Town of Boonsboro, Maryland

2009 COMPREHENSIVE PLAN

MAYOR AND COUNCIL OF BOONSBORO

RESOLUTION 2009-02
UPDATE TO THE COMPREHENSIVE PLAN

WHEREAS, Article 66B of the Annotated Code of Maryland empowers local municipalities to provide for the orderly growth and development of their respective jurisdictions; AND

WHEREAS, the Town of Boonsboro Mayor and Council, in conjunction with the Town of Boonsboro Planning Commission, have recently completed an update and revision of their Comprehensive Plan; AND

WHEREAS, the updates and revisions to the Comprehensive Plan include more recent data with respect to population trends; housing trends; community facilities; and land use, as well as goals and opportunities for the Town of Boonsboro to consider in providing for the orderly growth and development of the Town; AND

WHEREAS, the Comprehensive Plan now includes a Municipal Growth Element to evaluate potential impact on land, infrastructure, and community facilities from projected growth and a Water Resources Element that evaluates the relationship between existing and projected growth on water and sewer infrastructure as now required by Article 66B of the Annotated Code of Maryland.

NOW THEREFORE, BE IT RESOLVED, by the Mayor and Council of the Town of Boonsboro, Maryland that the document known as "The 2009 Comprehensive Plan for Boonsboro, Maryland" is hereby adopted and to be placed into effect the 27th day of July, 2009.

Charles F. Kauffman, Jr., Mayor

ATTEST:

Barbara Rodenhiser, Town Clerk

Date of Introduction: June 1, 2009
Date of Passage: July 6, 2009
Effective Date: July 27, 2009

BOONSBORO PLANNING COMMISSION

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This Comprehensive Plan for the Town of Boonsboro is designed to guide and provide for the orderly growth and development of the Town of Boonsboro. The Comprehensive Plan has been prepared in accordance with the visions and elements as required in Article 66B of the Annotated Code of Maryland. The Plan is recommended to the Mayor and Council for adoption by resolution after a duly advertised public hearing conducted on July 6, 2009.

Robert Snyder, Chairman

Boonsboro Planning Commission

Attest:

Julie Green, Secretary

Acknowledgments

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Chapter 1: Plan Introduction

This Comprehensive Plan directs and manages the future development of the Town of Boonsboro, Maryland through the year 2030. This plan updates the 1997 Comprehensive Plan, and focuses specifically on the impacts of the Town's annexation of more than 980 acres of land in 2006—annexations that more than doubled the town's geographic size.

Legal Context for the Comprehensive Plan

The 2008 Boonsboro Comprehensive Plan meets the requirements for local government planning in Maryland, pursuant to state enabling legislation and the requirements contained in Article 66B of the Annotated Code of Maryland. In 1992, the Maryland Economic Growth, Resource Protection, and Planning Act (the Planning Act) amended Article 66B to establish land use visions for Maryland's future. In 2009, the General Assembly adopted "Smart, Green, and Growing" legislation (Senate Bill 273/House Bill 294), which, among other initiatives, replaced the eight visions of the Planning Act with twelve (12) new visions. Under the Act, the state visions must be implemented when a local comprehensive plan is prepared. The twelve visions are:

1. Quality of Life and Sustainability: A high quality of life is achieved through universal stewardship of the land, water, and air resulting in sustainable communities and protection of the environment;

2. Public Participation: Citizens are active partners in the planning and implementation of community initiatives and are sensitive to their responsibilities in achieving community goals;

3. Growth Areas: Growth is concentrated in existing population and business centers, growth areas adjacent to these centers, or strategically selected new centers;

4. Community Design: Compact, mixed-use, walkable design consistent with existing community character and located near available or planned transit options is encouraged to ensure efficient use of land and transportation resources and preservation and enhancement of natural systems, open spaces, recreational areas, and historical, cultural, and archeological resources;

5. Infrastructure: Growth areas have the water resources and infrastructure to accommodate population and business expansion in an orderly, efficient, and environmentally sustainable manner;

6. Transportation: A well-maintained, multimodal transportation system facilitates the safe, convenient, affordable, and efficient movement of people, goods, and services within and between population and business centers;

7. Housing: A range of housing densities, types, and sizes provides residential options for citizens of all ages and incomes;

8. Economic Development: Economic development and natural resource-based businesses that promote employment opportunities for all income levels within the capacity of the states natural resources, public services, and public facilities are encouraged;

9. Environmental Protection: Land and water resources, including the Chesapeake and Coastal Bays, are carefully managed to restore and maintain healthy air and water, natural systems, and living resources;

10. Resources Conservation: Waterways, forests, agricultural areas, open space, natural systems, and scenic areas are conserved;

11. Stewardship: Government, business entities, and residents are responsible for the creation of sustainable communities by collaborating to balance efficient growth with resource protection; and

12. Implementation: Strategies, policies, programs, and funding for growth and development, resource conservation, infrastructure, and transportation are integrated across the local, regional, state, and interstate levels to achieve these visions.

Article 66-B was amended by House Bill 1141 in 2006 to include several new requirements for Comprehensive Plans, including a new Municipal Growth Element and a Water Resources Element. This Plan meets those requirements, and has been prepared consistent with and in consideration of ongoing efforts in Maryland in support of smart growth.

Plan Preparation

Pursuant to Article 66-B, the Plan was prepared for the Boonsboro Mayor and Council by the Boonsboro Planning Commission. The Planning Commission was assisted by town staff (see acknowledgements). The Plan was prepared between June 2007 and September 2008, recommended for approval by the Planning Commission on May 27, 2009, and adopted by the Mayor and Town Council on July 6, 2009. Table 1.1 lists the public meetings that were held for the Comprehensive Plan.

Table 1.1: Public Participation

Date	Meeting	Purpose
June 27, 2007	Public Meeting	Plan Kickoff for the Planning Commission and the public
January 10, 2008	Issues and Policies Work Session	Discussion of major issues that the Comprehensive Plan will address, and proposed policies and actions to address those issues.

June 3, 2008 June 10, 2008 June 17, 2008 July 1, 2008 July 8, 2008 August 12, 2008 October 1, 2008	Planning Commission Work Sessions	Planning Commission review of Preliminary Draft Comprehensive Plan; refinement for state-mandated Interagency Review.
October 1, 2008	Planning Commission Work Session	Presentation of Planning Commission Draft Comprehensive Plan, forwarded for state-mandated interagency review.
March 25, 2009	Planning Commission Work Session	Discussion of state and public comments on Planning Commission Draft Comprehensive Plan.
July 6, 2009	Joint Planning Commission/Mayor and Council Public Hearing	Public comment on the Planning Commission Draft Comprehensive Plan.

In addition to these formal opportunities for participation, the public was kept informed about the Comprehensive Plan process through the Town's website, www.town.boonsboro.md.us. This website provided copies of major project milestones, including the Summary of Issues, and draft and final versions of the Comprehensive Plan.

Plan Structure

This Comprehensive Plan is divided into nine elements:

- Land Use
- Municipal Growth
- Water Resources
- Transportation
- Community Facilities
- Economic Development
- Housing
- Historic Resources/Downtown
- Sensitive Areas/Mineral Resources

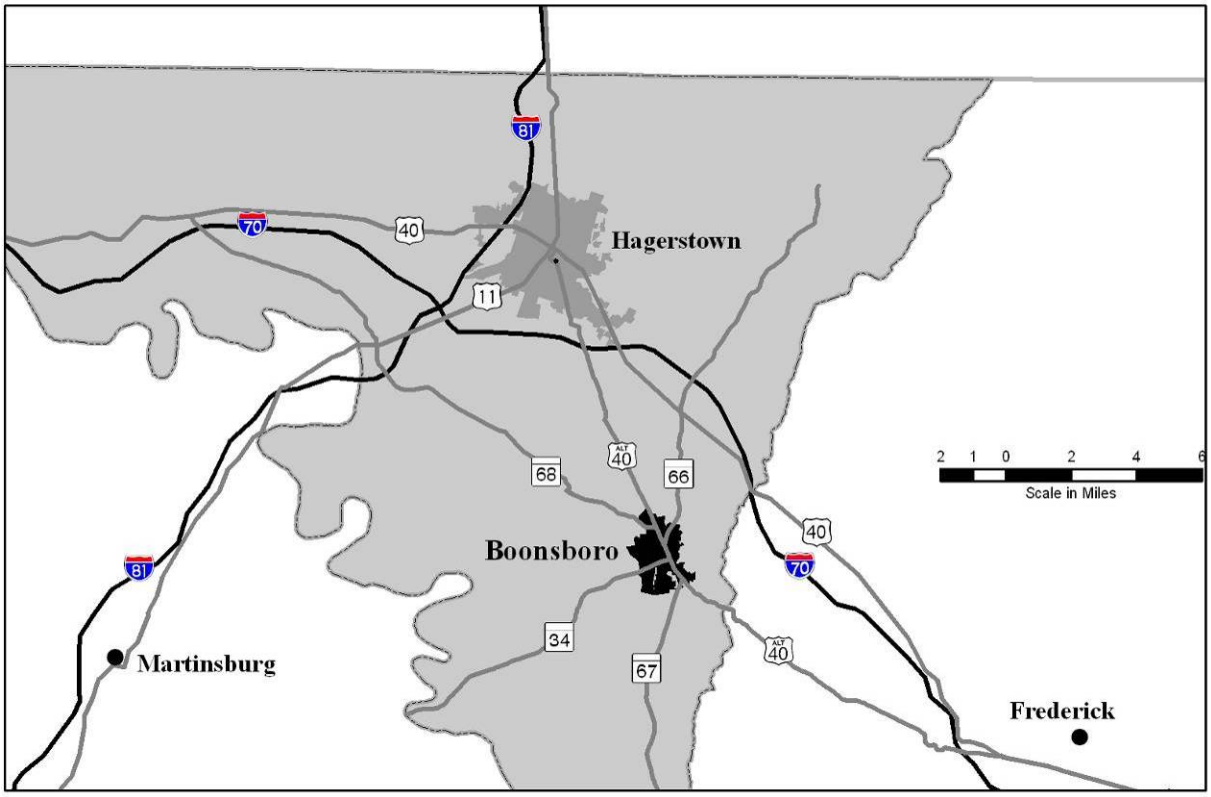
For each element, the Plan describes relevant issues, trends, and planning considerations facing the Town. A series of goals, policies, and implementation actions outline the Town's approach to those issues, and will guide future decisions about the use and management of the Town's land, infrastructure, and other resources in the years following Plan adoption.

Town History

Nestled at the foot of South Mountain between Hagerstown and Frederick, the rural town of Boonsboro was founded in 1792 by George and William Boone, cousins of noted frontiersman Daniel Boone. The land where the town is located was once part of two tracts of land, Beale's Chance and Fellowship. Originally named Margaretsville in honor of William Boone's wife, the town's name evolved several times throughout the years from Margaretsville to Margaret Boone's Ville, to Boonesborough, and finally to Boonsboro. The Town was officially incorporated and held its first election in 1831.

Boonsboro's early growth and prosperity was spurred in part by the construction of the National Road, the nation's first publicly financed road, which connected Baltimore to the Ohio River valley. Construction of the National Road (now US Alternate 40) reached Boonsboro and the terminus of Shepherdstown Pike (now MD 34) in 1810. Other major roads were subsequently routed through or near Boonsboro, creating a road network that endures today. Maryland routes 66, 67, and 68, US Alternate 40, and I-70 to the north make Boonsboro accessible to a wide variety of local and regional population and employment centers (see Figure 1.1).

Figure 1.1: Regional Setting



This accessibility combines with rural charm. Boonsboro is surrounded by a picturesque countryside that in many ways has changed little in appearance over the decades. These attributes have always combined to make Boonsboro a very desirable place to live. The town grew at a slow but steady pace through the 20th century, generally through small annexations, primarily along the Main Street (US Alternate 40) and Potomac Street (MD 34/Shepherdstown Pike) corridors. Beginning in approximately 1990, the pace of growth increased, primarily due to expansions in regional employment opportunities and improved transportation connections to those opportunities. In 2006, the Town made an ambitious move to significantly increase its size, annexing nearly 1,000 acres of new land (much of it undeveloped agricultural land). These annexations more than doubled the Town's geographic size.

Planning History

Boonsboro prepared its first Comprehensive Plan in 1975. In 1990, the Planning Commission and Town Council requested assistance from the Maryland Office of Planning (now the Maryland Department of Planning) to update the 1975 Plan due to growth-related issues then facing the Town. That update was adopted by the Mayor and Council in 1991.

The 1997 Update of the Boonsboro Comprehensive Plan was undertaken to fulfill the requirements of the 1992 Planning Act, particularly to include the state's seven (now eight) visions and the various required Comprehensive Plan elements. Many of the changes between the 1991 and 1997 Comprehensive Plans were subtle, since the state's Visions were, in most cases, already a part of the Town's planning approach.

Demographics

This section summarizes some of the broad demographic information that relates to several elements of the Comprehensive Plan. Additional demographic data are found in the individual elements.

Population

In 2006, Boonsboro had 3,252 residents, making it the second-largest municipality in Washington County.[1] Since 1970, the town has grown by approximately 2.3 percent per year. A more detailed discussion of past population growth, as well as the Comprehensive Plans' population projections is found in Chapter 2, the Municipal Growth Element.

Age and Gender

Analysis of a town's age composition helps in forming plans and policies related to community facilities and public services, and transportation. It also helps the town anticipate future needs regarding housing and employment. The age structure of Boonsboro's population and the long-range trends in total population are thus important considerations. The age distribution of the Town's population in 2000 is shown in Figure 1.2. Table 1.2 compares the Town's age distribution with that of the County and state.

[1] Source: Maryland Department of Planning. 2007 estimates were not available at the time of publication.

Figure 1.2: Age Distribution, Year 2000

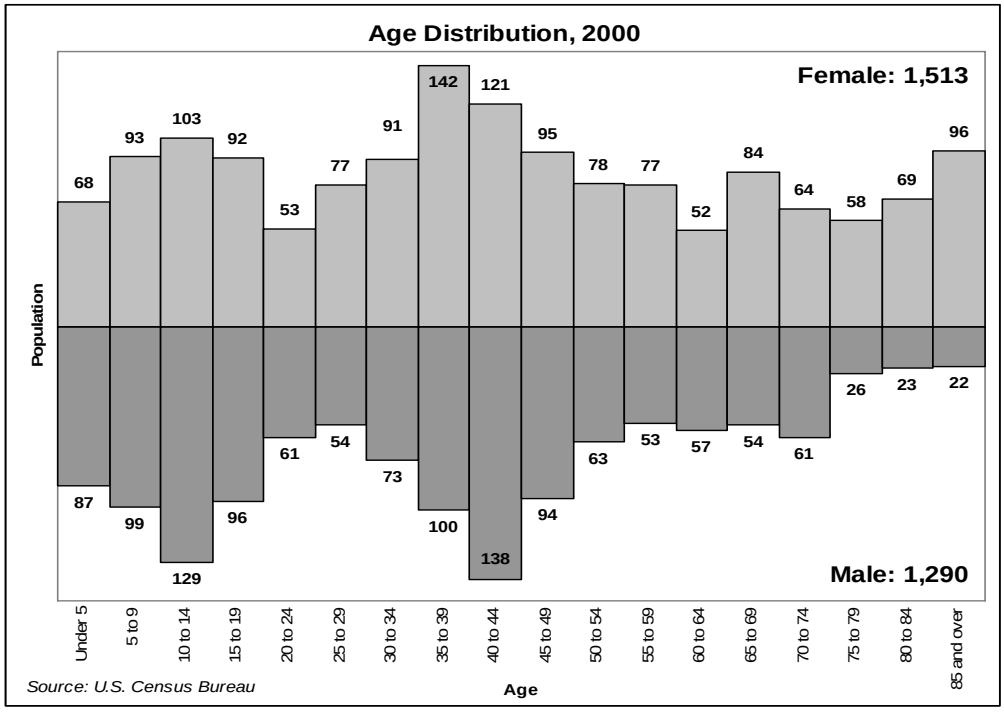


Table 1.2: Comparison of Age Distribution

Age	Boonsboro	Washington County	Maryland
Under 18	25%	23%	26%
18 to 64	55%	62%	63%
65 or Older	20%	14%	11%

Source: 2000 US Census

Boonsboro, in 2000, had a higher percentage of persons over the age of 65 than did Washington County or the state, a trend that has amplified since 1970. In 1970, residents aged 65 and over comprised 12 percent of the Town's population, compared to 20 percent in 2000. A major reason for the large number of older persons in Boonsboro is probably the presence of Reeders' Memorial Home for the elderly.

At the same time, the 17 and under portion of the Town's 2000 population increased (from 23 percent in 1990 to nearly 25 percent in 2000). This is a reversal of previous downward trends in the younger portion of the population from 1970 to 1990.

Boonsboro also has a higher "dependency ratio" than do most other Washington County towns and the County as a whole. This ratio is computed by combining the percentages of persons in the relatively "dependent" ages of 1-17 and 65 and over. In Boonsboro, more than 45 percent of the population falls within the "dependent" category, compared to 37 percent in Washington County and the state.

Children and adolescents ordinarily are not a significant factor in a community's labor force. In an economic sense, they are more dependent for necessities than productive in

their own right. Likewise, senior citizens generally can and do enjoy their earned right to retire from the compelling need to be economically productive.

These relationships are not absolute, but it is generally true that the young and the elderly depend upon the labor of the remaining population (ages 18-64) to provide the services and the income they need for their support. This need extends beyond economics to include physical facilities such as schools, health care, and public transportation.

Accordingly, it is appropriate to consider the balance between the relatively productive and the relatively dependent segments of the population to assure that the resources of the former are adequate to support the needs of the latter.

Chapter 2: Municipal Growth Element

This element evaluates land consumption and impacts on public facilities that can be expected as the result of projected population growth in Boonsboro through approximately 2030.

Population Projections

The Town's projected population through 2030 is shown in Table 2.1. Boonsboro's population is expected to grow more than 60 percent during that time period, from approximately 3,310 in 2007 to 5,339 in 2030.[2] Assuming a household size of 2.4 people, this population growth equates to approximately 845 new residential dwelling units by 2030.

Table 2.1: Population Projections

Year	Population
2007	3,310
2010	3,523
2015	3,909
2020	4,337
2025	4,812
2030	5,339
Change, 2007-2030	**2,029**
Percent Change, 2007-2030	**61%**
Annual Increase, 2007-2030	**2.1%**

Much of this population growth will occur in portions of the 981.8 acres that the Town annexed in late 2006. These annexations, combined with the nutrient cap on Town's wastewater treatment plant (see Chapter 4, the Water Resources Element) create a unique situation with regard to municipal growth. The 2006 annexations contain more than adequate land to support not only the likely growth in the town through 2030, but also the maximum amount of growth that is possible, given the constrained sewer system. Thus, Boonsboro does not intend to pursue additional annexations through 2030.[3]

Past Growth Patterns

Population Growth

Unlike other municipalities in Washington County (notably Hagerstown), Boonsboro has experienced steady population growth since the early portion of the 20th century. In 1930, Boonsboro's 894 residents made it the fourth-largest town in Washington County, a ranking that did not change through 1970. Since then, however, Boonsboro's population growth has become more rapid, as shown in Table 2.2. This rapid increase

[2] The 2007 population is estimated based on trends since 1970. This data will be updated once the Census Bureau releases its official estimates for 2007 population. The methodology and assumptions used to generate these projections are included in the Plan Appendix.

[3] The exception to this statement would be in cases where public health concerns due to failing septic systems or wells make annexation (and provision of water and sewer service) necessary.

has been spurred by the growing economy and high housing costs in the Baltimore-Washington metropolitan area. As the metropolitan area expands, Boonsboro is increasingly seen as attractive to commuters, especially those who work in Montgomery and Frederick Counties.

As a result of these trends, Boonsboro is now the second-largest municipality in Washington County, behind only the City of Hagerstown.

Table 2.2: Population Growth, 1970-2006

Population		Boonsboro	Washington County Other Municipalities	Washington County Total
	1970[1]	1,410	43,449	103,829
	1980[1]	1,908	41,782	113,086
	1990[1]	2,445	42,230	121,393
	2000[2]	2,803	45,104	131,923
	2006[3]	3,252	48,418	143,748
Change, 1970-2006	Number	1,842	4,969	39,919
	Annual Increase	2.4%	0.3%	0.9%
Change, 1990-2006	Number	807	6,188	22,355
	Annual Increase	1.8%	0.9%	1.1%
Change, 2000-2006	Number	449	3,314	11,825
	Annual Increase	2.5%	1.2%	1.4%

Sources:
1: 1997 Boonsboro Comprehensive Plan
2: U.S. Census Bureau
3: Maryland Department of Planning

Land Use Change

From the 1970s through 2006, Boonsboro increased its geographic size moderately. During this period, the Town annexed approximately 260 acres of land, more than 160 acres of which is the site of the Town's wastewater treatment plant (WWTP) and the undeveloped Town Farm property (the large parcel east of Monroe Road). Of these annexations, only the 66-acre Boonsboro West tract resulted in large amounts of new development. This area is now the site of the Weis supermarket shopping center and the Fletcher's Grove neighborhood, which has been platted for nearly 200 single-family homes and townhouses.

With the exception of the Boonsboro West annexation (now known as Fletcher's Grove), the Town's land use pattern has changed little since the 1970s. The Town is predominantly residential in character, and most homes are single-family detached in nature. Aside from the Weis shopping center, commercial uses in Boonsboro are concentrated along Main Street, typically in proximity to the Square—the intersection of Main Street and Potomac Street.

Some older apartment units are located on the upper floors of commercial buildings along Main Street. In addition to the townhouses in Fletcher's Grove, the only other significant cluster of townhouses and apartment units is the Valley View neighborhood and the Country Village apartments near the intersection of St. Paul Street and Orchard Drive.

2006 Annexations

In late 2006, the Town annexed nine additional properties, totaling nearly 982 acres, as shown in Map 2.1. These annexations more than doubled the Town's geographic size. The 2006 annexations encompass much of the Town Growth Area established in the late 1980s as the result of a joint study by Boonsboro and Washington County. Many of these properties, such as the King Road and TT&K properties, had indicated interest in annexation (and eventual development) since the 1997 Comprehensive Plan. The Town pursued these large annexations to ensure that they would be developed in a manner that was consistent with the Town's existing character, and that new development was supported by appropriate water, sewer, and transportation infrastructure.[4]

As of 2009, no new development had occurred on the 2006 annexation properties. In January 2008, the Town approved a concept plan for 48 townhouses (single-story homes designed for senior citizens) on a portion of the Fletcher's Grove property. In addition, the US Alternate 40 property contained several existing businesses. The remainder of the 2006 Annexation land remains undeveloped.

Future Land Needs

As shown in Table 2.1, Boonsboro's population is projected to grow by approximately 2,000 people, with a projected population of 5,339 residents in 2030. These projections reflect past growth trends in Boonsboro (Table 2.2), including the availability of land, the housing market in 2009, and availability of future water and sewer capacity.

Residential Zoning

Table 2.3 shows the per-acre development capacity of each zoning district in Boonsboro. Map 2.2 shows current zoning in Boonsboro.

Table 2.3: Residential Zoning Capacity

Zoning District[1]	Description	Maximum Density (DU/acre)[2]	Density Yield (DU/acre)[3]
SR	Single Family Residential	2.9	2.2
TR	Mixed Residential	12.1	9.1
TC[4]	Town Center	14.5	10.9
MR	Multifamily Residential	12.1	9.1

1: The Zoning Ordinance also contains a RR (Rural Residential) district, with maximum density of 1.5 acres. However, no properties are in this district.

