capacity or erosive velocities, as a minimum, to the point where the drainage system crosses VDOT right of way.

Text to be added is shown { underlined in brackets }