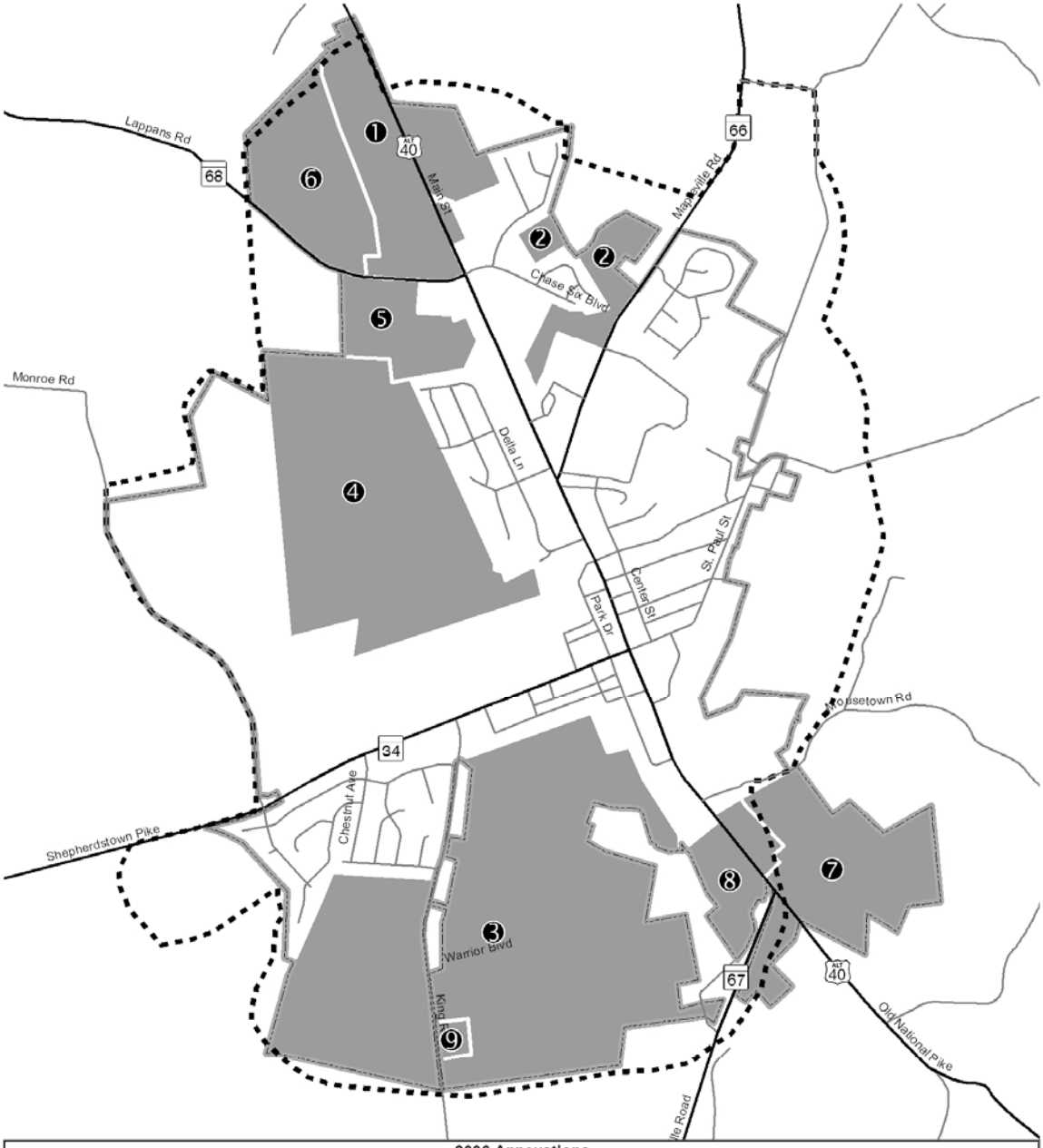
2: Based on minimum total lot size, as listed in the Zoning Ordinance.

3: Assumed to be 75 percent of maximum allowed density

4: Residential component only.

[4] The Town received "express approval" from the Washington County Planning Commission for the portions of the annexed land whose proposed zoning was substantially different from the 2002 County Comprehensive Plan's land use designation. Please see the two Washington County Planning Commission letters in the Plan Appendix for a more detailed description of this process.

Map 2.1: 2006 Annexations



2006 Annexations							
Annexation		*Acreage*	*Annexation*		*Acreage*	*Annexation*	*Acreage*
1	US 40 Alt Water Line Extension	94	4	TT&K, LLC	214	7 Easterday (Stiles Farm)	96
2	Fletcher's Grove (Dean, Ringley Properties)	36	5	Flook Parcel	42	8 South Main Street	32
3	King Road Associates	392	6	Lakin Tract	70	9 Shepherd Tract	6
						Total Annexed Acres	***982***

2006 Annexations

Corporate Boundaries
2006 Annexations
Town Growth Area (from 1997 Comprehensive Plan)

0 0.25 0.5
Miles

N
W E
S

Future Residential Development

Most platted residential lots in Boonsboro are occupied by residential structures. A few larger parcels with residential zoning remain, notably a few agricultural uses along Potomac Street (although the landowners have not expressed interest in developing those parcels). However, the bulk of the Town's developable land is on the parcels annexed in 2006.

For the purposes of estimating the Town's capacity to support projected growth, this Comprehensive Plan assumes that all new growth would occur on the 2006 Annexation parcels (excluding the portion of the Fletchers Grove and Battlefield Estates parcels already planned for development). Table 2.4 shows the development capacity of the vacant portion of the 2006 Annexation parcels.

Table 2.4: Boonsboro Development Capacity

Zoning District	Density Yield[1]	Undeveloped Acreage	Potential Dwelling Units	Potential Population[2]
Suburban Residential (SR)	2.2	8.6	19	46
Town Residential (TR)	9.1	273.7	2,491	5,978
Town Center (TC)[3]	10.9	358.1	3,903	9,367
Multi-Family Residential (MR)	9.1	119.8	1,090	2,616
Total		**760.2**	**7,503**	**18,007**

1: From Table 2.3.

2: Assumes a household size of 2.4 people.

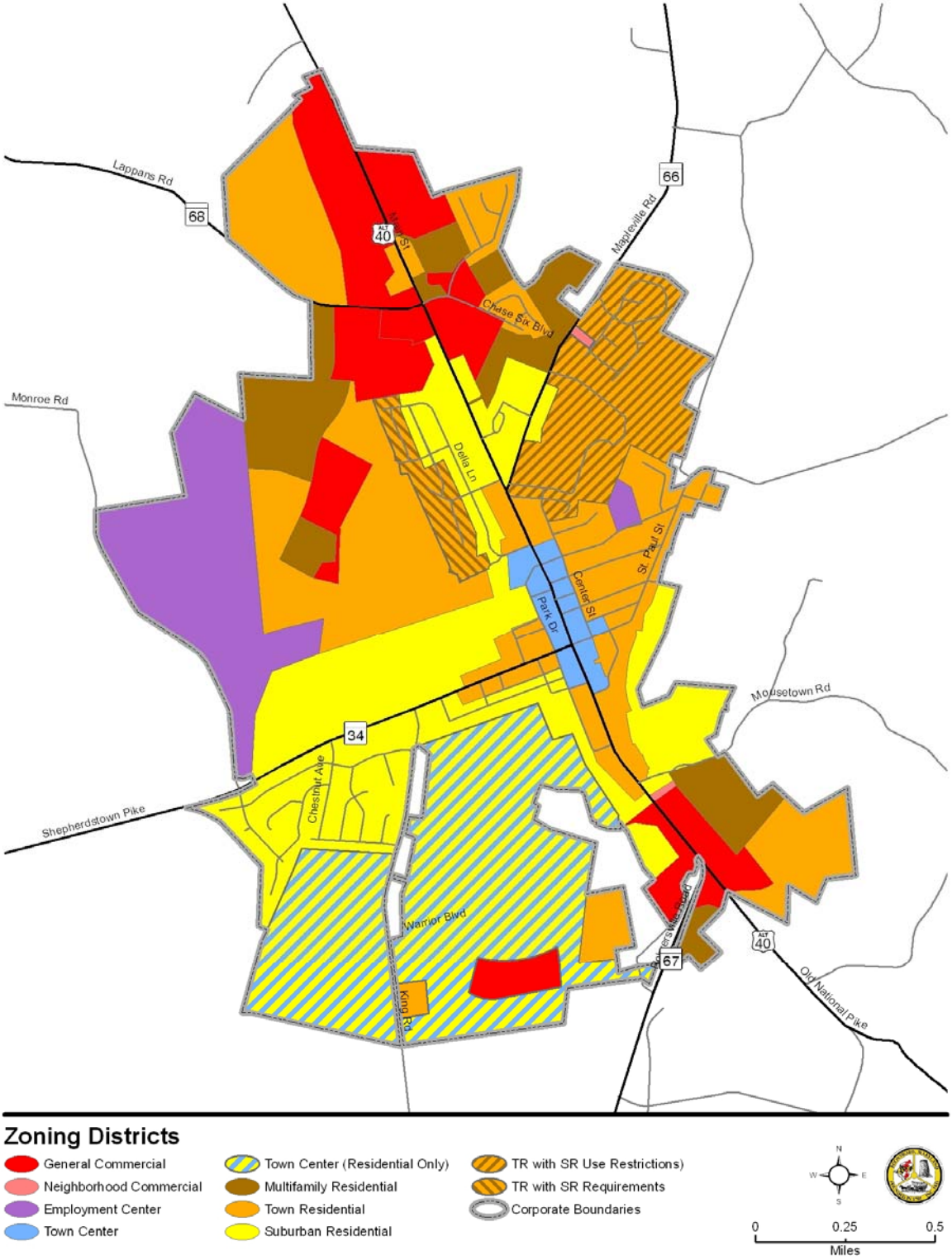
3: Includes the portions of the King Road property zoned TC(R)—Residential use only, with TC densities.

With capacity for 18,007 new residents, the Town has adequate zoned capacity to accommodate its projected 2,029-person population growth through 2030. No additional annexation of undeveloped land is needed or envisioned through 2030 to accommodate projected residential growth.

The theoretical density yields in Tables 2.3 and 2.4 are higher than as-built densities in the Town (especially for the TR, TC, and MR zones). Another important consideration is that the zoning for the 2006 annexation properties was put in place before the Town was made aware of the nutrient caps (and resulting cap on treatment capacity) at the wastewater treatment plant. Thus, the zoning in Map 2.2 reflects the expansive pre-2007 housing market and infrastructure assumptions, and may have to be revised to reflect current conditions.

Assuming a household size of 2.4 persons and a gross residential density of 3.5 units per acre (the minimum allowable density in a Priority Funding Area), the projected population increase of 2,029 residents (equivalent to 845 new housing units) could be accommodated on approximately 242 acres of land. The Land Use Element (Chapter 3) recommends a future land use pattern (and accompanying zoning) that channels this projected growth to appropriate areas.

Map 2.2: Boonsboro Zoning



Future Non-Residential Development

Approximately 270 acres of land in Boonsboro are zoned General Commercial (GC) or Town Center (TC). Clusters of active commercial uses are spaced along Main Street (US Alt 40): near the Square, at the intersection of Main Street and MD 67, and surrounding the intersection of Main Street and MD 68. Approximately 72 acres of undeveloped GC-zoned land exists on the Flook, TT&K, and King Road parcels. Table 2.5 shows the amount of retail/commercial development that this undeveloped land could support, depending on the intensity of development (as measured by Floor Area Ratio, or FAR). Based on a FAR of 0.15 (a relatively intense, but not unreasonable upper boundary for commercial development), the Town's existing supply of commercial land could support nearly 500,000 square feet of commercial and retail development (equivalent to several medium-sized grocery stores). This amount of development, combined with existing commercial and retail development in Boonsboro and other vacant parcels (on the US Alternate 40 annexation and within the existing commercial clusters), should be adequate to serve the projected population increase through 2030.

Table 2.5: Development Capacity on GC-Zoned Land

Undeveloped GC Acreage	72	72	72
Assumed FAR	0.05	0.10	0.15
Gross Square Footage	157,000	314,000	471,000

In addition to the GC and TC areas, the Town Farm property to the west of the TT&K property is zoned as an Employment Center. This zoning reflects previous efforts to attract a business park to Boonsboro. While development on this property for such uses could still be considered, the Town Farm property's environmental constraints, its distance from the Town's core, and limited available sewer capacity make this property a lower priority for development than was anticipated in the 1997 Comprehensive Plan.

Impacts on Community Facilities and Services

In addition to consuming land and water resources, new development also places new demands on public services provided by the Town and Washington County. This section describes those impacts. A more detailed description of these facilities is provided in Chapter 5, Public Facilities.

Public Schools

Boonsboro is served by one Elementary School, one Middle School, and one High School (all of which are named for the Town). Projected population growth in Boonsboro will increase the number of students attending these schools. The 2007 Washington County Public Schools Educational Facilities Master Plan uses the factors shown in Table 2.6 to estimate the number of new students that will be generated by new development.

Current residential development in Boonsboro is approximately 75 percent single-family, 15 percent apartment, and 10 percent townhouse. Assuming that projected development follows this trend, the 845 new housing units in Boonsboro would generate the number of new students shown in Table 2.7.

Table 2.6: Average Student Yield, Washington County

	Elementary	Middle	High
Single-Family	0.38	0.21	0.22
Townhouses	0.30	0.08	0.10
Multifamily	0.13	0.57	0.66

Source: WCPS 2007 Educational facilities Master Plan.

Table 2.7: New Students in Boonsboro, 2008-2030

	Total	Annual Increase
Elementary	283	13
Middle	212	10
High	231	11

Boonsboro Elementary School[5,6]

Boonsboro Elementary School is over capacity, with 608 students, 118 percent of the facility's state-rated capacity of 514 students. Enrollment is projected to increase to 1,016 by 2017, nearly double the state-rated capacity. The 13 additional students per year from projected development in Boonsboro are likely a component of these County projections.

The County is considering redistricting that would relieve some of this enrollment pressure, but there may be a need for a second elementary school to serve the greater Boonsboro area. The Town recognizes this potential need and this Comprehensive Plan identifies land within the Town that would be appropriate for a new school.

Boonsboro Middle School

Boonsboro Middle School has 753 students, 86 percent of the facility's state-rated capacity of 872. The County projects that Boonsboro MS will have 907 students by 2011, placing it at 104 percent of capacity. The 10 additional students per year from projected development in Boonsboro are likely a component of these County projections.

Boonsboro High School

Boonsboro High School has 1,018 students, 99 percent of the facility's state-rated capacity of 1,030. Enrollment is projected to increase moderately to 1,060 by 2011, placing it at 103% of capacity. The 11 additional students per year from projected development in Boonsboro are likely a component of these County projections.

Libraries

The new Boonsboro branch of the Washington County Free Library on Potomac Street at the intersection of King Road opened in 2008. The town expects that this new library

[5] Enrollment and capacity data for all Boonsboro schools is from the Washington County Board of Education, as of September 2007.

[6] All projections from the 2005 WCPS Educational Facilities Master Plan

will be adequate to serve the Town's 2030 population, as well as residents of the surrounding area.

Public Safety

For a small community such as Boonsboro, the International Association of Chiefs of Police (IACP) recommends 2.2 police officers per 1,000 new residents. The Town currently has a full-time staff of four officers for a population over 3,000. The Town's police department, supplemented by the Washington County Sheriff's Office and Maryland State Police provide 24-hour police coverage. Using IACP standards, the Town will need a full-time police force of approximately 12 officers to serve the projected population of 5,339 residents.

The National Fire Protection Association (NFPA) recommends that a jurisdiction the size of Boonsboro have 10 personnel available to respond to a fire within 10 minutes.[7] Calls for service increased approximately 36 percent between 2005 and 2007.[8] To serve the Town's projected population by 2030, the VFD would need the equivalent of as many as 15 personnel, with a 9-minute response time. Boonsboro's Volunteer Fire Department has two paid positions, and relies on volunteers for the remainder of its fire response. Like all volunteer fire departments, Boonsboro VFD constantly works to attract and retain volunteers.

Water and Sewer Facilities

Public water and sewer service is available to all properties in the Town. A detailed discussion of existing water and sewer facilities, available sources of drinking water, and discharge limits from the Boonsboro Wastewater Treatment Plant is included in Chapter 4 the Water Resources Element.

With existing withdrawal permits, the Town can provide drinking water for approximately 920 new EDU, in addition to existing customers.[9] This is adequate to support projected residential growth of approximately 845 housing units. However, it may not be adequate to support accompanying non-residential development, or projected development in Keedysville, which shares the same water system as Boonsboro (see Chapter 4). An expanded groundwater appropriation permit will likely be necessary to accommodate projected development in the two towns.

In 2009, the Boonsboro Wastewater Treatment Plant (WWTP) was upgraded to Enhanced Nutrient Removal (ENR) technology. As a "minor" facility (as defined by MDE—see the Water Resources Element), the Boonsboro WWTP's nutrient discharges will be limited after upgrade. With these limitations, and without subsequent capacity expansions, the Boonsboro WWTP will be able to serve approximately 960 new EDUs, in addition to existing customers. This figure is not adequate to support projected

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[7] Source: NFPA. 2004. NFPA 1720. Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments. Quincy, MA. Table 4.3.2.

[8] Source: Oley Griffith, Chief, Boonsboro VFD, 2007.

[9] This figure takes into account water for new development in the Town of Keedysville.

development (845 new housing units, plus additional future non-residential development) through 2030. The Water Resources Element contains a detailed description of the Town's options for accommodating projected demand.

To further ensure adequate drinking water capacity, the Town is investigating various opportunities to increase the capacity of its water system. Recommendations of this Comprehensive Plan include (but are not limited to) reduction of system water loss (to serve new development without increasing actual withdrawals), acquisition of additional recharge areas, and water conservation requirements for new development. These initiatives are discussed in detail in Chapter 4, the Water Resources Element.

Stormwater Management Systems

Most new development through 2030 will occur on land annexed in 2006, particularly south and west of the Town's existing core. The land cover in these areas is predominantly agriculture and forest, meaning that residential development could adversely alter the flow characteristics of nearby streams—all of which are tributaries to Little Antietam creek.

To address stormwater issues, the Comprehensive Plan recommends that development ordinances be updated to incorporate the provisions of the Maryland Stormwater Act of 2007, notably the requirement that new development use Environmentally Sensitive Design (ESD) practices. In addition, the Future Land Use Plan in Chapter 3, and the Sensitive Areas Element (Chapter 9) direct future development away from streams, wetlands, and their buffers.

Additional detail on stormwater management can be found in Chapter 4, the Water Resources Element.

Recreation

Shafer Park is the Town's primary recreation facility. The 53-acre park contains ball fields, picnic facilities, and a community center. In addition, Greenbriar, Gathland, and Washington Monument State Parks, Devil's Backbone and Little Antietam Watershed County Parks, Mt. Briar Wetland Preserve, and the Appalachian Trail are in close proximity to the Town.

The State of Maryland recommends that jurisdictions provide 30 acres of park and open space land per 1,000 residents, of which 15 acres per 1,000 residents should be active recreation uses (parks, recreation facilities, etc). Between Shafer Park and the public school property,[10] there are approximately 106 acres of recreation land in Boonsboro.

[10] State guidelines allow jurisdictions to include 60 percent of Board of Education property in local calculations of recreational acreage.

Playgrounds and pavilions in Shafer Park. The park is the Town's primary recreation facility.

This equates to approximately 32 acres of recreation land per 1,000 existing residents, far exceeding the state's goals. Based on projected population, these existing facilities equate to 20 acres per 1,000 residents in 2030. When considering future recreation land in the 2006 annexation properties (including at a potential new school site), and the amenities provided by nearby state, county, and regional parks, the Town will meet the state's recommended acreage goal for future population.

Anticipated Financing Mechanisms to Support Necessary Services and Infrastructure

New development in Boonsboro will require a variety of infrastructure and services. Major infrastructure needs include the expanded and upgraded wastewater treatment plant (WWTP), and Warrior Boulevard—a new road that will eventually link Maryland Routes 67 and 68 (see the Transportation Element). New development will also require additional emergency services, public services (e.g., town administration) and school facilities.

Water, Sewer, and Transportation Infrastructure

As part of the annexation agreements signed in 2006, the owners of the properties shown on Map 2.1 (except for the US Alternate 40, Shepherd, and South Main properties) will fund the WWTP upgrades through tap fees for each new EDU of wastewater capacity.

The owners of the King Road, and TT&K properties are also conditioned to fund and construct (without financial assistance from the Town) Warrior Boulevard as a public road. The owners of the Fletcher's Grove annexation are also conditioned to construct Chase Six Boulevard from US Alternate 40 to MD 66. Please see the Water Resources and Transportation Elements for more details about these facilities.

Schools

The three schools serving the Town are Boonsboro elementary, middle, and high schools. These are co-located on the 98-acre Boonsboro Educational Complex campus fronting MD 66 in the northeastern part of Town.

Construction of new public schools in Washington County is funded in part through a building excise tax. The excise tax is collected for all units, including those in municipalities. It is $3.00 per square foot of habitable gross square footage for residential dwellings, and may increase depending whether nearby schools and roads are affected. Because the Town's Growth Management Ordinance is substantially similar to the County's Adequate Public Facilities Ordinance, the Town is able to recoup 28 percent of this excise tax to use for roads, parks and recreation facilities, water and sewer infrastructure, and public safety facilities.[11]

King Road Associates has initiated discussions with the Washington County Board of Education to determine whether all or a portion of the excise tax for development on their property could be waived in exchange for donation of land for a school site and/or construction of a new school to address the Boonsboro area's school capacity needs.

Financing Concerns

If development on the 2006 annexation properties proceeds as anticipated, the major infrastructure and service needs should be met without requiring additional funding commitment from the Town's existing residents. The owners of several annexation properties have already entered into agreements to prepay for sewer taps through 2014:

- King Road: 102 taps
- TT&K: 56 taps
- Easterday: 40 taps
- Fletcher's Grove: 18 taps.

The recession of 2008-9 (and the resulting downturn in the regional housing market) creates some concern about the ability of the Town to sell all of the taps allocated to annexation properties. Owners of the annexed properties have also raised concerns that the number of sewer taps available for new development may not be adequate to make new development financially feasible.

If this becomes the case, the Town would likely have to pass the costs of the WWTP upgrade on to its citizens (likely through higher sewer fees). Such a scenario makes it all the more important for the Town to find creative ways to maximize the WWTP's capacity through water conservation measures, nutrient trades, and other initiatives. (Warrior Boulevard would only be constructed to support new development on 2006 annexation properties, and would thus not be a financial obligation for the Town if such development fails to materialize).

Rural Buffers and Transition Areas

As shown in the Land Use Plan, development on the 2006 Annexation properties is encouraged in areas closer to the Town's historic core. The outer edges of those properties are not envisioned as being fully developed through 2030, and would be held

[11] Source: Washington County Building Excise Tax Ordinance, Section 8.

as a transition area (agriculture, forest, or open space) between the Town and the surrounding unincorporated portion of Washington County.

Burdens on Municipally Provided Services and Infrastructure Lying Beyond the Town

Boonsboro's water system draws some of its source water from a spring in the Town of Keedysville, approximately one mile to the southwest. As described in the discussion of water and sewer facilities, as well as the Water Resources Element (Chapter 4) the Town has considered Keedysville's growth needs in estimating future water system capacity. The Town also provides water and sewer service to some parcels adjacent to but outside its corporate boundaries along Mountain Laurel Road. Service to these properties is included in the data in Table 4-1.

The Town is not responsible for any other major infrastructure outside of its boundaries.

Protection of Sensitive Areas in and Near the Town

The Sensitive Areas Element of this Comprehensive Plan catalogues and describes the streams, wetlands (and associated buffers), floodplains, sensitive species habitat, and areas of steep slope in and around the Town. Most of these sensitive areas are associated with tributaries of Little Antietam Creek and the western slope of South Mountain.

Policies to protect those resources are primarily described in the Land Use, Water Resources, and Sensitive Areas Elements of this Comprehensive Plan, as well as the Town's development ordinances. These policies and ordinances emphasize the concentration of development in environmentally suitable areas to minimize adverse impacts to sensitive areas in and around the Town.

Relationship of Future Development to the Town's Character

While the Town of Boonsboro has annexed enough land to support new development for the foreseeable future, very little of this annexed land is in the "pipeline" for immediate development as of 2009. Thus, the Town is in the enviable position of being ahead of the curve, with regard to being able to plan for future growth and development.

A major emphasis of this Comprehensive Plan, as described in the policies of the Land Use, Economic Development, and other Elements, is to ensure that new development complements and supports the desirable elements of the Town's existing character. The density of new development would be sufficient to meet criteria of the state's Priority Funding Areas Act. New development would contain housing unit types that complement existing portions of the town, and would be connected to the Town center by roads and paths in appropriate locations.

Chapter 3: Land Use Element

This chapter sets forth land use policies and recommendations to help the Town of Boonsboro maintain its historic, small-town character, while recognizing opportunities for growth and economic development. Land use guidance for the nearly 1,000 acres of land annexed at the end of 2006 is particularly important, as is the relationship between this annexed land and the remainder of the Town.

Issues related to annexation, growth, and demand for public services are discussed in detail in Chapter 2 (the Municipal Growth Element), while the adequacy of public water and sewer service is discussed at length in Chapter 4, the Water Resources Element.

Goals and Objectives

1. Promote new development on the annexed properties that is in keeping with character of the Town's current residential development, and support the Town's economic development and other goals.

2. Ensure that future development avoids environmentally sensitive areas.

3. Encourage appropriate amounts and types of commercial development at appropriate locations in the Town.

Existing Land Use

Boonsboro's existing land use pattern, shown in Map 3.1, is a diverse mix of residential, commercial, institutional and undeveloped areas. Table 3.1 summarizes the type and amount of existing land uses. Boonsboro is primarily residential in nature, with commercial activities in nodes along US Alternate 40 (Main Street).

Residential uses are generally single-family detached in nature, with some townhouse, multi-family, and apartment developments. Commercial areas are generally small in size, and cater to the needs of the local population or to the Town's tourism industry. The exception is the 50,000 square foot Weis supermarket on Chase Six Boulevard, which opened in 2005. Before Weis opened, Boonsboro residents typically did their major shopping in Hagerstown or Frederick.

The County public school complex (containing Boonsboro Elementary, Middle, and High Schools) along MD 66 (Maple Avenue) comprise most of the Town's institutional uses.

The Londontown Manufacturing Company (a clothing factory), south of the school complex, was Boonsboro's only major industrial activity, but it closed in the early 1990's. The Londontown site is currently occupied by Gesac, Inc, and remains appropriate for light industrial or employment-focused activity.

Map 3.1: Existing Land Use

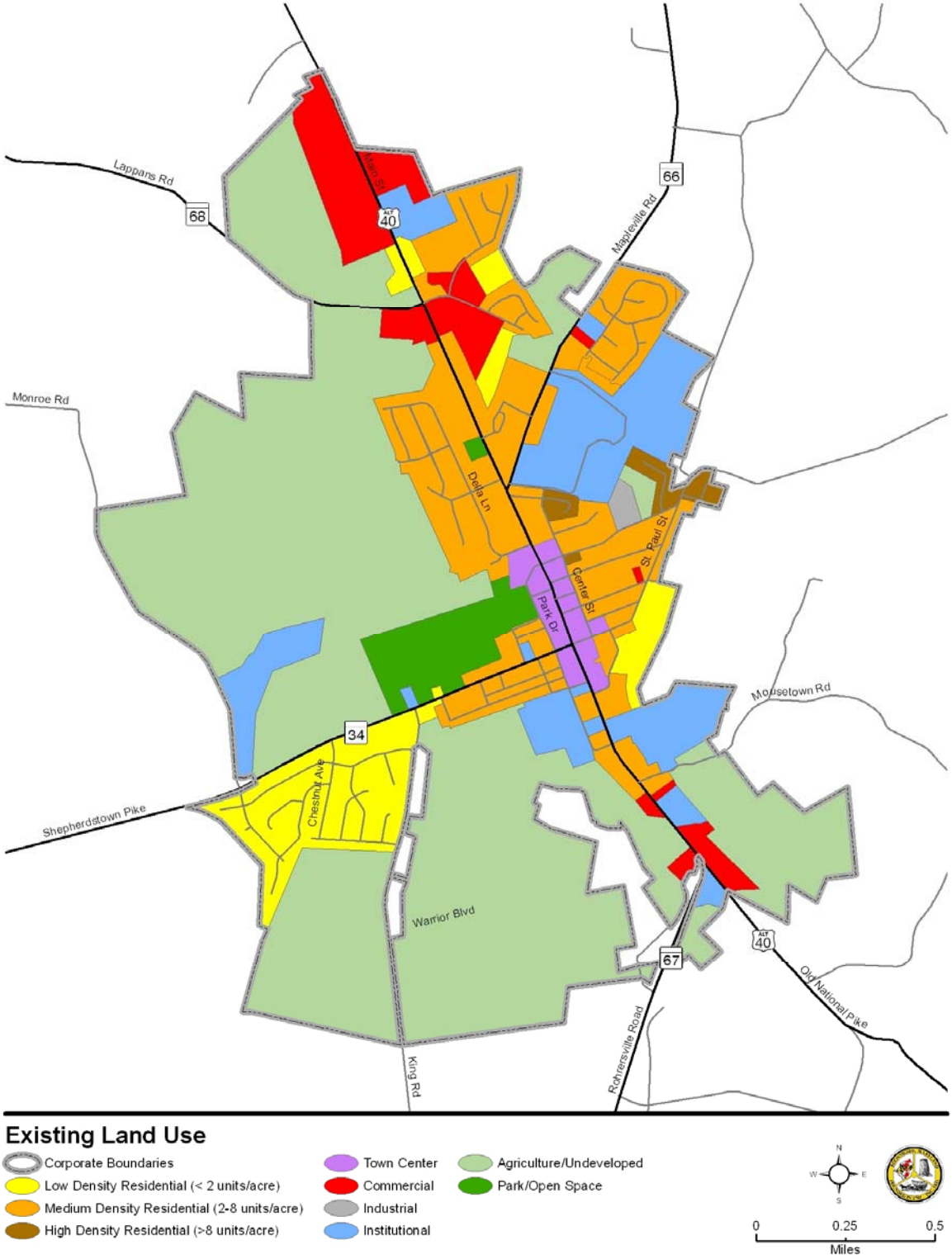


Table 3.1: Existing Land Uses

Land Use	Acres	Share of Total
Agriculture/Undeveloped	1,066	54%
Low Density Residential (<2 units per acre)	145	7%
Medium Density Residential (2 to 8 units per acre)	326	17%
High Density Residential (>8 units per acre)	19	1%
Institutional	196	10%
Commercial	108	6%
Park/Open Space	57	3%
Town Center (mixed use)	35	2%
Industrial	5	0.3%
Total	**1,957**	**100%**

Since 1970, much of the Town's growth has been in the form of suburban-style single family detached residential developments on the periphery of the Town's historic core (generally along Main Street and St. Paul Street). The largest concentration of townhouses and multi-family units is generally found in the Town Center (see below), in the Fletcher's Grove area (along Chase Six Boulevard), and near the intersection of St. Paul Street and Orchard Drive. From 1990 to 2007 the number of housing units in the Town increased by nearly 500, from 901 to 1,390.[12]

Prior to the 2006 annexations, the land in the incorporated area of Boonsboro was largely developed or committed for development. Most of the remaining land in the "pre-annexation" portion of the Town is undevelopable due to environmental constraints.

The following discusses in more detail the land use pattern in Boonsboro, focusing on five general areas. [13]

Town Center

The popular image of Boonsboro as a historic settlement is closely related to the visual appearance of the Town's core area, centering on the intersection of Main Street and Potomac/St. Paul Streets. The Town Center includes the general area between Park Drive and Center Street and extends along Main Street from High Street (specifically, Trinity Lutheran Church) to approximately Stouffer Avenue.

The majority of the Town's historically significant (and potentially significant) buildings are within this core area. A few of these buildings date from Boonsboro's earliest decades when the Town prospered as a stage stop along the National Pike, now US Alternate 40 (see Chapter 7, the Economic Development Element for more detail). Most of the other buildings along this central portion of Main Street are compatible in scale and proportion with these older structures, although some facades and signs are not in character with the historic setting. The result is a generally consistent and harmonious streetscape along Main Street that defines the Town's distinctive identity.

[12] Source: U.S. Census Bureau

[13] Map 6.1 in the Transportation Element shows all of Boonsboro's public streets.

Most of Boonsboro's historically significant buildings, such as the Boone Hotel building shown above, are located in the Town Center.

Besides embodying the Town's historic character, the Town Center also contains the widest variety of land uses. Major public and institutional uses in the Town Center include the Town Hall, Boonsborough Museum of History, the Boonsboro Volunteer Fire Company, the Post Office, and several churches.

Many of Boonsboro's commercial establishments are located within the Town Center. While some of these establishments occupy their own buildings, most are part of mixed-use buildings, with residences located above or to the rear of the primary commercial establishment. These businesses are intermingled with residential properties along Main Street.

Residential land uses in the Town Center are evenly distributed between single and multi-family dwellings. The latter appear primarily in the northern and southern ends of the area. The majority of residential and commercial buildings in the Town Center occupy small, regularly-shaped lots arranged in a grid pattern.

Potomac Street Corridor

This portion of the Town includes the area along Potomac Street (MD 34) west of Park Drive to the Town boundary at Monroe Road.

East of Monument Drive, almost all of the developed land in this area is residential in nature. The neighborhood south of Potomac Street, along Young Avenue, is one of the Town's many suburban-style neighborhoods with only single-family detached homes.

Further west along Potomac Street is the Crestview subdivision, another major suburban-style residential area developed in the 1990s and early 2000s.

North Main Street Corridor

This corridor extends along North Main Street from Ford Avenue to the US Alternate 40 annexation. It also includes all development between Main Street and Maple Avenue.

Development in this area is primarily single family residential, with a large number of residences found in the Graystone Hills Subdivision and on the east side of Main Street in the vicinity of Stouffer Avenue. A small cluster of commercial use exists between Ford and Stouffer Avenues, while a much larger commercial node is found at the intersection of Main Street and MD 68 (Lappans Road). The main commercial development in this area is the Weis shopping center on Chase Six Boulevard and Auction Square on US Alternate 40.

The variety of homes in this area represent the different periods of development in the Town's history. The oldest residences, built before the late 1800's, are located along the east side of Main Street, and are situated close to the road on small, narrow lots. Homes built between the late 1800's and early 1900's are mixed among the older residences and line the west side of Main Street (see Chapter 7 for a discussion of historic resources in Boonsboro). This development pattern represents an early form of "suburban" expansion, most likely influenced by the interurban trolley line from Hagerstown that ran along the west side of Main Street.

Maple Avenue/Mountain Laurel Road Corridor

This area is bounded by Center Street to the west, Maple Avenue (MD 66) to the northwest, and the Town boundary to the north and east. The area's southern limit includes all the land uses up to and southeast of St. Paul Street as it proceeds northwest and intersects with Boonsboro Mountain Road. This portion of town is primarily residential and institutional in nature.

Until the early 1970's, most residential development in the area was older single family homes. However, considerable multi family construction has occurred since then. The 32-unit Country Village was built along Orchard Drive in 1982. In 1985, the 28-unit Mountain View apartment complex was built adjacent to Country Village, and the 32-unit Schoolhouse Manor apartment opened, providing subsidized housing for the elderly and disabled.

Since 1975, this area has also seen significant single-family residential construction including the 90-unit Kinsey Heights development along the south side of Maple Avenue, the 20-unit Campus Grove development on Grove Lane, and additional construction along Orchard Lane. In 1986, a 22-unit single-family (attached) development was constructed off of Valley View Court. This complex was developed immediately adjacent to a 12-unit townhouse development that faces St. Paul Street.

Large amounts of land in this area support public and semi-public uses, including a church on Lakin Avenue and the Boonsboro Educational Complex. This 135-acre property contains Boonsboro Elementary, Middle, and High School buildings situated in a campus type environment.

This area was home to the Londontown Manufacturing Company until its closure in the 1990s. The Londontown site is on the north side of Orchard Drive (designated as Industrial on the Map 3.1).

Much of the land east of St. Paul Street is steeply sloped, making it undevelopable. Land to the north of the electric transmission line in the northeast portion of Town is owned by the County Board of Education and is reserved for future school expansion.

South Main Street Corridor

Like the North Main Street Corridor, this area (along Main Street to the south of the Town Center) developed linearly along the Old National Pike, with most structures dating from the 1800's or early 1900's. Except for the historic Boonsboro Cemetery, all of the development is situated immediately along Main Street.

Development in this corridor is mainly residential but also includes a few mixed residential/commercial properties, several commercial uses, two churches, Reeders Memorial Home (a private nursing home), and the Town's sewer pump station.

Reeders Memorial Home is the Town's major employer. Since 1975, the Home has expanded twice. In 1994, Reeders annexed approximately 25 acres. Much of the undeveloped land east of Reeders is undevelopable or has limited development potential due to steep slopes.

Issues and Opportunities

Infrastructure limitations, Smart Growth requirements, and the Town's existing character will guide the amount, location, and density of new development in the recently annexed areas of the Town.

The limited capacity of the Town's public water and especially sewer systems (discussed in detail in Chapter 4, the Water Resources Element) limits the amount of development that can occur on the properties annexed in 2006. In 2008, based on these limitations, the Town offered owners of these annexed properties one sewer allocation per acre of annexed land.

This allocation reflects available sewer capacity, but does not indicate the Town's vision for development density on the annexed parcels. Indeed, the Town's primary land use goal for these areas is to promote new development on the annexed properties that is in keeping with character of the Town's current residential development. Thus, new development should be of similar density to the established portions of the Town—particularly the medium-density areas close to the Town Center—and should be concentrated in a way that avoids sensitive areas and is as contiguous as possible with existing Town development. This will allow new development and densities to blend with and complement the Town's existing development pattern.

The Town (including the annexed properties) is also a Priority Funding Area (PFA), as defined in the Maryland Smart Growth Priority Funding Areas Act of 1997 (the PFA

Act). PFAs are areas that are designated for growth, and are eligible for state assistance—including economic development, transportation funding, housing, and other funds that are not available outside of PFAs. To receive this funding, the zoning for new development must permit a minimum of 3.5 residential units per acre.

Development flexibility is particularly important in light of the downturn in the housing market that began in 2007. The Town has shown a willingness to work with the owner/developers to consider creative approaches to development on this land. Zoning and subdivision regulations reflect this collaborative approach, allowing for a mix of single-family detached, attached, and multi-family units within the same development, while encouraging a minimum overall density of at least 3.5 units per acre.

Development in the recently annexed areas of the Town should incorporate Smart Neighborhood principles.

Smart neighborhoods are designed to provide an alternative to single-use, low-density developments, and to accommodate growth while minimizing the effects of growth on the environment and the cost of infrastructure. Smart neighborhoods are relatively self-contained new communities with a compact mix of residential and non-residential land uses and range of housing choices, with a layout that fosters pedestrian and bicycle activity, public safety, environmental protection, long-term investment, efficient use of infrastructure, and efficient provision of public services.

The goals of smart neighborhoods are:

1. **Efficient use of infrastructure.** Proximity to infrastructure can minimize demand for new services, and compact, mixed-use design reduces the cost of on-site infrastructure.[14]

2. **Socioeconomic diversity.** Provision of a range of housing types encourages socioeconomic diversity within communities and brings people closer to jobs.

3. **Transportation choice.** Compact, mixed-use design improves access to daily destinations for people who cannot or do not wish to drive. Development design treats pedestrian, bicycle, and automobile travel as equally important.

4. **Environmental quality**. Compact, mixed-use design reduces excess consumption of land and loss of natural resources, reduces regional vehicle miles traveled, and improves regional air and water quality.

5. **Sustained economic health.** Compact, mixed-use design creates a mutually reinforcing relationship between residential and commercial uses. Residents provide a market and employees for businesses, and in turn, businesses provide desired amenities and employment opportunities for residents.

[14] Duany Plater-Zyberk. The Lexicon of the New Urbanism, F.3.2

6. **Sense of community.** Compact, mixed-use design helps create a level of connection to a mix of housing, and commercial, retail and cultural amenities and promotes pedestrian orientation, which can enhance a sense of community.

7. **Logical extension and integration of communities.** The connectivity of pedestrian and vehicular networks, natural systems, and open space networks can disperse traffic, promote efficient movement for all modes of transportation, enhance environmental protection, increase access to nature and recreation, and provide existing communities with needed amenities. Provision of civic, commercial, employment, residential, and open space uses can fill unmet needs of surrounding communities.

To further encourage development on the 2006 annexation properties that is consistent with the Town's existing character and this plan's land use policies, the Town should create a Smart Neighborhood floating zone for these properties.

Growth in the older portion of the Town is limited to infill and redevelopment.

Because there is little developable land in the older, built-up area of Town, any growth in these areas will come in the form of infill and redevelopment. Consequently, the pattern of land uses here will remain largely unchanged. Scattered development of vacant residential lots will continue. Any infill and redevelopment should complement the character of the surrounding neighborhood. New development and redevelopment in the Town Center should aid the Town's economic development and tourism interests. To this end, vacant or underutilized buildings in the Town Center should contain uses that will attract foot traffic and promote the downtown as a center for tourism and entertainment.

The overall amount and arrangement of commercial uses in the Town should support the Town's economic development and tourism goals.

Commercial development in the Town Center should enhance the Town's tourism trade (see Chapter 7, Economic Development). Uses such as restaurants and entertainment establishments, lodging, and specialty retail stores are particularly encouraged. Major commercial uses should be concentrated to the north and south of the Town Center on US Alternate 40, away from both the downtown and the Town's older neighborhoods.

Commercial development along Warrior Boulevard should be oriented toward businesses serving local community needs such as drug stores, beauty and barber shops, laundromats, and hardware stores. The businesses serving local needs should not generate large volumes of traffic through nearby neighborhoods.

The character of new development should be complementary to the Town's existing development pattern and visual character.

New development should take into account the historic, rural character of the Town, and should maintain this character in regard to the density and design of new development—particularly residential development. Future residential growth should primarily occur at

densities typical of the Town's existing neighborhoods (including the denser residential areas surrounding the Town Center).

The Town Farm property remains an asset.

The 1997 Comprehensive Plan called for the Town Farm property (along Monroe Road, west of the TT&K annexation property) to be reserved for a potential business park. The 2009 update of the Plan no longer supports this concept for the following reasons:

- The Town Farm property has extensive environmental constraints, such as floodplains, wetlands and buffers, making development on the site difficult.

- The property has a large amount of forest cover. This forest land is a valuable asset to the Town to offset nonpoint source nutrient flows from future development (see Chapter 4, the Water Resources Element).

The Town Farm property should retain its current Employment Center zoning, but the zoning language should be amended to allow active and passive recreation, further augmenting the Town's potential supply of recreational facilities.

Policies and Implementation Actions

1. Future land uses in the Town of Boonsboro will be consistent with the designations in Table 3.2 and the locations shown in Map 3.2.

2. Future residential development should meet the minimum density requirements of the PFA Act, in order to ensure efficient provision of public water and sewer service.

3. New development using wells or septic systems will not be allowed.

4. The Town should work closely with County and State agencies as well as private developers in implementing the land use plan.

5. The Town should consider Smart Neighborhood zoning provisions, either through a floating zone or as a Special Exception to existing zoning requirements. Such provisions would encourage development according the Smart Neighborhood principles described in this chapter.

6. Specific land use policies for the Town Center are:

    - Continue to encourage a mix of residential, commercial, and employment uses, including a mix of residential and non-residential uses in the same building.

    - Continue to encourage higher residential densities and non-residential land use intensities in the Town Center.

    - Encourage non-residential land uses that bring tourism and entertainment to the downtown.

    - Ensure that new development has lot sizes, setbacks, building heights, architectural character, and other elements that complement the character of existing development.

7. To maintain the Town's existing character, the Town should consider adopting design guidelines for new development and redevelopment. These guidelines should address site design elements, building materials, external finishes, and architectural styles, using as examples existing development in the Town whenever possible. Careful application of such guidelines can help to enhance Boonsboro's sense of place.

Map 3.2: Future Land Use

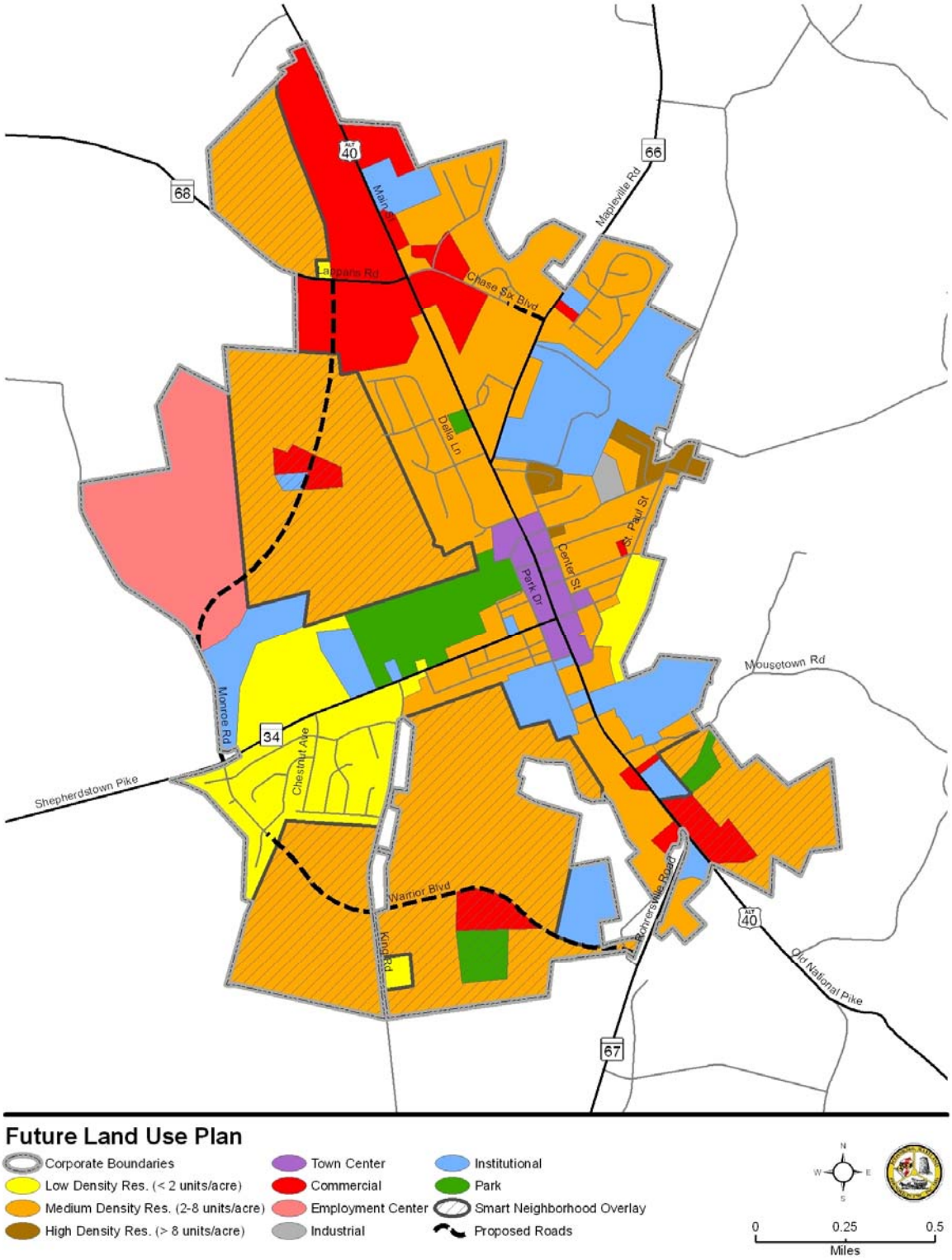


Table 3.2: Future Land Uses

Residential – Low Density (RL)
These are existing residential neighborhoods comprised primarily or exclusively of single family-detached homes, with an overall density of two or fewer units per acre. The Crestview subdivision along Potomac Street and the residences to the east of St. Paul and High Streets are the only existing RL areas in the Town. Crestview is built out, while development potential in other RL; areas is limited by steep slopes.

No new large-scale RL uses are envisioned by this Comprehensive Plan, although lower-density single-family detached units could be built as part of overall Medium Density residential development (see below) on 2006 annexation parcels.

Residential – Medium Density (RM)
Recognizes areas where residential development is at densities of two to eight units per acre. RM uses constitute the bulk of residential development and neighborhoods in the Town of Boonsboro. The predominant use in this category is single-family detached residential units, although some townhouse units are present, notably in Fletcher's Grove.

New development in RM areas is envisioned, at a density of 3.5 units per acre or greater. This new development will be primarily single-family detached homes, although other residential unit types (including townhouses or apartments) could be permitted, particularly as part of new development on the 2006 annexation properties. New non-residential uses are not envisioned for RM areas.

New development in RM areas should have access to the Town's major transportation facilities, but should be buffered from the thoroughfares themselves, to lessen the impact of traffic in these neighborhoods.

Smart Neighborhood Overlay
Identifies the 2006 annexation properties with RM land use, where additional development guidance (beyond what is provided in the zoning ordinance) is desirable to guide future development. Provisions of a Smart Neighborhood overlay zone or Special Exception would encourage development to adhere to the Smart Neighborhood principles described in this chapter, focusing particularly on development that encourages multiple modes of transportation and minimizes impact to sensitive environmental features.

Residential – High Density (RH)
Recognizes existing apartment buildings and multi-family development at densities greater than eight units per acre, as well as areas where new multifamily or apartment development at similar densities would be appropriate. In general, RH development should be immediately adjacent to major existing or planned roads, in close proximity to commercial services, and in areas with few environmental constraints.

Commercial (C)
These areas are appropriate for a wide variety of commercial and retail uses that serve the Town and the surrounding area, and that require larger amounts of automobile parking. Typical uses might include professional offices (doctors, lawyers, etc.), restaurants, retail stores, and gas stations in appropriate locations. Commercial areas are generally along the Town's major existing and planned transportation routes, and intersections of those thoroughfares. This includes the northern and southern ends of Main Street and along Warrior Boulevard.

Institutional (IN)
Recognizes large portions of the Town dedicated to major existing or planned public facilities, such as schools and public infrastructure such as the Town's Wastewater Treatment Plant. Private institutional uses shown on Map 3.2 include churches, Reeders Nursing Home facilities and land owned by the Boonsboro Cemetery Association.

Employment Center (EC)
Applies to the Town Farm property. Employment Center zoning regulations should be revised to permit active and passive recreation.

Table 3.2: Future Land Uses

Industrial (I)
This land use indicates properties that are suitable for light-industrial and office development due to their proximity to major roads and previous activity of a similar nature. In particular, the former Londontown Manufacturing Company site is designated Industrial.

Park/Open Space (P)
Indicates existing or planned public parks or community open space intended for recreational activities (as opposed to the "undeveloped" portions of the Town). For the 2006 annexation properties, Map 3.2 shows locations identified by owner-developers for future public parks and open space. Additional parks and open space on 2006 annexation properties are encouraged.

Town Center (TC)
The Town Center includes the mix of uses in Boonsboro's downtown that help define the Town's historic and aesthetic identity. The Town Center is characterized by medium- to high-density residential development mixed (often in the same building) with commercial, office, and institutional uses.

Table 3.3: Future Land Use

Land Use	Acres	Share of Total
Low Density Residential (<2 units per acre)	176	9%
Medium Density Residential (2 to 8 units per acre)	1,085	55%
High Density Residential (>8 units per acre)	19	1%
Institutional	228	12%
Commercial	198	10%
Employment Center	136	7%
Park/Open Space	75	4%
Town Center	35	2%
Industrial	5	< 1%
Total	**1,957**	**100%**

Chapter 4: Water Resources Element

The purpose of the Water Resources Element, as defined in Maryland House Bill 1141, is to establish a clear relationship between existing and proposed future development, the drinking water sources and waste water facilities that will be necessary to serve that development, and measures to limit or control the stormwater and non-point source water pollution that will be generated by new development. This chapter identifies drinking water sources and wastewater treatment facilities needed to support existing and future development described in the Municipal Growth Element (Chapter 2), as well as the non-point source impacts of that development.

Goals and Objectives

1. Maintain a safe and adequate water supply and adequate amounts of wastewater treatment capacity to serve existing development and projected growth.

2. Protect and restore water quality in nearby streams.

Interjurisdictional Cooperation

At the time of publication of the 2009 Boonsboro Comprehensive Plan, Washington County, MD was evaluating options to complete the countywide Water Resources Element requirements. The Town anticipates working closely with the County to achieve their common Water Resources goals.

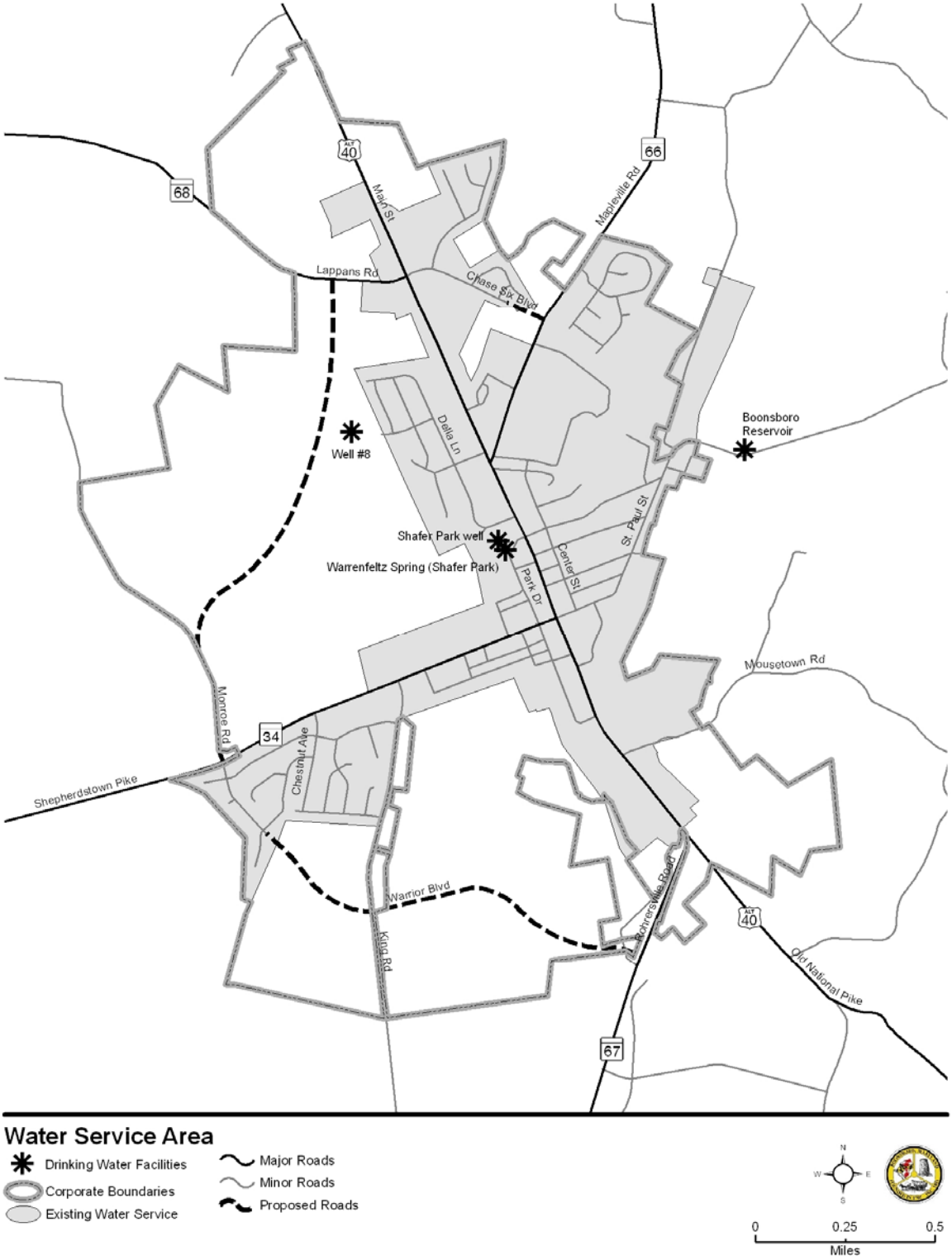
Drinking Water Analysis

All residences, businesses, and institutional uses in the Town of Boonsboro (as well as the Town of Keedysville and some unincorporated areas along Mountain Laurel Road) receive drinking water from the Boonsboro/Keedysville Regional Water System, which is managed by the Boonsboro Municipal Utilities Commission. This system's service area is shown on Map 4.1. Water for the regional water system is drawn from the following sources, all in the Tomstown aquifer:

- The Warrenfeltz spring, located in Shafer Park
- An additional well in Shafer Park
- Well #8 in the Graystone Hills subdivision
- Keedysville spring, located in the Town of Keedysville.

Water from these sources is treated via chlorination and/or filtration before being distributed to the Towns. The Boonsboro and Keedysville water distribution systems are linked via a 12-inch water line along MD 34. Excess system water is pumped to Boonsboro's 1.3 million gallon in-ground concrete reservoir on Boonsboro Mountain Road to provide for emergency, fire, and system equalization storage.

Map 4.1: Boonsboro Water Service Area and Supplies



Reservoir levels are maintained to meet system pressure and fire protection requirements for both Boonsboro and Keedysville, and systems are in place to prevent overflow.

The regional water system is an innovative approach to providing safe and reliable drinking water supplies to the two towns. The system was constructed with federal funds, with the Maryland Department of the Environment (MDE) serving as a broker between the two towns. The Town of Boonsboro, which had previously been responsible for providing Keedysville's water, received the US Environmental Protection Agency's 2006 Award for Sustainable Public Health Protection for its efforts to develop the regional system.

Water System Capacity

The maximum permitted capacity of the regional water system is approximately 683,000 gallons per day (gpd). In 2006, Boonsboro withdrew an average of approximately 235,000 gpd from its three sources, while Keedysville withdrew an average of approximately 218,000 gpd from its spring—a total system demand of 453,000 gpd.[15] Table 4.1 summarizes public water supply and demand in Boonsboro. This analysis shows that the Boonsboro/Keedysville Regional Water System falls just short of adequate permitted capacity to support projected growth through 2030. The projected deficit of approximately 65,400 gpd could lead to development restrictions if not addressed.

Table 4.1: Current and Projected Public Water Supply and Demand

	gpd	EDU[1]
System permitted capacity	683,000	2,732
Current Demand[2]	453,000	1,812
Available Capacity, 2009	230,000	920
Total Projected demand from Keedysville, 2030[3]	31,500	126
Projected residential demand for Boonsboro, 2030[4]	211,250	845
Projected non-residential demand for Boonsboro, 2030[5]	52,650	211
Total projected demand for Boonsboro, 20306	263,900	1,055
Total projected demand for Boonsboro and Keedysville, 2030	295,400	1,182
Available system capacity (deficit), 2030	(65,400)	(262)

1: One Equivalent Dwelling Unit (EDU) is 250 gpd, the estimated amount used by one household. EDU allow comparisons of residential and non-residential water and wastewater use.

2: Based on 2006 water audit. Includes demand from Keedysville and Boonsboro, as well as properties outside of Town boundaries that receive public water service.

3: Estimated based on page 1-3 of "Town of Boonsboro Water Audit" (see footnote on this page).

4: Source: Based on Comprehensive Plan population projections, see Page 2-1

5: The Town estimates that future non-residential demand would be approximately 15 percent of future residential development, based on demand prior to the 2006 annexations.

6: Totals reflect rounding error.

Additional Drinking Water Resources

In order to serve projected development, the Town will need to find additional water sources. This section summarizes the most likely potential sources of additional drinking water.

[15] CDM. 2006. Town of Boonsboro Water Audit, Water Conservation, and Best Management Practices.

Surface Water

Surface water is not currently a source of drinking water for Boonsboro and Keedysville, in large part due to the lack of significant bodies of water in the region. Little Antietam Creek flows through Keedysville, while Antietam Creek is just west of Keedysville. Neither is likely to be a major source of drinking water, and any surface water would require considerable treatment before it is safe for public consumption. However, the Municipal Utilities Commission should investigate the option of using surface water withdrawals to supplement the system's overall capacity.

Groundwater

All of Boonsboro's current drinking water comes from groundwater wells and springs. In 2007, the Town commissioned a study of groundwater resources (a summary is included in the Comprehensive Plan Appendix) to determine the maximum sustainable yield of the water-bearing formations underlying the Boonsboro/Keedysville water service area. The analysis concluded that groundwater resources could sustainably support approximately 1,255 additional EDU of development in Boonsboro and Keedysville. This is enough to serve projected demand in the service area, but the Town would need a new or expanded MDE groundwater appropriation permit to withdraw this amount of water.

To serve development beyond 2030, or if actual development outpaces projected development), Boonsboro and Keedysville would need to find significant additional water resources, most likely from groundwater. However, the Town cannot simply drill additional wells. The sustainable groundwater supply described above is based on the amount of recharge provided by the land area covered by the Boonsboro/Keedysville water service area. [16]

To expand groundwater withdrawals, Boonsboro and Keedysville would therefore need to expand their groundwater recharge areas. The Town is currently working with the Maryland Department of Natural Resources (DNR) to investigate the possibility of claiming some of the land in Greenbriar State Park as recharge area for the Town. The Town could also consider purchasing and preserving (but not necessarily annexing) nearby property—preferably with forest cover—as a municipal water recharge area.

Other Drinking Water Considerations

System Water Loss

Of the 453,000 gpd of water produced by the Boonsboro/Keedysville system, approximately 35 percent never reaches a metered faucet, hydrant, or other discharge point. This "system water loss" is a significant problem for Boonsboro, since it represents water that should be available for existing and future public consumption. MDE considers system water loss rates higher than 10 percent to be significant, and requires additional planning and monitoring to reduce water loss below 10 percent. The Town's 2006 Water Audit identified (and led to the repair of) a few small to moderate system leaks, but did not ultimately find the source of large-scale water loss.

[16] In fact, wells drilled in the Fletcher's Grove and Crestview subdivisions have not been put into production, due to the lack of sufficient recharge area.

Some of this water loss may come from unmetered water use, such as water used for fire fighting, as well as other permitted and illegal uses. The Town is also investigating the possibility that the high system water loss rates are due to inaccurate accounting (that is, a math error, rather than a leak or other engineering problem).

Regardless of the source, reducing system water loss to 10 percent or less, either through repairs or through improved water accounting, should be the Town's top priority with regard to water capacity. This water could be used to serve future development while reducing the need to find additional water sources or recharge area. The Town should also meter (but not necessarily charge for) all water use, including fire fighting flows.

Source Water Protection

Source water protection policies identify and protect the area surrounding existing drinking water sources through buffer and setback requirements, land use restrictions, and other measures. The Town currently sends water samples to EPA to monitor potential contaminant levels. However, Boonsboro has no existing source water protection policies. Developing such policies would help to ensure the safety and reliability of water supplies for the Boonsboro/Keedysville region. Chapter 9, the Sensitive Areas and Mineral Resources Element, describes potential source water protection policies.

The Town sits atop the Tomstown Formation, one of the most productive aquifers in the County.[17] While the exact nature of the specific rock structure around Boonsboro is not known, the Maryland Geological Survey states in Bulletin 24 that the local Tomstown Dolomite "is probably highly fractured and probably contains many underground solution channels" in the territory near its contact with the Antietam Formation east of Town.[18] The cracks and underground channels in the Tomstown Formation make its groundwater extremely vulnerable to pollution from septic systems, agricultural wastes, fertilizers, and treated effluent from spray irrigation. Septic systems and even treated effluent are a threat because the cracks in the limestone allow effluent to percolate rapidly, reaching the underground water before it has been cleansed by the action of the bacteria in the soil.

Water Conservation

The Town's Water Conservation Ordinance requires that all new development and major renovations use low-flow water fixtures and toilets. Additional water conservation measures—particularly retrofits of existing homes—could significantly increase the Town's ability to serve future development. The groundwater study described above found that if each existing and future customer in the Boonsboro/Keedysville could reduce water use by 20 percent (from 250 gpd per EDU to approximately 200 gpd per EDU), the Town's existing groundwater resources could support nearly 2,100 additional EDUs—more than enough to support development through 2030 and beyond.

[17] For additional information about the geology and soils in the Boonsboro area, please see the Water Resources section of the Comprehensive Plan Appendix.

[18] Source: Maryland Geologic Society

Wastewater Analysis

All residences, businesses, and institutional uses in the Town of Boonsboro send wastewater to the Town's Wastewater Treatment Plant (WWTP). The WWTP discharges to an unnamed tributary of Little Antietam Creek, as shown on Map 4-2. As of 2009, the WWTP used an aerated lagoon treatment system with a permitted capacity of 460,000 gpd.

WWTP Upgrades

Nitrogen and phosphorus (more generally referred to as "nutrients") from WWTPs and from stormwater and other "non-point sources" are the primary contributors to degraded water quality in the Chesapeake Bay and its tributaries. To help improve water quality in these tributaries, including Little Antietam and Antietam Creeks, Maryland has established Chesapeake Bay Tributary Strategy point source caps for all WWTPs. These caps are numerical limits on the amount of nitrogen and phosphorus that WWTPs can discharge to the Bay and its tributaries (expressed as pounds per year of nitrogen and phosphorus).

To meet these caps, and to improve water quality in Little Antietam and Antietam Creeks, the Boonsboro WWTP was upgraded in 2009 to Enhanced Nutrient Removal (ENR) technology, the most advanced wastewater treatment technology available[19]. The upgraded WWTP's permitted capacity is 530,000 gpd, with a design capacity of 650,000 gpd. Its tributary strategy point source caps are 6,100 lbs/year of nitrogen and 457 lbs/year of phosphorus.

Demand and Capacity

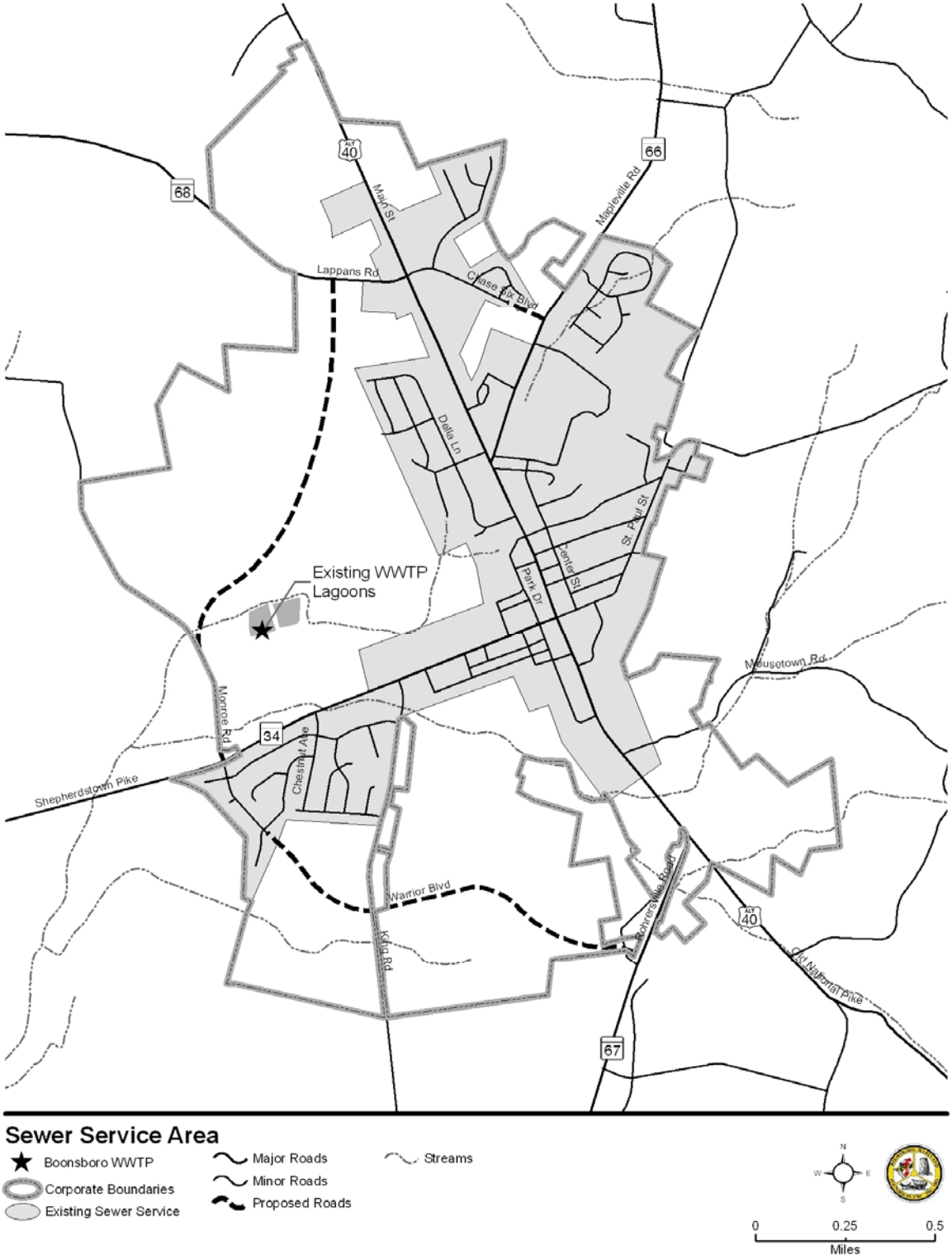
Table 4.2 shows the relationship between the upgraded WWTP's available capacity and projected demand through 2030. Average daily flows (ADF) to the existing WWTP during the two-year period between 2006 and 2008 were approximately 404,000 gpd. This figure includes a substantial amount of Inflow and Infiltration (I/I), as well as direct flows into the treatment lagoons from rainfall and runoff. These direct flows will be eliminated once the ENR facility comes online. The Town will need to address Inflow and Infiltration separately (see discussion below).

The Upgrade Study for the Town's WWTP[20] assumed an ADF of 300,000 gpd for the new WWTP's "opening day," of which as much as 10 percent could be Inflow and Infiltration. The discharge permit application for the new WWTP calculated existing I/I of approximately 117,000 gpd (see Appendix). Using the two-year ADF of 404,000 gpd listed above, this indicates that the true sewage demand for the facility may be closer to 290,000 gpd. For this reason, Table 4.2 shows 290,000 gpd as the current ADF.

[19] Source: http://www.mde.state.md.us/PressReleases/963.html. ENR can reduce nitrogen concentrations from 18 mg/L of effluent (discharged by the lagoon system) to 3 mg/L, and can reduce phosphorus from 6 mg/L to 0.3 mg/L.

[20] Source: CDM. 2004. Town of Boonsboro, MD Wastewater Treatment Plant Expansion and Upgrade Study and Conceptual Design. See Appendix.

Map 4.2: Boonsboro Sewer Service Area



After upgrades, and assuming that most I/I can be reduced, the WWTP should be able to serve most new growth in Boonsboro through 2030. Projected growth would exceed the WWTP's permitted capacity—although not its design capacity—by nearly 24,000 gpd.

Table 4.2: Demand and Capacity in the Boonsboro WWTP

	gpd	EDU[1]
Total available WWTP capacity after ENR upgrade	530,000	2,120
Total existing demand[2]	290,000	1,160
Existing Net Capacity	240,000	960
Projected additional residential demand by 2030	211,250	845
Projected additional non-residential demand by 2030[3]	52,650	211
Total demand, 2030	553,900	2,216
Net available capacity (deficit) in 2030	**(23,900)**	**(96)**

1: One Equivalent Dwelling Unit (EDU) is 250 gpd, the estimated amount used by one household. EDU allow comparisons of residential and non-residential water and wastewater use.

2: The Town estimates that existing demand calculations will decrease with the removal of the existing lagoon system and opening of the new WWTP.

2: The Town estimates that future non-residential demand would be approximately 15 percent of future residential development, based on demand prior to the 2006 annexations.

Point Source Nutrient Caps

Table 4.3 shows the Boonsboro WWTP's likely nutrient discharges by 2030, compared to its Tributary Strategy Point Source Cap. Using ENR technology, the Boonsboro WWTP will regularly attain treatment levels of 3 mg of nitrogen and 0.3 mg of phosphorus per liter of discharged effluent. Using these rates, the WWTP would meet its nitrogen cap, but would slightly exceed its phosphorus cap.

However, it is not inconceivable that the Boonsboro WWTP could achieve phosphorus concentrations as low as 0.25 mg/L. As shown in Table 4.3, achieving those lower concentrations would allow the Boonsboro WWTP to accommodate projected growth without violating its nutrient caps. This would be in addition to any potential nutrient trades or offsets pursued by the Town (see discussion below).

Table 4.3: Point Source Nutrient Loads

Nutrient Load (lbs/year)		2030	Cap	Overage (Surplus)
Discharges (standard assumption)[1]	Nitrogen	5,056	6,100	(1,044)
	Phosphorus	506	457	49
Discharges (efficient operation)[2]	Nitrogen	5,603	6,100	(1,044)
	Phosphorus	421	457	(36)

1: Assumes discharge concentrations of 3 mg/L nitrogen, 0.3 mg/L phosphorus.

2: Assumes discharge concentrations of 3 mg/L nitrogen, 0.25 mg/L phosphorus.

Options to Increase Wastewater Disposal Capacity

Even though adequate physical capacity in the Boonsboro WWTP will exist to serve development through 2030, MDE is not likely to grant an expansion of the Town's discharge permit without a corresponding nutrient offset or trade. Thus, to serve projected growth, as well as long-term growth beyond 2030, the Town will need to find

alternative methods of obtaining additional discharge capacity. Obtaining enough credits or offsets to expand the WWTP to its 650,000 gpd physical capacity will allow the Town to serve projected demand (1,056 EDU), plus an additional 380 EDU

The following section discusses alternatives that the Town should consider.

Water Conservation

Water conservation can help to reduce sewer demand, as well as water demand, and should be a primary element of any effort to maximize the WWTP's capacity. By encouraging citizens to use less water, the Town can reduce wastewater flows, thus preserving capacity in the WWTP and delaying (or avoiding) the need to find offsets for future demand.

Inflow and Infiltration

Inflow is water from storm events entering the system through roof drains, sump pumps, and similar direct attachments to the sanitary sewer (although illegal, such connections are present in almost every public sewer system). Infiltration is groundwater entering the system through broken pipes, manholes, and other elements of the collection system. Inflow and Infiltration (I/I) takes up sewer capacity that should be reserved only for wastewater, effectively limiting the system's overall capacity.

The Boonsboro WWTP experiences significant levels of I/I from a number of sources. Upgrade of the WWTP will remove lagoon-based I/I. The Town also plans to inspect some of its older sewer lines with cameras beginning in 2010 to identify and correct other sources of I/I. Such inspections and repairs are an absolute necessity in order to access the full permitted capacity of the WWTP.

Nutrient Trading

One way to increase capacity would be to participate in a "bubble," or nutrient trading concept. MDE has established official guidance for participation in point-to-point nutrient trading, which would allow Boonsboro to purchase excess WWTP capacity from another WWTP in the Potomac Trading Region, which stretches from Garrett County to St. Mary's County. Washington County has also considered the possibility of creating a Countywide trading policy. MDE is in the process of establishing guidance for nonpoint-to-point trading, as well.[21] Nonpoint-to-point trades would enable Boonsboro to gain wastewater treatment credits for removing or reducing nutrient loads from nonpoint sources such as farms.

Tertiary Treatment Wetlands

In a tertiary treatment wetland system, treated effluent from the WWTP would be discharged into a series of constructed, vegetated (typically, forested) wetlands. These wetlands purify the effluent to the point where the eventual discharge is essentially free of nutrients and other pollutants. The best-known application of this technology occurs in Clayton County, Georgia. In this system (which treats 9.3 million gallons of wastewater

[21] Nutrient trading regulations can be found at http://www.mde.state.md.us/Water/nutrientcap.asp

per day on a 4,000 acre site), the wetland-treated effluent is pure enough to be used for drinking water.[22]

Other smaller applications of tertiary treatment wetlands can be found throughout Maryland. These facilities are typically used at schools and other institutional uses. Implementation of such a facility would depend heavily on soil characteristics and other conditions, but should be investigated. In particular, the Town should determine whether the Town Farm property might be an appropriate location for such a system.

Spray Irrigation

Spray irrigation refers to the application of treated wastewater effluent directly to the ground, where nutrients are taken up by crops or filtered through the soil. In many parts of the state, spray irrigation is a useful alternative to surface water discharges. That does not appear to be the case in Boonsboro.

As discussed above, the Tomstown formation, the source of the Town's drinking water, is particularly vulnerable to contamination. These geologic conditions have potentially serious consequences in the case of Boonsboro because the water supplies for the Town and Keedysville are fed by the groundwater around Boonsboro. Pollution in the groundwater here could put these wells at risk. The County Health Department has found well pollution in areas around Boonsboro (including the US Alternate 40 annexation property—which was annexed specifically to replace contaminated wells with water from the public water system) suggesting that water resources are indeed vulnerable. County Health has strongly warned against the proliferation of individual wells and septic systems near Boonsboro, recommending instead that new development be served by public water and sewerage. The Town's and the Boonsboro Municipal Utilities Commission's policy requires all new construction to be served by public utilities. In addition, a major impetus for the adoption of a County-approved Town Growth Area in the 1997 Plan was to ensure that future growth in the Boonsboro area is served by public utilities.

Nonpoint Source Analysis

As its name implies, nonpoint source pollution refers to degradation of water quality (in this case, due to nitrogen and phosphorus) from sources other than wastewater treatment plants or similar "point" sources. Nonpoint sources of nutrients typically include stormwater runoff from urban and agricultural areas. This section characterizes the Town's policies related to stormwater management and nonpoint source pollution.

Maryland Stormwater Design Manual

The *2000 Maryland Stormwater Design Manual, Volumes I & II* is incorporated by reference into the Town's Stormwater Management Ordinance, and serves as the official guide for stormwater principles, methods, and practices.

[22] For more information, see http://www.ccwa1.com/operations/water.reclamation.aspx

In 2007, the General Assembly passed the Maryland Stormwater Management Act, which mandates substantial revision of the Stormwater Design Manual. The most notable provision of the Stormwater Management Act of 2007 is the requirement that new development use Environmental Site Design (ESD) techniques, which are intended to "maintain predevelopment runoff characteristics" on the site.[23] MDE's regulations in support of the 2007 Act, including the revisions to the Stormwater Design Manual, took effect in May 2009.[24]

The Town should revise its Stormwater Management Ordinance to incorporate the revised Maryland Stormwater Design Manual and other enhanced stormwater management policies recommended by MDE, pursuant to the Stormwater Management Act of 2007 to ensure that new development generates as little nonpoint source pollution as possible.

Other Stormwater Management Considerations

Many Town streets have curbs and gutters, feeding into the drainage systems along Main Street and MD 66. That system discharges stormwater to tributaries of Little Antietam Creek in Shafer Park and at the southern end of Town near the Easterday property. The Town operates stormwater management ponds in the Graystone Hills subdivision (at the end of Thompson Court) the Crestview subdivision along Warrior Boulevard, and will eventually assume control of two ponds in the Fletcher's Grove area.

These stormwater facilities reflect the stormwater regulations in place at the time of construction—which, in some cases, precede the *2000 Stormwater Design Manual*. Stormwater retrofits can significantly decrease nonpoint source pollution. However, these retrofits can be quite expensive and difficult to implement in already developed areas. No such retrofits are planned, and any future retrofits should be targeted to protect the most environmentally sensitive areas.

Requiring ESD for new development and pursuing stormwater retrofits where feasible can help to protect Little Antietam Creek, and are consistent with the state's Tributary Strategies for urban nonpoint source pollution.[25]

Existing Septic Systems

The US Alternate 40 annexation property contains approximately 15 properties that use septic systems. Many of these properties have been experiencing drinking water contamination from inadequate or failing septic systems, which prompted the Town's annexation (and extension of the Town's public water system). These properties will be connected to the public sewer system, and will consume approximately 85 EDU of WWTP capacity (this figure is included in the "Projected additional non-residential demand, 2030" data in Table 4-2). No other active septic systems exist within Town boundaries or the proposed sewer service area.

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[23] Source: MDE. http://www.mde.state.md.us/assets/document/act%20-%20a%20state%20perspective.pdf

[24] The revised regulations are available at: http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/swm2007.asp

[25] For more information, see http://www.dnr.state.md.us/bay/tribstrat/exec_summary_5_6_2.pdf

Total Nutrient Loads and Assimilative Capacity

This section discusses the implications of the Comprehensive Plan's Future Land Use Plan (Chapter 3) on point source (WWTP) and nonpoint source nutrient loads and impervious surface.

Combined Loading

The nonpoint source nutrient loads were evaluated using a Nonpoint Source (NPS) model developed by the Maryland Department of the Environment, and modified by the Town to reflect recent land use changes and a revised methodology. More detail on the NPS evaluation methodology is presented in the Water Resources section of the Comprehensive Plan Appendix.

As shown in Table 4.4, nutrient loadings are expected to drop significantly after the WWTP upgrades are complete. The Future Land Use Plan recommended in Chapter 3 would result in higher nonpoint source nitrogen and phosphorus loading compared to existing land use, due largely to the conversion of undeveloped (primarily agricultural) land to residential and other uses. This new development would comply with the ESD provisions of the revised Maryland Stormwater Design Manual (see above), which would minimize nonpoint source nutrient loads from development.

Table 4.4: Total Nutrient Loads, Existing and Projected

Nutrient Load (lbs/year)		2007	2030	Change
Point Source	Nitrogen	19,164	5,603	(13,560)
	Phosphorus	3,194	373	(2,820)
Nonpoint Source	Nitrogen	4,871	6,520	1,649
	Phosphorus	377	506	129
Total	Nitrogen	24,035	12,123	(11,912)
	Phosphorus	3,571	879	(2,692)

Impervious Surface Coverage

Impervious surfaces are primarily human-made surfaces, such as roads, rooftops, and sidewalks, which do not allow rainwater to enter the ground. The amount of impervious surface in a watershed is a key indicator of water quality. Water quality in streams tends to decline as watersheds approach seven to ten percent impervious coverage, and drops sharply when the watershed approaches 25 percent impervious coverage.

The entire Town of Boonsboro lies within the Little Antietam Creek watershed (and occupies approximately 20 percent of the 10,000-acre watershed), which generally stretches from Keedysville to South Mountain. Based on MDE's model, projected development in Boonsboro through 2030 would add approximately 87 acres of impervious surface, equivalent to slightly less than 1 percent of the watershed's 10,000 acres. Given that the watershed was already at approximately 4.6 percent impervious in

2002,[26] this added impervious surface would not likely push the watershed over the seven percent threshold.

However, to help protect the Little Antietam Creek watershed, the Town should encourage minimization of impervious surface in new development, through careful guidance of development projects.

Relationship of Future Land Use to Assimilative Capacity

Land use and water quality are closely linked, and a key result of the loading analysis summarized in Table 4.3 is the way in which current and future nutrient loads relate to the assimilative capacity of Little Antietam Creek—the body of water that receives the Town's point and nonpoint source nutrients. Assimilative capacity refers to the amount of nutrients that the stream can receive while still maintaining acceptable water quality

One measure of assimilative capacity is a Total Maximum Daily Load (TMDL), which is set when a body of water is determined to be impaired by one or more pollutants. A TMDL is the maximum amount of pollutant (in this case, nutrients) that a water body can receive without causing a water quality impairment. In essence it quantifies an upper threshold on pollutants. The TMDL accounts for all point and nonpoint sources of the given pollutant, and typically establishes separate caps for point source and nonpoint source discharges of the impairing pollutant.

Antietam Creek, the larger watershed into which Little Antietam Creek feeds, is impaired by nutrients, but a TMDL addressing nutrients has not yet been prepared by MDE. Although Boonsboro does contribute to nutrient loads in Antietam Creek, the Town occupies less than 2 percent of the Antietam watershed, and is downstream of the City of Hagerstown, whose 8 MGD WWTP and nonpoint source loads are much larger factors in the overall health of Antietam Creek. Antietam Creek is also impaired by bacteria, biological contamination, and sediments.

Another important consideration is antidegradation. Maryland's antidegradation policy significantly limits new discharge permits that would degrade water quality.

Choice of Land Use Plan

As described above, future nutrient loads from Boonsboro will be dramatically decreased due to WWTP upgrade. In selecting a future land use pattern, the Town evaluated several options and chose the least impactful option—one that encourages medium-density development on newly annexed parcels. However, even considering this effort, the increase in nonpoint source nutrients is worth noting. It reinforces the need for new development to adhere to ESD standards, and for the Town to consider stormwater system upgrades where prudent. Overall, increased nonpoint loading will be offset by reduced point source loading. This net drop in nutrient loading indicates that future development, as a whole, would not threaten assimilative capacity in Little Antietam Creek. Therefore, the Town's future land use plan is consistent with its goal of protecting and restoring water quality.

[26] 2007 land use/land cover data were not available at the time of publication.

Policies and Implementation Actions[27]

1. All new and existing development in the Town will be connected to public water and sewer infrastructure. No new development will be allowed on individual wells and septic systems.

2. Public water and sewer service will only be made available within the Town boundaries, except to address health and safety concerns (e.g., failing septic systems). The Town will work with MDE to ensure that it receives nutrient credits for any such connections outside of corporate limits.

3. Evaluate the potential to withdraw drinking water from Little Antietam Creek or Antietam Creek in Keedysville.

4. Work with MDE to ensure that the Town's groundwater appropriation permit is expanded or amended to allow maximum use of the sustainable groundwater yield.

5. Continue to work with DNR to identify groundwater recharge areas for the Town within Greenbriar State Park.

6. Identify source water protection areas, and amend the Town's development ordinances to establish source water protection buffers (see Chapter 9, Policy 1). Work with Washington County to implement similar measures outside of corporate boundaries.

7. Resolve system water loss issues and reduce system water loss to 10 percent or less by continuing to evaluate the integrity of the water distribution system, evaluating and correcting water accounting practices where necessary, and metering all water use in the Town, including fire fighting flows.

8. Actively pursue opportunities to participate in point-to-point or nonpoint-to-point nutrient trading, or "bubble" systems to secure additional wastewater capacity for the Town.

9. Continue to fund and conduct water leakage and I/I testing, and correct any problems that are identified by these tests.

10. Amend the Town's Stormwater Management Ordinance to adopt the Maryland Stormwater Design Manual, as revised by MDE to reflect provisions of the Stormwater Management Act of 2007 (anticipated to be completed by 2009), as the Town's governing stormwater regulations for new development.

11. Encourage innovative stormwater management techniques such as tree conservation areas, buffer strips, rain gardens, vegetated swales, and dry wells to reduce the quantity of runoff from development sites.

[27] Policies and actions related to drinking water assume continued cooperation with the Boonsboro/Keedysville Regional Water Board.

12. In reviewing development plans, particularly potential Smart Neighborhood development on the 2006 annexation properties, emphasize minimization of impervious surface.

13. Amend the Town's Zoning Ordinance to reduce the maximum allowable impervious surface in shopping centers and similar uses to reduce stormwater runoff and achieve more infiltration into groundwater.

14. As part of the next Comprehensive Plan review, update the nonpoint source loading analysis described in this element using more recent land use data and updated nutrient loading factors.

Chapter 5: Community Facilities Element

This chapter addresses community facilities in the Town of Boonsboro, including parks, schools, and police, fire, and emergency services. Map 5.1 shows the Town's major public facilities.

Goal

1. Provide a system of community facilities that will adequately meet the needs of the present and future growth of the Town.

Inventory of Community Facilities

Recreation

Shafer Memorial Park

In 1939, the citizens of Boonsboro created Shafer Memorial Park, along Park Lane and Park Drive and Potomac Street on the western side of the downtown, as the focal point of the Town. Shafer Park remains the central gathering spot for residents of Boonsboro and the surrounding area. It hosts major public events such as Boonesborough Days, The Great Boonsboro Rescue Company Carnival, and The Founder's Day Celebration.

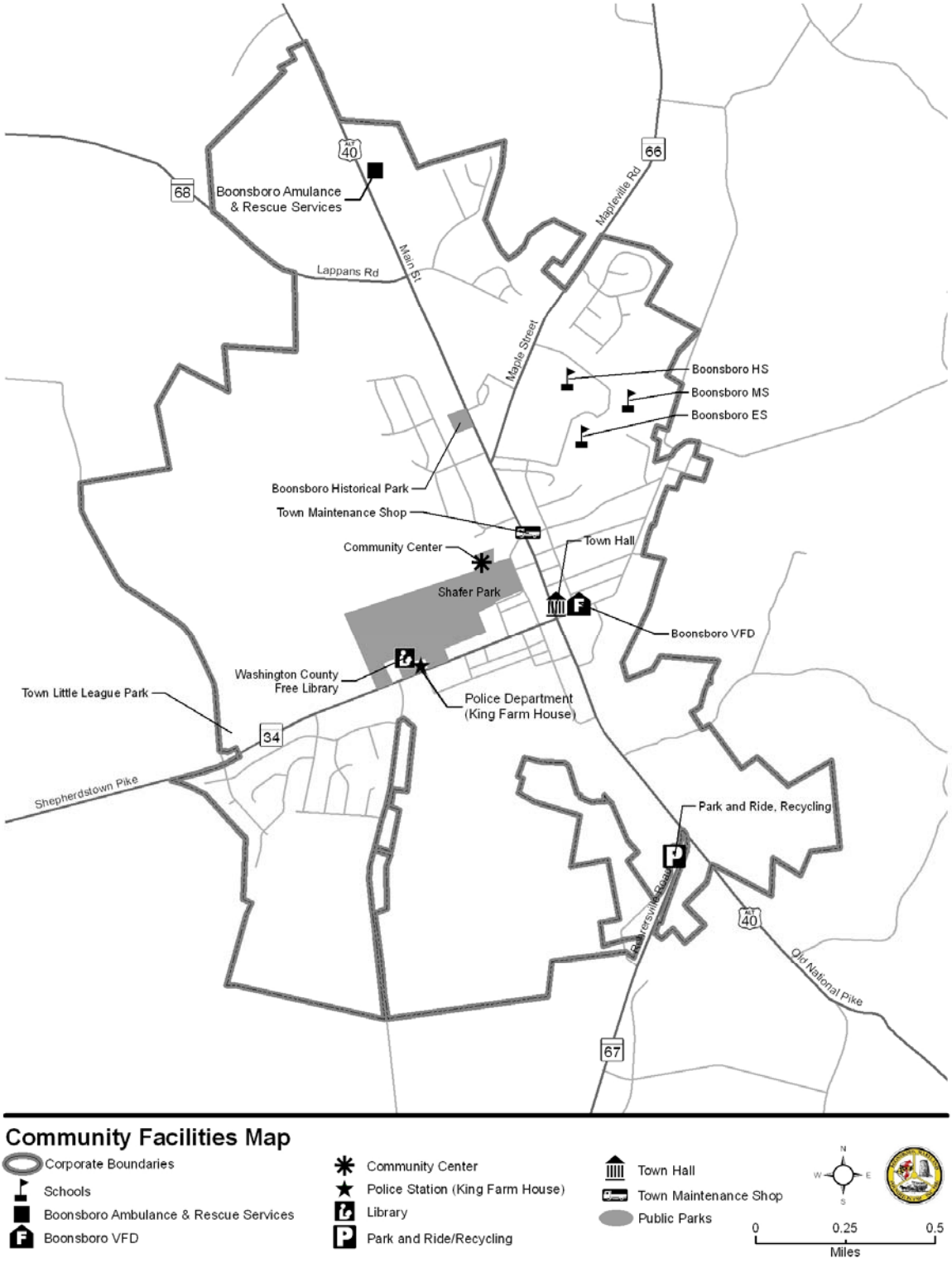
Shafer Park's facilities include ball fields, picnic shelters, a bandstand, restrooms, a paved and lit basketball court, horseshoe pits, playground equipment and open space. Another small, privately-owned building in the Park is used by the local Boy Scouts organization.

The park is also home to the Eugene C. Smith Community Center. The center is used as an indoor recreation facility, and hosts public meetings conducted by the Mayor and Council, and the Town's appointed Commissions. Until mid-2009, the center also housed the offices of the Town's Police Department.

The Eugene C. Smith Community Center

The Park is owned by the Town with maintenance provided by Town employees. The Park Board, appointed by the Town Council, develops policies, programs, and activities at the Park. The park was expanded from its original 11.5 acres to its present 53-acre size with the addition of the six-acre Sinnisen Tract, and the 1999 purchase of an additional 35.5 acres from an adjacent land owner.

Map 5.1: Community Facilities



A 1.2-acre portion of the newly-acquired park land was dedicated as a site for the new Boonsboro branch of the Washington County Free Library. The remainder of the park expansion area will be developed in phases for active park uses. When completed, the new section of Shafer Park is anticipated to include a Little League size baseball field, a full-size soccer field, bleachers, parking areas, a paved entrance and deceleration lane from MD 34, a pavilion, a gazebo, a second soccer/football field, a fishing pond, an enclosed aquatic center, walking trails, a dog park, a tot lot, two restroom facilities and a concession stand. A portion of the King Farm House—which is , owned by the Mayor and Council and is located on Potomac Street directly adjacent to the new phase of Shaffer Park and the new library—will likely be used to house Park maintenance staff.

Boonsboro Historical Park

Boonsboro Historical Park is a two-acre park on the west side of North Main Street, near Knode Circle. This park contains historical markers describing key aspects of the Town's history, including its relationship to the National Road, a description of the Washington Monument (visible from this point), and the Town's Civil War History.

Town Little League Park

The Little League Park, located along Monroe Road, is part of the Town Farm property. The park has two ball diamonds and dugouts, a T-ball field, a graveled parking area and a multi-purpose building with concessions, an announcing booth, and storage. The facilities are used by the South Mountain Little League program.

Other Recreation Facilities

The Boonsboro Educational Complex located off of MD 66 offers a variety of facilities, such as a lighted stadium with a football field and bleachers, a full-sized baseball field, paved basketball and tennis courts, an archery range, and a track. The elementary, middle and high school also have gymnasiums and playing fields which are used by local recreational programs.

A variety of recreational attractions are located close to Boonsboro. These include, Greenbriar, Gathland, and Washington Monument state parks, Devil's Backbone and Little Antietam Watershed county parks, Mt. Briar Wetland Preserve, the Appalachian Trail (which runs along South Mountain), and South Mountain State Park and Antietam National Battlefield. Lying near the Town on MD 34 is Crystal Grottoes, Maryland's only commercial underground caverns.

Schools

Three schools serve the Town of Boonsboro: Boonsboro Elementary School (ES), Boonsboro Middle School (MS), and Boonsboro High School (HS). The three schools are co-located on the 98-acre Boonsboro Educational Complex campus fronting MD 66 in the northeastern part of Town (see Map 5.1). The Complex is owned and operated by the Washington County Board of Education and is a part of the Washington County Public School System.

Total enrollment, existing capacity, and future projected student population for the three schools serving the Town of Boonsboro are shown in Table 5.1. During the 2007-8 school year (the most recent for which data are available) the elementary school was over the state rated capacity (118 percent) and the high school had almost reached capacity (99 percent). The middle school capacity (86 percent) is under the state rated capacity.

Boonsboro High School

School enrollment from the Town is expected to increase over the next ten-year period. Part of this increase will come as a result of new residential development in the annexed portions of the Town (see the Municipal Growth Element). However, most of the projected increase in enrollment will be generated by development outside of Boonsboro, particularly development in the area south of Hagerstown. The overall enrollment at Boonsboro ES is projected to grow by more than 400 students by 2017, according to the Washington County Board of Education. Development in Boonsboro would account for approximately 130 of those students while the remaining 270 students would come from areas other than the Town.

Table 5.1: School Enrollment and Capacity in Boonsboro

School	State-Rated Capacity	*Existing Enrollment (2007)* Enrollment	*Existing Enrollment (2007)* Percent of Capacity	*Projected Enrollment (2017)* Enrollment	*Projected Enrollment (2017)* Percent of Capacity
Boonsboro ES	514	608	118%	1016	198%
Boonsboro MS	872	753	86%	997	114%
Boonsboro HS	1030	1018	99%	1237	120%

Source: Washington County Board of Education

Emergency Services

Police

Police protection for the Town of Boonsboro is provided by the Boonsboro Police Department. The police department is staffed by four full-time officers: the Chief of Police, one staff sergeant, and two officers. In mid-2009, the Police Department moved to the King Farm House property.

Fire Protection

The First Hose Company of Boonsboro (Station 6), located on Saint Paul Street, provides volunteer fire protection services, as well as medical assist, accident, and hazardous material response for Boonsboro and a large portion of southeastern Washington County, ranging from Mapleville and Breathedsville in the north to Gapland in the south. Station

6 owns one fire engine, one ladder truck (with a 75 foot aerial ladder), one tanker, a brush truck, a utility/medical assist vehicle, and a chief/duty car. The Company receives funds from the Town Council and Washington County, and also conducts fundraising activities.

The First Hose Company also operates Station 8, south of Rohrersville. Station 8 has two fire engines.

Ambulance/EMS

Boonsboro Ambulance and Rescue Services, Inc. is a combination (volunteer and paid) independent, non-profit service. The Rescue Company provides both emergency medical transportation and heavy rescue squad service to southeastern Washington County, including the Town of Boonsboro. This rescue service has three ambulances and one rescue vehicle. The service is headquartered on US Alternate 40 north of the intersection with Lappans Road (MD 68).

Solid Waste

Weekly trash pickup and twice-yearly bulk pickup is performed under contract issued by the Town. The Town also has a centralized area for recycling located at the intersection of US Alternate 40 and MD 67 in the southeastern portion of Town.

Other Facilities

Library

In 2008, the Boonsboro branch of the Washington County Free Library moved from its building adjacent to the Town Hall on Main Street to a new library building on Potomac Street at the intersection of King Road. In addition to a much larger facility, the Boonsboro library features public internet access, a dedicated children's area, and special programming for teens and senior citizens.

Boonsboro Town Hall on Main Street

Town Hall

The Town Hall, located at 21 N. Main Street, contains offices for the Mayor, Town Manager, Administrative Assistant, Town Clerk, Town Planner and Zoning Administrator. Virtually all municipal business is conducted at the Town Hall, with the exception of public meetings held at the Community Center. The Town plans to convert the former library space to conference room space.

A 33-space municipal parking lot and handicap access to the building are located in the rear of the Town Hall. The municipal lot provides parking for business conducted at Town Hall and town center business via a pedestrian sidewalk adjacent to Town Hall.

Issues and Opportunities

Future growth will necessitate enhanced emergency faculties, equipment, and staffing.

Based on projected growth, the Police Department will need to hire several additional officers (see Chapter 2, the Municipal Growth Element, for more detail). To accommodate these staffing increases, the Police Department will need larger facilities. The Police Department's move to the King Farm House (see above) addresses these needs in the short term, but may not be a permanent solution.

The Boonsboro fire station on St. Paul Street

At the same time, the Volunteer Fire Station needs upgrades, including a new roof and insulation. Response times are hampered by the narrow geometry of St. Paul Street, and the station's proximity to the Town Square intersection.

One potential solution to these problems is the creation of a Public Safety Complex, a building or group of buildings that would house the Town's police, fire, and, if desirable, ambulance services in a single location. Co-location would allow for greater coordination and sharing of resources among the Town's emergency services providers.

The Future Land Use Plan (Map 3.2) reflects this concept, as indicated by the Institutional land use along Warrior Boulevard on the TT&K property. Locating the new Public Safety Complex on Warrior Boulevard (or on another major artery away from the downtown) would allow emergency personnel to bypass the Town Square intersection, reducing response time.

The Fire Department's equipment also limits emergency response. The Fire Department will need to replace two of its fire engines (as required by NFPA and federal standards). Its ladder truck can reach 75 feet, while a 100-foot reach would be preferable to access the newer multi-family and townhouse development in Town. The Fire department also reports that it does not have 360-degree vehicular access to some of these townhouses, a concern that would need to be addressed by the Town's development regulations.

The electrical wires along major thoroughfares in Town also make fire response more challenging, since firefighters must ensure that ladders, hoses, and other apparatus do not come in contact with live wires. The placement of electrical and telephone lines are

determined by the utilities that own those structures (in the case of electrical wires, Allegheny Power).

The Town's long-term goal should be to relocate utility wires. Doing so would also increase safety, and would improve the aesthetic character of the downtown (see Chapter 7, the Economic Development Element). The Town should continue to consult with utility companies and State Highway Administration, which is responsible for the right-of-way on state highways, to investigate future opportunities to move electrical wires.

Another issue faced by the fire and emergency service is the decline in volunteerism, a national trend that impacts Boonsboro's fire and EMS providers. The Fire Department's 75 active members are responsible not only for emergency response, but also for maintenance of vehicles and facilities, training and testing, recruitment, public safety education programs, and fundraising programs (which comprise more than half of the Fire Department's annual budget). The Town should work with these entities to help promote volunteerism.

Finally, the Town and its emergency service providers are concerned that the emergency service demands of new development in Boonsboro could exceed available police, fire, and EMS budgets. One potential solution is to amend the Town's Adequate Public Facilities Ordinance (APFO) to include provisions related to emergency services. As part of such revision, the Town would need to define the standards against which emergency services are to be measured (the IACP and NFPA standards used in Chapter 2 are examples, but need not be the ultimate standard), and the fee to be paid by development that would exceed those standards.

As the Town grows, the distribution of its park land is an important consideration.

As described in the Municipal Growth Element, the Town will have more than adequate park acreage to serve its existing and projected population. However, that park land is concentrated in two large facilities: Shafer Park in the center of the Town, and the Educational Complex in the northeast portion of the Town.

Although Boonsboro's future land use pattern strives to preserve the Town's compact urban character, these park facilities may be difficult for some residents to access (due to distance, or to the presence of major roads). Thus, the Town should work with the developers of 2006 annexation parcels to ensure that neighborhood-scale parks are included in development plans, and that those parks are dedicated to the public upon completion. These neighborhood parks will help to reinforce neighborhood cohesion, while adding to the amount and variety of recreational resources in the Town.

Although cutbacks in state funding will delay the full development of Shafer Park—with its proposed athletic fields, aquatic center, fishing pond, and other amenities—the Town should nonetheless consider the completion of these facilities to be a high priority. These unique facilities will be an important addition to the recreational resources of the Town and the surrounding region.

Finally, linkages between the Town's park and recreation facilities are important. New and existing parks should be linked via sidewalks or paths, with clearly marked pedestrian crossings on major streets (see Chapter 6, the Transportation Element for more detail).

Boonsboro will need additional elementary school capacity to serve projected enrollment through 2017.

Boonsboro Elementary School was at 118 percent capacity at the start of the 2007-8 school year, and is projected to approach 200 percent capacity by 2017. To address this problem, the Washington County Board of Education will need to consider redistricting of existing schools and/or the construction of a new elementary school to serve Boonsboro.

Although the County has not selected a site for this school, the Town supports this effort to build the new school in Boonsboro. The owner-developer of the King Road property has also contacted the Board of Education, offering to set aside the necessary land for a new Elementary School. The Future Land Use Plan (Map 5.2) sets aside Institutional Land use near the intersection of Warrior Boulevard and MD 67 for this purpose.

The Town's recycling program.

Boonsboro currently has a central collection point for all residential recycling program provided by Washington County at the park-and-ride site on MD 67. Some residents would like to see more recycling options considered.

Policies and Implementation Actions

1. Require developers of newly annexed property to dedicate new parks on those properties as public neighborhood parks.

2. Ensure that parks are linked to the rest of the Town via sidewalks and paths (see Policy 8 in the Transportation Element).

3. Work with the Washington County Board of Education and the owner-developers of the King Road property (or other properties who wish to participate) to identify an appropriate site for, and support the development of a new school.

4. Set aside land for a Public Safety Complex, to house Police, Fire, and (if desired) ambulance functions. The Public Safety Complex would preferably be located on Warrior Boulevard. Work with the County and the state (including the local General Assembly and Congressional delegations) to obtain funding for such a facility.

5. Pursue funding for additional police officers, with the goal of providing 24-hour service.

6. Assist the Boonsboro Volunteer Fire Department in pursuing grants for a new ladder truck with at least a 100-foot reach.

7. Amend the Town's development regulations to mandate 360 degree emergency equipment access to all townhouses and multifamily units, and to require that all development plans are submitted to the Fire Department for comment.

8. Work with SHA, Allegheny Power, and other utilities to relocate utility wires underground or behind buildings on major thoroughfares.

9. Support efforts to recruit and retain volunteer fire and emergency services staff.

10. Consider revising the Town's Adequate Public Facilities Ordinance to include provisions related to Emergency Services (police, fire, and EMS).

11. Consider options for curbside recycling services.

Chapter 6: Transportation Element

Land use patterns and transportation infrastructure are closely related. The location and design of transportation facilities can often channel growth, thus shaping land use patterns. At the same time, existing and anticipated development can shape the location, type, and magnitude of new and upgraded transportation infrastructure.

The latter case is particularly relevant to Boonsboro. The Town's projected growth—particularly the growth in the 2006 annexation areas—will place additional pressure on the existing road network. This element of the Comprehensive Plan evaluates the Town's transportation system to identify upgrades and new facilities necessary to accommodate future transportation needs.

Goals and Objectives

1. Provide for the safe and efficient movement of people and goods in and through the Town.

2. Promote multi-modal transportation solutions, including pedestrian, bicycle, and transit services, where appropriate.

Inventory of Transportation Facilities and Systems

The present circulation system in Boonsboro consists of a network of local streets and alleys that are interlaced with State thoroughfares. The State roads radiate from the center of Town, providing convenient access to I-70 and major employment centers in Maryland and adjoining states. Existing and planned roads described in this chapter are shown in Map 6.1.

State Road Network

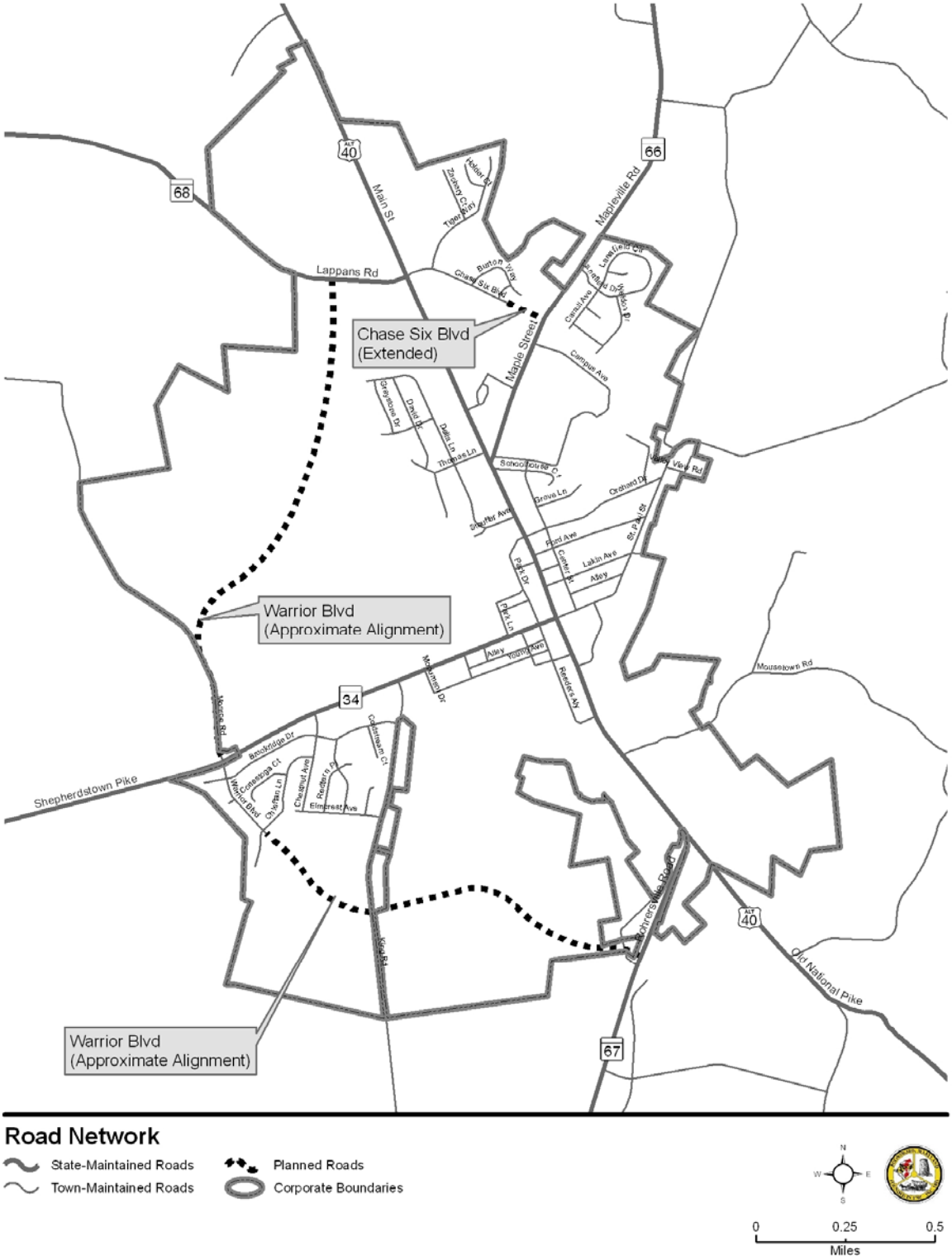
US Alternate 40/Old National Pike/Main Street

As described in Chapter 1, Boonsboro's history is deeply rooted in the development of the National Road, now known as US Alternate 40, or Main Street within the Town. Although most east-west traffic through Washington County now uses I-70, US Alternate 40 remains an important arterial highway.[28] It is the only direct link between Boonsboro and I-70 in the direction of Frederick, Washington, and Baltimore.

US Alternate 40 is a major commuter road for residents of Boonsboro and surrounding areas who work in the Baltimore-Washington metropolitan areas, and is an important link to Frederick and Hagerstown. US Alternate 40 is also the primary route to MD 67, which provides linkage to Harper's Ferry, West Virginia, and points in northern Virginia.

[28] "Arterial" refers to the road's functional classification—the system that describes the purpose and traffic volumes on various roads in the Town, as well as how those roads are maintained. The functional classification system for Boonsboro, and the associated road design standards, is included in the Comprehensive Plan Appendix.

Map 6.1: Boonsboro's Road Network



The "Town Square" intersection of Main Street with St. Paul/Potomac Streets (MD 34) incurs significant traffic during morning and evening peak hours. During the evening peak, in particular, traffic turning from westbound US Alternate 40 onto westbound MD 34 backs up due the heavy volume of traffic turning left and the absence of a by-pass lane near the intersection (which leaves limited space for westbound through traffic to bypass the queue of turning cars). Much of this traffic is comprised of non-Boonsboro residents who pass through the town on the way to other destinations.

Maryland Route 34/Potomac Street/Shepherdstown Pike

Potomac Street forms the western leg of the Town Square intersection, and proceeds southwest out of Boonsboro, where it becomes Shepherdstown Pike. The highway passes Keedysville and continues through Sharpsburg and across the Potomac River to Shepherdstown, West Virginia. In conjunction with West Virginia Route 45 (which begins in Shepherdstown), MD 34 forms an important link between south-central Washington County and the employment centers in West Virginia's eastern panhandle.

Inner Potomac Street (close to Town Square) is very narrow compared to the traffic volume it carries—more than 6,000 vehicles per day. Its curb-to-curb width at Town Square is only 28 feet, with parking permitted along the south curb.[29] Much of the traffic that uses Potomac Street is pass-through traffic, originating in and destined for locations other than Boonsboro. Two very narrow streets—Park Drive and Park Lane—intersect Potomac Street near Town Square. These intersections have limited sight-distances and tight turning radii, creating potential safety hazards and reducing the capacity of those intersections.

Widening of Potomac Street is not feasible or desirable due to the presence of building facades within a few feet of the curb, especially in the area close to Town Square. This is the historic center of Boonsboro, and Potomac Street's narrow right of way reflects development patterns that precede the automobile.

Maryland Route 66/Maple Avenue/Mapleville Road

Maple Avenue begins at North Main Street and becomes Mapleville Road (MD 66), proceeding northeast to intersect US 40 and I-70 before terminating in Smithsburg, MD. Maple Avenue is the primary access to the Boonsboro Educational Complex. Like Potomac Street, Maple Avenue is relatively narrow in Boonsboro. While the right-of-way width is 30 feet, the actual paved surface is approximately 27 feet with intermittent paved shoulders.

Traffic on MD 66 has increased significantly due to residential development and increased economic activity in the Hagerstown area. The State Highway Administration has identified the need to widen that portion of the road between Boonsboro and a point 0.6 miles south of I-70. However, no budget or timeline has been set for this project.

[29] Source for all road widths: 1997 Comprehensive Plan.

Maryland Route 67/Rohersville Road

This thoroughfare is important as a link to Harper's Ferry and other points in southern Washington County and northern Virginia. It provides linkage for commuter traffic from the southern part of the county to the Washington metropolitan area via U.S. 340 and the MARC train service from nearby Brunswick, MD.

In 1990 the State Highway Administration completed a 68-space park and ride facility on MD 67 near its intersection with US Alternate 40.

Maryland Route 68/Lappans Road

Beginning at US Alternate 40 in the northern portion of the Town, MD 68 is a connector road through southwestern Washington County that connects to other major roads such as MD 65 (Sharpsburg Pike), MD 632 (Downsville Pike), I-81 at Williamsport and I-70 at Clear Spring.

Town Streets

The Town's street network, including alleys, totals approximately 19 miles of which approximately 4.9 miles are State roads and 14.1 miles are Town owned.

Saint Paul Street

This street constitutes the eastward extension of Potomac Street and is a direct link from the center of Town to Mountain Laurel and Boonsboro Mountain Roads. Its first block (between Main and Center), is very narrow—only 20 feet between curbs. Due in part to the Fire Department's need to use this block of St. Paul Street, no parking is permitted between Main Street and Center Street.

Orchard Drive

This street is an important "cross-town" link for traffic between Main Street and St. Paul Street. Its first block (Main to Center) has a curb to curb width of 30 feet; the remainder is an open section roadway with a 30-foot paved width that is adequate, because the homes along Orchard Drive have off-street parking.

Stouffer Avenue and Thomas Drive

The entire Graystone Hills subdivision (north of Shafer Park and west of North Main Street) is accessible at only two points: the intersections of Thomas Drive and Stouffer Avenue with Main Street. Thomas Drive is platted at adequate width within the new subdivision, but its first half block length (west of Main Street) is essentially a one-lane alley to North Main Street. Its intersection with Main Street is potentially very hazardous, due to topography and its proximity to the Maple Road intersection. This alley cannot be widened due to the presence of homes within a few feet of the road.

The only other access to the subdivision is at its southern edge via Stouffer Avenue. Stouffer Avenue's intersection with Main Street is wider and safer, but given traffic volumes on North Main Street, it would not be desirable to encourage additional traffic to

use Stouffer Avenue, particularly to access development on the TT&K property, located behind Graystone Hills.

Park Lane/Reeders Alley

Shafer Park Drive is the primary access point for Shafer Park, and has been upgraded (including sidewalks) to serve this purpose. South of the park, Park Drive runs parallel to Main Street, connecting to Potomac Street. Opposite of the Potomac/Park Drive intersection is Reeders Alley. This 12-foot roadway also runs parallel to Main Street, before turning and intersecting Main Street near Reeders Memorial Home. Traffic on Reeders Alley is one-way northbound, due to the width of the alley.

Center Street

Like Park Drive, Center Street parallels Main Street and is sometimes used by north-south traffic. The greatest volume of traffic on this street occurs where it is narrowest, between Lakin Avenue and St. Paul Street. The street cannot be widened due to the presence of buildings at the edge of the right-of-way.

Other Town Streets

The remaining local streets in Boonsboro provide access to adjoining properties.

Transit and Other Motorized Transportation Options

Boonsboro has no local taxicab company or daily commuter bus service. Until 1996, the Washington County Transportation Commission operated a fixed route service twice daily on Wednesday and Saturday with service covering a route including Hagerstown, Keedysville, Sharpsburg, and Boonsboro. The commuter service was discontinued due to a lack of ridership and budgetary reallocation by the County. The County maintains a Taxi-Voucher Program which provides a demand-response service to the elderly and disabled residents.

Commuter service to the Washington metropolitan areas is provided by Maryland Transit Administration (MTA) bus route 991 during weekdays at peak morning and evening hours. The service operates from the I-70/MD-65 park and ride lot (near Hagerstown) to the Shady Grove Metro Station in Montgomery County.

The MARC Brunswick commuter rail line terminates in Brunswick, MD, approximately 16 miles from Boonsboro. The Brunswick line carries passengers to Washington, D.C., via Frederick and Montgomery Counties.

Pedestrian and Bicycle Facilities

Sidewalks are found along most streets in the Town Center area, including Main Street from Knode Circle to Mousetown Road. The sidewalk system is not present in all areas of the Town. Until the 1990s, some of the Town's suburban-style residential subdivisions were permitted to be developed without the construction of sidewalks. The more recent Campus Grove, Fletcher's Grove, and Crestview subdivisions were constructed with sidewalks.

As part of renovations to Shafer Park, the Town constructed a pedestrian walkway that connects the Park to existing sidewalks on Main Street. Sidewalks will run along Potomac Street from the Town Center to the Library. The state will also install sidewalks along Maple Avenue, from North Main Street to 500 feet north of Campus Drive.[30]

US Alternate 40, MD 34, and MD 67 are designated by SHA (with posted signs) as on-road bicycle routes, although no marked bicycle lanes are provided. No other on-road or off-road bicycle ways currently exist in the Town.

Traffic Trends

The regional accessibility provided by Boonsboro's road network makes the Town attractive to a commuting population and contributes to its desirability as a place to live. However, much of the vehicular traffic in Boonsboro is pass-through traffic—vehicles originating in and destined for places other than Boonsboro. Due in large part to commuting patterns to the Washington metropolitan area, annual average daily traffic (AADT) has increased steadily on Boonsboro's major roads in recent years. Table 6.1 shows these trends. The chart indicates the increasing traffic flows on the Town's perimeter as they converge on Main Street.

The decrease in traffic on US Alternate 40 east of MD 67 and west of MD 68, combined with the increase in traffic on Main Street in downtown Boonsboro, reinforces the notion that Boonsboro is increasingly used as a waypoint in long-distance commutes, with traffic entering and exiting along the various state highway spokes that radiate from Main Street.

Table 6.1: Average Annual Daily Traffic (AADT), Boonsboro

		AADT			*Growth Rate[1]*		*Total Growth*	
Highway	**Location**	**1996**	**2000**	**2007**	**Since 1996**	**Since 2000**	**Since 1996**	**Since 2000**
US Alt. 40	Downtown Boonsboro	9,325	11,350	12,620	2.8%	1.5%	35%	11%
US Alt. 40	East of MD 67	5,525	7,600	5,550	0%	-4.4%	0%	-27%
US Alt. 40	West of MD 68	7,025	6,900	6,270	-1.0%	-1.4%	-11%	-9%
MD 34	West of US Alt. 40	5,425	5,800	6,252	1.3%	1.1%	15%	8%
MD 66	Northeast of US Alt. 40	2,525	2,800	4,882	6.2%	8.3%	93%	74%
MD 67	Southeast of US Alt. 40	4,525	4,700	5,590	1.9%	2.5%	24%	19%
MD 68	West of US Alt. 40	1,425	1,900	2,270	4.3%	2.6%	59%	19%

Source: Maryland Department of Transportation, State Highway Administration

1: Indicates the compounded annual growth rate

Note: 2007 Data not available

Residents of Boonsboro contribute to this commuting pattern. The "Journey to Work" statistics from the 2000 US Census indicate that a majority of the working residents of the Town commuted significant distances. The 2000 data show that 44% of Boonsboro's work force of 1,253 had a travel time of 30 minutes or more. None of these workers reported using public transportation, and slightly more than 10 percent car pooled (down from approximately 20 percent in 1990).

[30] Source: SHA: Highway Needs Inventory for Washington County.

Planned Roads

Two roads are already planned or under construction as of 2009, as shown on Map 6.1 and described below. These roads are in addition to any local roads that would be built to serve development on the 2006 annexation properties.

Warrior Boulevard

The potential development of the 2006 Annexation properties—particularly the large King Road and TT&K properties—creates the potential for additional traffic on the state highways that intersect in Boonsboro, particularly the Town Square intersection. To minimize potential traffic, the Town has planned (since the 1975 Comprehensive Plan) for the construction of a new major collector that would connect MD 68, MD 34, and MD 67 in a rough half-circle to the east of the downtown.

The major collector, known as Warrior Boulevard would be built by developers of annexed properties. Development of these properties will not start until Warrior Boulevard is under construction.

To help preserve traffic capacity on MD 34, the landowners are required to connect Warrior Boulevard to MD Routes 68 (from TT&K) and 67 (from King Road), prior to connection with MD 34. The goal of this condition is to funnel traffic from the annexation properties away from MD 34 and onto US Alternate 40, the higher-capacity roadway. It is expected that some commuter traffic will utilize this roadway system to avoid slower traffic on Main Street.

Chase Six Boulevard

Chase Six Boulevard forms the fourth leg of the intersection between Main Street and MD 68. It serves the newer development in the northern section of the Town, including the Weis Market shopping center, and the Fletcher's Grove residential area. As of 2009, Chase Six Boulevard ends approximately 600 feet from MD 66. The developers of Fletcher's Grove are required to complete Chase Six Boulevard to MD 66. This completed route will provide additional radial connections among the state highways that intersect in Boonsboro. These radial connections will serve traffic that would otherwise use the Town Square intersection, thus reducing volume at that intersection.

Issues and Opportunities

Improvements to the Town Square intersection are necessary.

Boonsboro is in the somewhat ironic position of having good road access to regional population and employment centers many miles away, while simultaneously having more difficult road access to areas near and within its own boundaries. The layout of the state road system makes Boonsboro a focal point of regional traffic, particularly during morning and evening peak hours. Traffic passing through the Town often has no choice but to travel through the Town Square intersection.

Heavy traffic volumes and curbside parking close to the traffic signal create peak-hour congestion at the Town Square intersection.

This congestion along Main Street is one of Boonsboro's most pressing concerns. Warrior Boulevard and the completion of Chase Six Boulevard will give local and regional traffic options to avoid the Town Square intersection. However, even if traffic through the Town Square intersection does not increase, the intersection will still perform poorly during peak hours. In particular, traffic turning from westbound US Alternate 40 onto westbound MD 34 creates long queues along South Main Street. These backups are due in part to the intersection geometry and on-street parking that leave very little space for westbound traffic to bypass the turn lane in order to continue on US Alternate 40.

Public parking

There are more than 500 public parking spaces in or within walking distance of the downtown, many of which are on Main Street. The 2003 Downtown Revitalization Study found that these spaces are adequate in number to support downtown businesses and economic development efforts, but signage directing drivers to those spaces could be improved. Uniform, highly visible signage is needed in the downtown. Information about parking locations, in the form of printed brochures or a map on the Town's website, would also help visitors navigate to parking spaces.

Public transit service can provide alternatives to automobile travel.

Although small, Boonsboro is the second-largest municipality in Washington County, and is projected to grow significantly in the next 20 years. In addition, Boonsboro has a comparatively large senior citizen population, and has a large number of residents who commute long distances to jobs, generally in the Washington metropolitan area. These demographics indicate the potential to support transit service, such as the County Commuter that once served Boonsboro and still serves the Town of Smithsburg.

Reestablishment of County Commuter service to Boonsboro could feed the MTA commuter bus route from Hagerstown, could provide transportation to medical facilities in Hagerstown, and could enhance tourism in the two municipalities, particularly Civil War era tourism.

Additional pedestrian facilities are needed.

There are no sidewalks on outer Potomac Street, Maple Avenue,[31] or Main Street north of Knode Circle. The lack of facilities and the aging population contribute to low pedestrian activity, despite the town's relatively compact scale.

Pedestrian and bicycle links are especially important on the state highways that comprise the Town's thoroughfares. While walking or bicycling on neighborhood streets is relatively safe, the same cannot be said for these major roads. The lack of pedestrian alternatives may also contribute to traffic problems along US Alternate 40. For example, the Weis supermarket is approximately one mile from Town Square (and less from Graystone Hills and other neighborhoods). This is, for some residents, a walkable distance. However, the lack of a pedestrian connection to downtown's sidewalk network or to safer residential streets means that anyone wishing to shop at this major store *must* drive on Main Street or walk on the shoulder of the roadway.

The Town's subdivision ordinance already requires sidewalks or paths[32] to be included as part of all new construction. In 2008, the Town received a grant from the State Highway Administration to add sidewalks to MD 34 between the new library and downtown. The Town should also pursue the installation of sidewalks or paths along key stretches of developed roads, particularly US Alternate 40 (between MD 67 and MD 68), MD 34 (to connect the Crestview subdivision to downtown), and MD 66. This should include upgraded pedestrian crossings with special pavement markings, signage, pedestrian islands, or other features at key points. This would encourage walking and bicycling to destinations such as the Educational Complex, Shafer Park, and the downtown.

The Town should investigate opportunities to provide pedestrian linkages between new development (particularly on 2006 annexation properties) and existing neighborhoods, to further increase opportunities for residents to walk and bicycle around Town. In particular, the Town should encourage pedestrian and bicycle links between the TT&K property and the existing Graystone Hills neighborhood.

The Town should enhance its Capital Improvements Program

A Capital Improvements Program (CIP) can add predictability to the Town's major capital needs, such as road improvements and water and sewer facility maintenance and upgrade. The Town's existing CIP lists capital projects and is used for budgeting, but is not an adopted implementation tool. The Town should establish a formal, binding CIP, wherein Town funding is committed for new projects and operations during a four- or

[31] As described in the previous section, SHA is constructing sidewalks on a portion of Maple Avenue.

[32] Sidewalks in Boonsboro are constructed from concrete or brick, and are typically associated with roads that have curbs and gutters. Paths can be concrete or asphalt, and are typically associated with "open section" roads that have no curb and gutter.

five-year period. This enhanced CIP would provide the vehicle for examining Town capital needs in advance and insuring that fiscal resources are available when needs arise.

The need for an enhanced CIP is particularly important now because projected growth will significantly increase Town road construction and maintenance responsibilities. The attendant need to maintain expanded sewer, water, curb, gutter, and other infrastructure further accentuates the benefits of fiscal planning.

Policies and Implementation Actions

1. Consider changes in parking regulations on Westbound US Alternate 40 to ease congestion during peak hours.

2. Improve parking signage, and provide parking information to the public via printed materials and/or the Town's website (see Economic Development Element Policy 3).

3. Work with Washington County to reestablish County Commuter service to Boonsboro.

4. Continue to encourage and publicize existing transportation services for the elderly and other transit-dependent populations, such as MTA's commuter bus service from Hagerstown, and the County's ride assist/voucher program.

5. Work with SHA to implement sidewalk retrofits on state roads, including pedestrian crossings as described in this Element.

6. Develop pedestrian/bicycle paths between existing neighborhoods, new neighborhoods, and public parks (see Policy 2 in Chapter 5).

7. Enhance the Town's Capital Improvements Program (CIP) as described in this chapter, focusing specifically on road and other infrastructure improvements. Schedule street repairs and expansions as part of the CIP.

8. Pursue economic development grants from the Appalachian Regional Commission and other state and local agencies for necessary road and pedestrian improvements.

Chapter 7: Economic Development Element

Boonsboro's rural setting and proximity to employment centers in Hagerstown, Baltimore, Frederick, Martinsburg, and the Washington, D.C. metropolitan area, have long made it a "bedroom" community. However, the Town is beginning to develop its own economy, based on local and regional services and tourism. This element describes the goals, policies, and actions necessary to continue the Town's economic growth.

Goals and Objectives

1. Create a healthy, balanced economy that provides necessary goods and services for Boonsboro residents, adequate local job opportunities, and sufficient tax base to finance the municipal services and improvements needed in a growing municipality.

2. Use the Town's historic resources and unique local attractions as the basis for a strong tourist economy.

Existing Economic Conditions

Employment

Table 7.1 shows the types of jobs held by Boonsboro residents in 2000.[33] The Town in 2000 compared favorably to the State in percentage of professional workers in fields such as education, health, and social services. Nearly 17 percent of the Town's workforce was employed in this sector, compared with the statewide average of 20.6 percent. Another 22 percent of Town residents were employed in other "professional" fields, such as Information, Finance, and Management, compared with more than 23 percent statewide.

Nearly 18 percent of the Town's workforce was employed in the manufacturing and construction sectors. This proportion was higher than in the State as a whole (14.2), but was consistent with that of Western Maryland, where dependence on these types of jobs is typically higher, although the strength of the manufacturing sector continues to decrease. Like much of the rest of Western Maryland, the decline in construction, manufacturing, and other blue collar employment in Boonsboro began in the late 1980s (manufacturing and construction accounted for 40.5 percent of jobs held by Town residents in 2000), and continues today.

The remaining occupational categories as reported by the Bureau of the Census in 2000 remained relatively unchanged since 1990.

Major Employers

The largest private employer in Boonsboro is the Reeders Memorial Home for the elderly which employs 200. Other major employers of the Town include Weis Supermarket, Thompson Gas, and Bast-Stauffer Funeral Home. Most businesses, particularly the small shops and stores in the Town Center, are quite small, and employ two or three people.

[33] Job data are only published as part of the decennial Census.

Major public employers are the Post Office, and the Educational Complex which employs roughly 180. The Town employs approximately 20.

Table 7.1: Jobs Held by Residents, 2000

	Boonsboro		*Washington County*		*State*	
	Num.	**Pct.**	**Num.**	**Pct.**	**Num.**	**Pct.**
Agriculture, Forestry, Fisheries, Mining	13	1.0	957	1.6	16,178	0.6
Construction	92	7.2	5,572	9.1	181,280	6.9
Manufacturing	132	10.3	9,006	14.7	189,327	7.3
Wholesale Trade	24	1.9	1949	3.2	72,621	2.8
Retail Trade	151	11.8	8237	13.4	273,339	10.5
Transportation, Warehousing, and Utilities	43	3.4	3,451	5.6	127,294	4.9
Information	39	3.1	1,738	2.8	103,351	4.0
Finance, Insurance, Real Estate, Rental and Leasing	138	10.8	4,275	7.0	186,159	7.1
Professional, Scientific, Management, administrative, and waste mgt services	100	7.8	4,060	6.6	323,834	12.4
Educational, Health, and Social Services (excludes public schools)	216	16.9	10,553	17.2	538,350	20.6
Arts, Entertainment, Recreation, Accommodation, Other Food Services	88	6.9	3,691	6.0	177,341	6.8
Other Services (except Public Administration)	107	8.4	3,348	5.4	145,424	5.6
Public Administration	133	10.4	4,605	7.5	273,959	10.5

Source: U.S. Census Bureau

Income and Unemployment

Table 7.2 shows the median household income and unemployment rate in Boonsboro in 2000, compared to Washington County and the state. The Town's median household income was almost the same as in Washington County. The Town's unemployment rate was higher than those in the County or state.[34]

Table 7.2: Median Household Income and Unemployment, 2000

Jurisdiction	Median Household Income	Unemployment
Boonsboro	$40,676	5.3%
Washington County	$40,617	3.3%
Maryland	$52,868	4.7%

Source: 2000 US Census

The Regional Economy

The regional economy is significant because of the Town's "bedroom community" status and the significant number of blue collar workers. The 2000 Census data in Table 7.3 show that more than 80 percent of Boonsboro workers were employed outside of the Town. Indeed, Town officials have long indicated that many of Boonsboro's newer residents choose Boonsboro for its combination of low housing prices (compared to

[34] This figure may be deceiving due to the small sample size involved. The 5.3 percent unemployment rate in Boonsboro was based on just 71 unemployed persons in 2000.

communities closer to Washington, D.C.) and "commutability" to jobs in Metropolitan Washington. A smaller number of residents move to Boonsboro for its access to jobs in Washington County.

Table 7.3: Employer Location, Boonsboro Residents, 2000

Place of Employment	Boonsboro Residents Employed
Outside of Maryland	88
In Maryland	1,165
Other Maryland Counties	530
In Washington County	635
Outside of Boonsboro	414
In Boonsboro	221
Total workers[1]	1,253

Notes:
1: Includes all employed residents, age 16 or over in 2000
Source: 2000 U.S. Census

As a result, Boonsboro's employment base (and thus the Town's tax base) is heavily dependent on the health of the regional economy in Washington and Frederick Counties, and beyond. A key relationship is the tension between housing prices closer to Washington, D.C., (which remain relatively high despite the soft housing market) and the difficulty of commuting long distances on the region's increasingly congested highways. The Town obviously cannot control where its residents work. However, efforts to strengthen the Town's economy—building on the Town's strengths as described in this chapter—can help to moderate the impacts of the regional economy's volatility on the Town's tax base.

Tourism

Tourism is rapidly emerging as a major economic force for Boonsboro and surrounding region. Table 7.4 shows visitation statistics at major nearby parks. In addition, the Maryland Department of Natural Resources estimates that visitation at state parks near Boonsboro exceeded 950,000 in 2006.[35] The volume of tourist visits to these sites near Boonsboro over the past decade shows the strength of the regional tourism market. Boonsboro is also a contributor to the regional tourism market. Its historic resources, specialty retail, and unique character are all assets in the attraction of tourism activity.

Table 7.4: Nearby Park Visitation by Year

Park Site	1997	2007	Percent Change, 1997-2007
Antietam National Battlefield	275,639	337,569	23%
Harper's Ferry National Historic Park	340,246	249,908	-26%
C&O Canal National Historic Park	1,934,030	2,809,968	145%
Total	**2,549,915**	**3,397,445**	**133%**

Source: National Park Service

[35] Includes Gathland, South Mountain, Washington Monument, and Greenbriar State parks

Historic Resources in Boonsboro

Boonsboro's plentiful historic resources contribute to the overall character of the Town. As the Downtown Revitalization Study indicates, these historic resources are a significant resource for economic development (in the downtown and the Town as a whole), and should be leveraged to the greatest degree possible. This section describes some of the key historic resources in Boonsboro, and their value for economic development.

Boonsboro Historic District

Downtown Boonsboro was listed as a Historic District on the National Register of Historic Places in December 2005. The District contains many significant historical resources that serve as attractions to tourists interested in early American settlement, Civil War history, and American transportation history. The National Register's description of the Boonsboro Historic District and the Bowman House—the only individual structure in Boonsboro that is listed on the National Register—provides an excellent summary of the Historic District's character and resources, and is reprinted below (with minor changes to reflect current conditions).

> The Town of Boonsboro is nestled against the west side of South Mountain, northwest of Turner's Gap on US Alternate 40, the former National Road. It is historically a linear town, its primary orientation along the Main Street or Alternate 40 corridor. The westward running Potomac Street (MD 34), the historic turnpike to Sharpsburg, and St. Paul Street to the east forms the primary cross street. Additional development occurred during the first decades of the 20th century along the Hagerstown-Boonsboro Electric Railway corridor on the north end of town, and around Shafer Park and the Boonsboro Cemetery after 1940.
>
> Historically, commercial businesses along the National Road (Main Street) catered to travelers, with numerous taverns and hotels, and a variety of commercial craftsmen. Today Downtown Boonsboro is generally a residential town, with a few religious institutions some specialty businesses in the historic town center area.
>
> The Boonsboro Historic District includes 562 contributing elements. Most of the late 18th and early 19th century development in Boonsboro occurred along Main Street, then part of a principal market road between Williamsport, Hagerstown, Frederick, and Baltimore. Buildings from this era are mainly of log, frame, or brick construction, with a few stone buildings interspersed. Residential buildings within the oldest section of town are primarily simple vernacular forms exemplified by the many one- and two-story, three bay log and brick houses. [One example of this type of residence is the Bowman House located on North Main Street.] The building is typical of log dwellings built in Western Maryland during the first half of the 19th century.
>
> The majority of the buildings in the downtown appear to date from the 1820-1850 period, coinciding with peak use years of the National Road. Most houses near the town center are three, four, or five bays wide. Many have more than one front

door suggesting combined residential and commercial use. The large and substantial brick and stone buildings located on the town square form the center of much of Boonsboro's earliest architecture. These buildings functioned variously as inns or hotels, a female seminary, a large merchandising house, and occasionally as dwellings.

Other features of the Boonsboro Historic District include the circa 1855 Boonsboro Cemetery laid out in a 19th-century curving plan with a number of exceptionally artistic gravestones, and the office/depot of the Hagerstown-Boonsboro Electric Railway and its right-of-way along the west side of North Main Street.

The Boonsboro Historic District is historically significant for its association with the development of Western Maryland following the opening of the National Road in the early 19th century. The road linked rural Washington County with the port of Baltimore as well as points to the west, and was an important influence on the agricultural, economic, and commercial development of the region throughout the 19th century. Boonsboro's location along the National Road, adjoining Turner's Gap through South Mountain, was strategically important during the American Civil War, and throughout the conflict the town experienced the passage of thousands of troops and accommodated the wounded soldiers left to the care of townspeople.

The Town's growth through the first half of the 20th century, associated with another transportation corridor, the Hagerstown-Boonsboro Electric Railway branch line, is clearly apparent in the architectural character of the areas that were annexed into the town during that period. The Boonsboro Historic District derives additional significance as an excellent example of linear development characteristic of town plans in the region in the 19th century, and for the wide variety of architectural types and styles represented by its component buildings, which chronicle the town's development from its founding in 1792 through the mid 20th century. The period of significance, from 1792-1959, tracks the continuous growth and evolution of the Town through the date by which the district had substantially achieved its current form and appearance.

Civil War History

Like much of the surrounding area, Boonsboro was touched by the Civil War. The Battle of South Mountain, the first battle fought on northern soil, began on September 14, 1862 in the Fox's Gap and Turner Gap areas of South Mountain, just south and east of Boonsboro. The Battle of Boonsborough, a cavalry engagement that occurred as Lee's Army of Northern Virginia attempted to retreat across the Potomac following the Battle of Gettysburg, occurred just north and west of the Town. During the Civil War, the Town's churches and public buildings were used as makeshift hospitals for soldiers wounded at South Mountain and Antietam. In the late 19th century, Boonsboro was chosen as the setting for a famous Civil War play named "Heart of Maryland," which later became a successful silent motion picture.

Heart of the Civil War Heritage Area

Boonsboro is part of the Heart of the Civil War Heritage Area, which stretches across much of western Maryland and provides recognition and funding for places whose history is intertwined with the Civil War. The Heritage Area's program encourages communities to identify, protect, and promote their unique heritage and to capitalize on that heritage through economic development and tourism initiatives. State funds and assistance will be made available for interpretive and infrastructure improvements in State-approved heritage areas.

The Town endorses the Maryland Heritage Areas Authority's Management Plan for the Heart of the Civil War Heritage Area. As part of the Heritage Area, a Target Investment Zone (TIZ) has been designated in downtown Boonsboro (see Figure 7.1). The TIZ is coterminous with the study area for the 2003 Downtown Revitalization Area. The Management Plan designates the Boonsboro TIZ for future activation. To be activated—and to receive the funding associated with having an active TIZ—the Town must submit a detailed work program showing how Heritage Area funds would be used.

Transportation History

The National Road

The National Road was the first federally funded road. President Jefferson initiated the building of the road west to Cumberland, Maryland and beyond, to open the West for American settlers. Congress authorized funding for the construction in 1806. During its prime, the route was heavily traveled, and small towns grew up around stopping points for travelers. The initial settlement of Boonsboro predates the National Road, but the Town's growth is tied to the National Road. The Boone Hotel and US Hotel in Town Square were primarily built to cater to the travelers who needed lodging as they passed through Boonsboro.

The National Road has achieved National Scenic Byway designation in 2002, and its historical significance lies in its position in the evolution of transportation and the movement of settlers into the West.

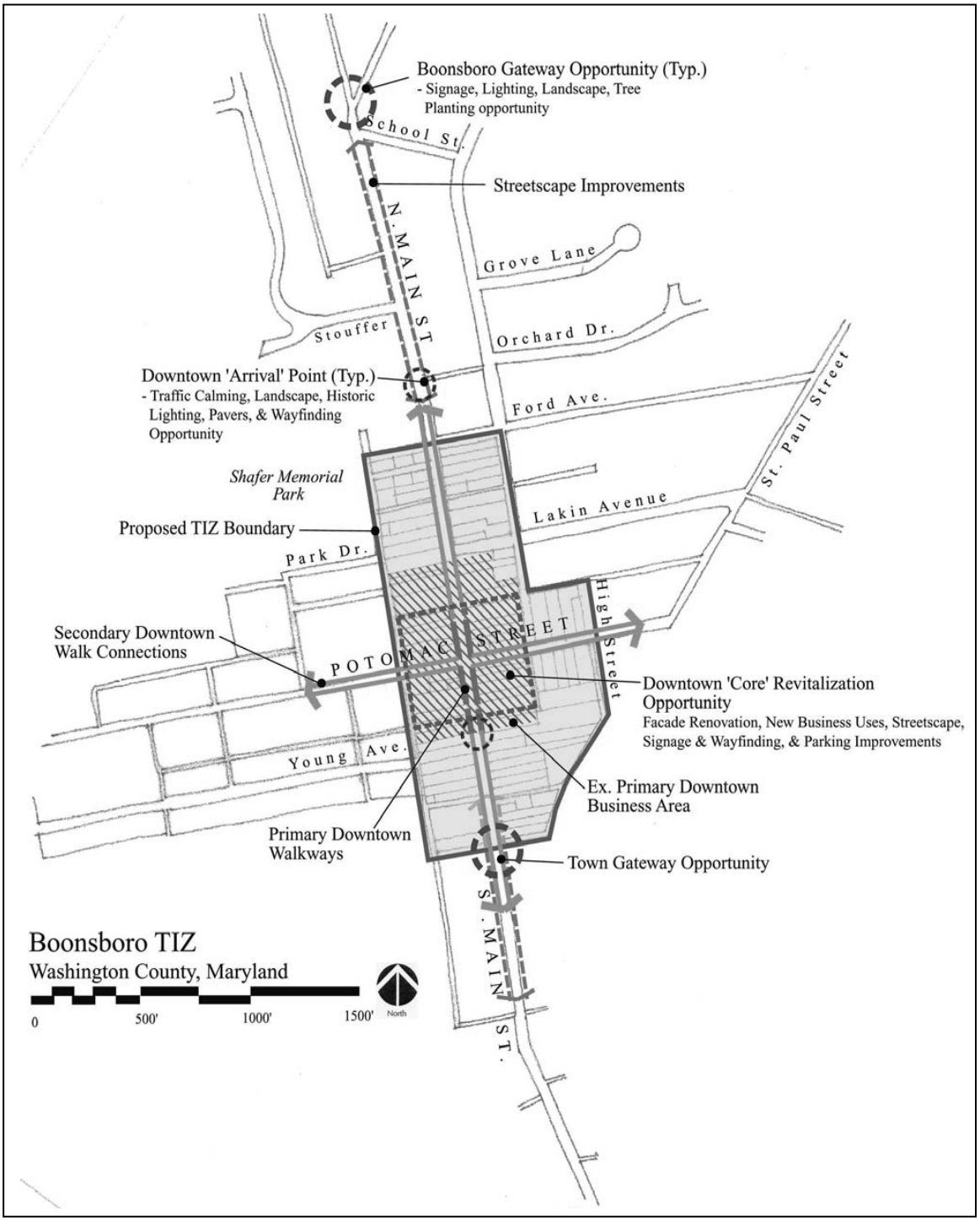
The portion of the National Road that passes through Boonsboro has additional historical significance. In 1823, a new process called "macadam," a forerunner of modern paving techniques, was used to finish an unpaved, 10-mile section of the National Road from Boonsboro to Hagerstown. This was the first time this road building process was used in the United States. The process, named for John Loudon McAdam, greatly improved the quality of the National Road, and by 1830, 73 miles of the highway had been converted to a macadamized surface.

Hagerstown & Frederick Railway

The Town of Boonsboro was a stop along the Hagerstown & Frederick Railway, a suburban trolley service that ran from Hagerstown through Boonsboro to Myersville, Middletown, Braddock Heights and eventually terminating in Frederick. Remnants of

the trolley line still exist in the town center: a refurbished trolley station and proposed museum, and the trolley car right-of-way along the west side of North Main Street.

Figure 7.1: Boonsboro TIZ



Source: Heart of the Civil War Heritage Area Application for Certification

Issues and Opportunities in the Downtown

The downtown business district is a major economic engine.

The downtown business district, centered at the intersection of Main Street and St. Paul/Potomac Streets, is at the center of Boonsboro's historic, civic, and economic life, and remains a key to the Town's future prosperity. Downtown Boonsboro attracts numerous residents who use Shafer Park, the post office, and Town Hall. Its shops and stores are within convenient walking distance of many surrounding neighborhoods.

As in other small towns, the Boonsboro central business district contains an array of mixed uses. Its commercial establishments are scattered roughly five blocks along Main Street among single and multi-family residences. In terms of acreage and floor area, residential uses actually occupy a larger portion of this strip than do commercial uses.

Much change (and improvement) has occurred along Main Street since the 1997 Comprehensive Plan was adopted. Maryland SHA funded a major streetscape upgrade in 2003, which resulted in the installation of wide sidewalks, improved drainage, and street furniture and accessories. Several buildings have been renovated or are scheduled for renovation, and the mix of businesses is increasingly shifting toward specialty retail and restaurants.

Streetscape upgrades have helped enhance Main Street's distinctive character.

Many Downtown Revitalization Study recommendations remain valid.

The 2003 Downtown Revitalization Study presented a number of strategies to improve the Town's overall economy by strengthening the downtown business district. The following recommendations from the Revitalization Study should be pursued (and in some cases are already being pursued) as part of the Town's overall economic development strategy.

- Position downtown as a cultural, recreation, civic, and specialty retail center serving the Town and the region.
- Capitalize on Boonsboro's historic resources, specifically its Civil War heritage and the National Pike (see Chapter 9, Historic Resources).
- Continue to promote the budding "literary tourism" trade centered around author Nora Roberts and the Turn the Page Bookstore Café owned by her husband, Bruce Wilder.

- Retain the historic scale and architectural character of the downtown (see Chapter 3, the Land Use Element).

- Improve pedestrian connections to the downtown.

- Improve the appearance of downtown by reducing visual clutter, and repairing and maintaining building facades.

Transportation improvements can help the downtown business district fully realize its economic potential

As described in the Transportation Element, parking and traffic are the Town's major transportation concerns in the downtown. Parking is adequate to serve the downtown, including on-street spaces and off-street parking lots behind the Town Hall and various stores. However, this resource is underutilized. Improved signage and printed and electronic information directing visitors to off-street parking facilities and from those facilities back to Main Street would greatly improve the downtown visitor experience.

Main Street itself is heavily congested during morning and evening peak hour commuter traffic, due largely to backups at the Town Square intersection. This traffic makes it difficult for pedestrians to cross Main Street and hinders those trying to parallel park along the street. Traffic congestion also discourages people from coming downtown. Much of the traffic congestion is due to the lack of a bypass lane to route through traffic around cars queued to turn onto Potomac Street.

Removing curbside parking near Potomac Street to create a bypass lane would result in loss of approximately a dozen parking spaces. The perception of many business owners is that the lack of on-street parking would be bad for businesses on the east side of Town Square. However, the peak hour traffic situation at Town Square has only deteriorated in recent years, and needs to be addressed. Better parking signage would certainly help to minimize concerns about on-street parking. Another potential solution would be to prohibit curbside parking during peak hours, but to allow such parking at all other times.

Some opportunities exist for infill in the downtown.

Some space exists for new commercial construction in the downtown area. The few vacant storefronts that appear are generally quickly occupied. However, opportunities exist for the re-use and/or redevelopment of existing buildings for commercial or multi-family residential use.

Aesthetic improvements would strengthen the downtown.

The Streetscape project greatly improved Main Street's visual appeal, but some deficiencies remain. Overhead electric wires and a lack of uniform signage detract from the downtown's appearance, and some facades are in need of refurbishing.

To address issues related to facades, the Boonsboro Downtown Development Association plans to lead the Town's efforts to obtain grants from the Maryland Department of Housing and Community Development.

Other Issues and Opportunities

New Development on Annexed Property

Residential and commercial development is planned on the 2006 annexation properties, as described in Chapter 3, the Land Use Element. This development will benefit the Town economically by improving the tax base. Since new residents will demand goods and services, development of annexed land can create a multiplier effect, as new residents spend money at local businesses.

One concern about new commercial development on 2006 annexation properties is the potential for competition with existing businesses on Main Street, as well as increased traffic congestion in the downtown area. The Comprehensive Plan addresses these issues in the following ways:

- Supporting the construction of Warrior Boulevard specifically to prevent further downtown congestion from new development (see Chapter 6, the Transportation Element).
- Designating future commercial development on the 2006 annexation properties for neighborhood-oriented commercial uses, while designating the existing commercial nodes at the north and south ends of Main Street for major commercial uses (see Chapter 3, the Land Use Element).

The Town is positioned to take advantage of state BRAC funding.

In 2005, Congress approved the recommendations of the Department of Defense's Base Realignment and Closure (BRAC) Commission. As a result of the BRAC recommendations, several facilities in Maryland—notably, the National Naval Medical Center in Bethesda, Fort Detrick in Frederick, and Fort Meade in Anne Arundel County—will be gaining jobs. Other jobs are also expected to be attracted to the various federal and private entities on and around these bases.

The expected result of these changes is an increase in demand for housing and services in the region. As a bedroom community for Frederick and the Washington, D.C. area, Boonsboro expects to be affected by BRAC, and plans to pursue designation as one of Washington County's BRAC Revitalization and Incentive Zones.[36] Such designation would make the Town eligible for state funding for infrastructure and to use for tax increment financing (TIF) to fund additional improvements.

The tourism potential of southern Washington County remains an important resource for the Town.

The Town lies amidst some of the County's major tourist attractions which will draw millions of tourists in coming years. Visitors to Antietam National Battlefield, the C&O Canal, the Appalachian Trail, and other nearby tourist attractions described in this chapter

[36] BRAC Zones are defined in Senate Bill 206, from the 2008 session of the Maryland General Assembly.

pass through or near Boonsboro, and opportunities exist to encourage those visitors to spend time and money in the Town.

The downtown is becoming increasingly geared toward the tourist market, with a growing collection of restaurants and specialty shops. Boonsboro also has a unique literary tourism niche. Author Nora Roberts and her husband, Bruce Wilder, own the buildings formerly known as the U.S. and Boone Hotels in the Town Square, and Mr. Wilder owns and operates Turn The Page bookstore on Main Street.

Business owners in Town also recognize the value of overnight stays by tourists. Ms. Roberts and Mr. Wilder's renovation of the two Town Square properties (the US Hotel is now the Vesta Restaurant, while the Boone Hotel re-opened as the Inn BoonsBoro bed-and-breakfast in February 2009) are such examples. The Town should encourage additional renovations, and the establishment of new hotels and bed-and-breakfast facilities, particularly in the historic downtown.

The Town regularly works with Washington County Economic Development Commission to identify and attract new businesses. The Washington County Convention and Visitors Bureau provides both funding and technical assistance in such publicity efforts and its expertise should be used by the Town in its tourism promotion endeavors.

Through its website, the Town promotes a number of regional tourist activities, including national and state parks, and the Crystal Grottoes Caverns. The Town should continue to work with owners of tourist attractions, the County, and the State to ensure that advertising, website information, and signage for these attractions also reference Boonsboro's tourist amenities.

Policies and Implementation Actions

1. Continue to work with the Maryland Department of Business and Economic Development, the Hagerstown-Washington County Economic Development Commission and the Washington County Convention and Visitors Bureau to attract and retain businesses and promote Boonsboro as a tourist destination.

2. Focus business recruitment efforts on restaurants, specialty retail, and other tourist-oriented establishments in the downtown.

3. Improve parking signage, and provide parking information to the public via printed materials and/or the Town's website (see Transportation Element Policy 3).

4. Address peak hour traffic congestion in Town Square (see the Transportation Element).

5. Consider revising the Town's zoning ordinance to require uniformly designed signage in the downtown.

6. Develop marketing materials that emphasize the Boonsboro Historic District and the Town's historic features to attract tourism into the Town Center.

7. Develop and submit to the Maryland Heritage Areas Authority a management plan to activate Boonsboro's Targeted Investment Zone (TIZ).

8. Assist the Downtown Development Association in applying for façade renovation grants.

9. Continue to work with Washington County to attain designation as a BRAC Revitalization and Incentive Zone.

Chapter 8: Housing Element

Between 1990 and 2000, the number of housing units in the Town of Boonsboro increased by 22 percent, from 901 to 1,098 units. Developers of newly annexed land will likely build additional housing units in the near future to add to the housing stock in Town. This chapter describes the housing characteristics and housing needs in the Town of Boonsboro, and includes policies to meet these needs in the years ahead.

Goals and Objectives

1. Provide a mix of housing that meets the needs of all Town residents.

2. Provide housing opportunities that reflect the range of incomes of existing or prospective residents of the Town.

3. Specifically address the housing needs of senior citizens living in Boonsboro.

Background

Housing Characteristics

Of the 1,098 units in Boonsboro in 2000, the majority (736 units or 67 percent) were single family detached homes, as shown in Table 8.1.[37] The second largest type of housing in the Town was composed of apartment buildings or townhouses with two to nine units per structure (230 units or 21 percent).

Table 8.1: Housing Type and Tenure, 2000

	Number	Percent
Unit Type		
1 unit detached	736	67%
1 unit attached	104	9%
Multi-Family, 2 to 9 units	230	21%
Multi-Family, 10 or more units	24	2%
Mobile Home, Trailer, Other	4	0%
Total	**1,098**	**100%**
Tenure and Vacancy		
Owner-Occupied	740	67%
Renter-Occupied	323	29%
Vacant	35	3%
Total	**1,098**	**100%**

Source: 2000 US Census

Two thirds of the housing units in the Town in 2000 were owner-occupied (740 units or 67 percent). Renter-occupied housing accounted for 29 percent of housing units in 2000 (Table 8.1). Approximately three percent of the housing units in Town were vacant. This

[37] Detailed housing data for Boonsboro are only collected as part of the decennial census. As of 2007, the Maryland Department of Planning Estimates that there were approximately 1,390 housing units in Boonsboro.

vacancy rate was very low compared to Washington County (six percent) and the state (eight percent) in 2000.

Issues and Opportunities

More senior housing is needed.

Housing demand varies with age, income, and household size and composition. The age of the Town's population is a good indicator of the type of housing needed to meet demand. Table 8.2 summarizes some of the typical housing demand characteristics associated with various age groups.

Table 8.2: Age Distribution and Housing Demand, 2000

Age (2000 Census)	Residents	Percent	Age Characteristics	Housing Demand Characteristics
Under 5	155	6	Dependents of family starters	Apartments, mobile homes, townhouses, duplexes
5-17	560	20	Dependents of young adults and families	Single-family homes, apartments
18-24	166	6	Young adults and family starters	Apartments, mobile homes, small single-family homes
25-34	295	10	Family starters and middle families	Townhouses, duplexes, single-family homes
35-44	501	18	Middle families	Single-family homes
45-64	569	20	Empty nesters	Townhouses, apartments, single-family homes
Over 64	557	20	Senior citizens	Apartments, small single-family homes, duplexes

Source: 2000 US Census (population data)

As described in Chapter 1, a large proportion of Boonsboro's population is age 65 or older. Excluding the approximately 150 residents of Reeders' Memorial Home, the Town's senior citizen population is still a large component of overall housing demand. In addition, many of the Town's residents will be approaching or entering retirement-age by 2030, and many may wish to "age in place," remaining in Town.

To encourage these residents to stay in Boonsboro, the Town may need to encourage the development of more senior-friendly housing units. As shown in Table 8.2, the housing needs for the elderly population are quite different from those of the rest of the population. Senior citizens are frequently interested in residential unit types with lower maintenance requirements (including landscaping) and easier accessibility. Because many senior citizens are also on fixed incomes, affordability is a concern. Thus the preferred units for senior citizens tend to be single-story houses, condominiums, and apartments.

Some such units exist or are planned in Boonsboro. The Schoolhouse Manor apartments provide subsidized housing for elderly and disabled residents. A portion of the proposed development on Fletcher's Grove annexation parcel will also be restricted to residents

age 55 or older. To address this issue, the Town amended its Zoning Ordinance in 2008 to define and allow "age restricted" (55 or older) housing developments.

Affordable, quality workforce housing is also needed.

The need for affordable, quality workforce housing is an important housing issue facing jurisdictions throughout the country, including Boonsboro. The definition of housing "affordability" is a function of income and the cost of housing. According to the US Department of Housing and Urban Development, "the generally accepted definition of affordability is for a household to pay no more than 30 percent of its annual income on housing."[38] Generally, households spending more than 30 percent of their income on housing are considered to be burdened. That is, the cost of housing leaves insufficient funds for other needs such as food and transportation.

The median household income in the Town of Boonsboro in 1999 was $40,476, approximately the same as the median household income for Washington County, but $12,400 less than the median household income for the State of Maryland. This income differential helps to explain the long commutes that many Boonsboro residents undertake; for many residents, Boonsboro is the nearest "affordable" location to their jobs in Hagerstown, Frederick, and the Baltimore-Washington metropolitan area.

In 2000, 27 percent of owner-occupied households and 38 percent of renter-occupied households spent more than 30 percent of their household income on housing, while approximately 18 percent of owner-occupied households and 29 percent of renter-occupied households spent over 35 percent of household income on housing (Table 8.3). These figures were high compared to the County and the state.

Based on these data, as well as the experience of Town officials, a considerable market exists in Boonsboro (among existing and perspective residents) for affordably priced units. These units would cater to the needs of the working population as well as the elderly population on fixed incomes.

Table 8.3: Monthly Housing Costs as a Percentage of Household Income, 2000

	Owner Households		*Renter Households*	
Jurisdiction	**30% or more**	**35% or more**	**30% or more**	**35% or more**
Boonsboro	27%	18%	38%	29%
Hancock	34%	28%	28%	22%
Smithsburg	30%	16%	32%	23%
Williamsport	18%	18%	28%	21%
Washington County	25%	17%	31%	24%
Maryland	23%	16%	35%	27%

Source: 2000 US Census

No recent study showing the number of existing affordable units in Boonsboro exists. However, the apartments above retail establishments in the downtown, along with the

[38] http://www.hud.gov/offices/cpd/affordablehousing/index.cfm

Town's other apartment, townhouse, and condominium units may already provide a large number of affordable units. Further study could give the Town a detailed picture of its affordable housing supply.

Regardless, it is in the Town's best interest to advocate for additional affordable units in future development. In reviewing development plans, the Town should focus not only on the number of affordable units, but also on their distribution. Ideally, affordable units should be available throughout the Town—not clustered on one street or in one area—and should comprise a variety of unit types, matching the existing diversity of housing unit types already in Boonsboro.

The Town has an opportunity to tap into a higher income housing market.

While affordability is a concern for many area residents, the Town has also seen an influx of new residents with higher salaries moving outward from the Baltimore-Washington metropolitan areas. As mentioned in the Economic Development Element, these residents are often drawn to Boonsboro for its low housing prices relative to communities closer to metropolitan areas, its "commutability" to jobs in these areas, and the Town's historic and aesthetic character.

While the 2009 housing market is currently in decline, it is likely that the market will rebound by 2030, if not earlier. That being the case, developers in the Town may have the opportunity to build housing that would cater to the housing needs of higher income residents. In reviewing development plans, the Town should take into consideration opportunities to attract the widest possible range of incomes.

Policies and Implementation Actions

1. Continue to work with owners of 2006 annexation properties to develop residential units that meet the needs of the Town's growing elderly population. When possible, single story, easily accessible units are desirable to meet this need.

2. Continue to support an appropriate number of age-restricted units, targeted for residents who wish to "age in place" in the Town.

3. Conduct a thorough inventory and analysis of Boonsboro's existing housing stock, to assess the supply and unmet demand for affordable and elderly housing the Town. The inventory should collect information such as the type, age, condition, and current assessed value of all residential units in Town.

4. Strive for a balance in the Town's housing stock, from affordable, workforce housing to higher-value homes, to meet the needs and financial abilities of a broad range of current and prospective residents.

Chapter 9: Sensitive Areas and Mineral Resources Element

Natural features play a fundamental role in determining the most desirable and efficient patterns of land development. They can either provide optimum conditions for development or severely limit it, depending upon their capabilities to support particular kinds of uses. Factors such as basic geological characteristics, slope, depth of the soil to bedrock, and soil qualities all help to determine which areas of the natural environment can be most economically and appropriately adapted to human needs, and which should remain essentially in their natural condition.

The Planning Act of 1992 and subsequent legislation requires each comprehensive plan in Maryland to establish goals and policies related to sensitive environmental areas, specifically addressing:

- Steep slopes,
- Streams, wetlands, and their buffers,
- 100-year floodplains,
- The habitat of threatened or endangered species, and
- Other areas in need of special protection.

This chapter describes the sensitive areas in and around Boonsboro, and, in conjunction with the Water Resources and Land Use chapters of this Plan, further strengthens policies to protect sensitive areas. Map 9.1 shows the sensitive environmental areas in Boonsboro.

The Planning Act also requires that comprehensive plans include a mineral resources element, to identify land to be kept undeveloped until minerals are extracted and to describe measures to prevent preemption of mineral extraction by other uses. This chapter responds to that mandate.

Goal

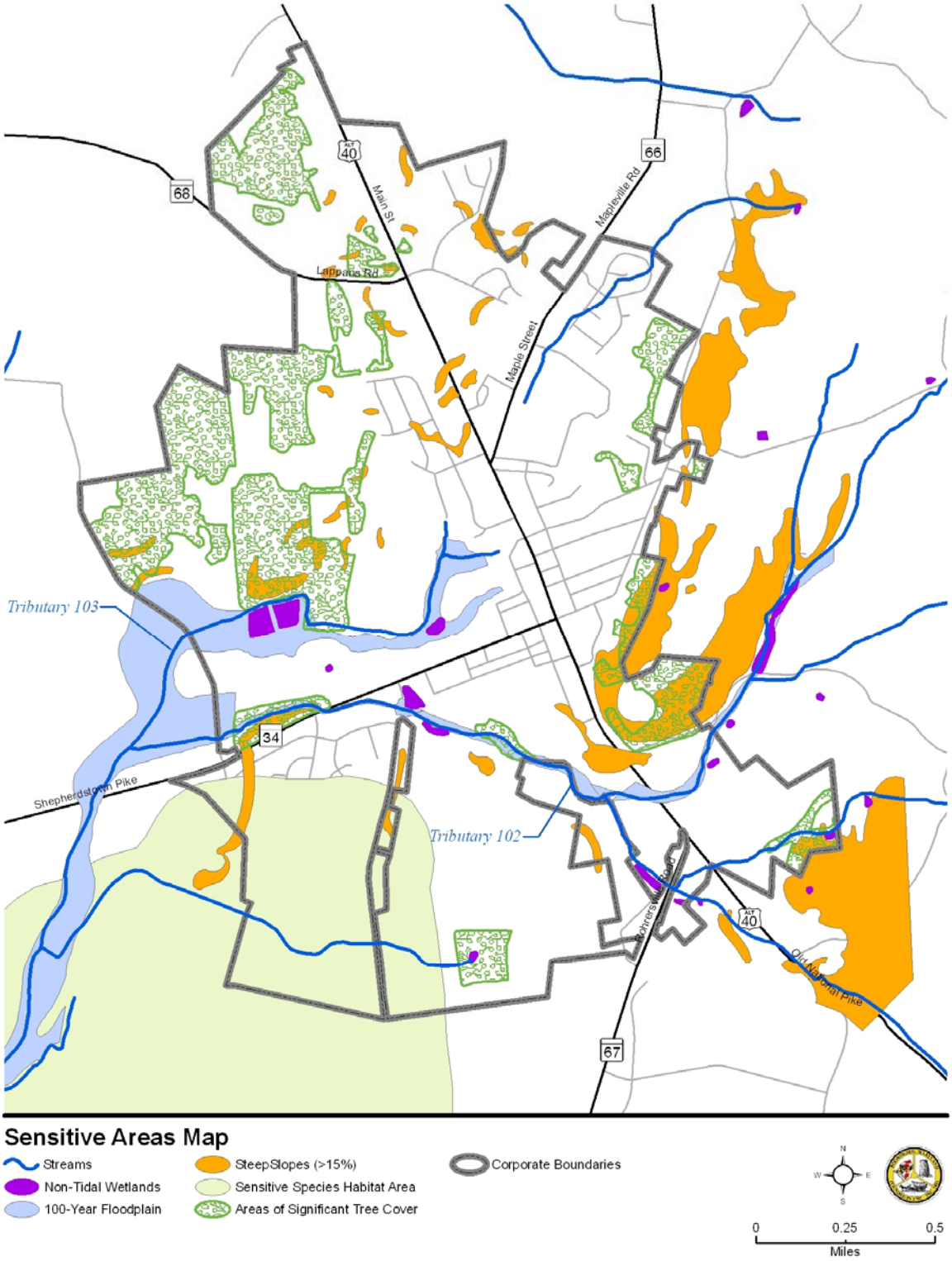
1. Continue to protect the Town's sensitive environmental resources and natural features.

Inventory of Environmentally Sensitive Areas

Streams and their buffers

Maintaining water quality in a stream is critical to the survival of animals and plants that live in and around the stream, and for humans who come in contact with the stream. Each opportunity to improve water quality in an individual stream contributes to water quality improvement in the entire watershed. Thus, local actions to protect water quality can have far-reaching benefits.

Map 9.1: Sensitive Areas



Boonsboro is located at the headwaters of the north branch of Little Antietam Creek. Two minor tributaries to Little Antietam Creek, tributaries Nos. 102 and 103 (see Map 9.1) pass through the Town. These streams are identified on the FEMA Flood Insurance Rate Map (FIRM).[39] Other streams, which are not identified by FEMA, but which are shown on FEMA maps include a pair of streams that traverse Shafer Memorial Park and flow into tributary No. 103, a stream that flows across the King Road property, and tributaries to stream #102 in the vicinity of US Alternate 40.

Stream buffers play a key role in the stream's overall health. A stream buffer can contain various components of the stream's ecosystem such as floodplains, wetlands, steep slopes, erodible soils, forests and vegetation. A buffer's effectiveness depends on its width, the type of vegetation within the buffer and maintenance of the buffer. Stream buffers can help to reduce sediment, nitrogen, phosphorous, and other runoff pollutants by acting as a filter, thus minimizing damage to streams. A buffer can slow the velocity of storm water entering the stream, thus preventing the loss of ground cover and reducing stream bank erosion.

The Town's Subdivision Ordinance regulates development around streams. Under the provisions of that ordinance, buffer width is determined by the Planning Commission, based on slope and other environmental factors. Buffers typically range in width from 24 feet to more than 140 feet on each side of the stream. Buffers must be maintained in a vegetated state, and disturbance of the buffer is generally prohibited.

Wetlands and their buffers

Wetlands are valuable natural resources that provide habitat for plants and animals, maintain water quality (by slowing and collecting sediment and pollutants), act as groundwater recharge areas, protect fisheries, provide habitat and natural corridors for wildlife, and control flooding and erosion.

There are approximately 25 acres of non-tidal wetlands in the Town of Boonsboro, most of which are found along the Town's streams and associated tributaries. Development with the potential to impact wetlands is regulated by the Maryland Department of the Environment (MDE), through the provisions of the Non-Tidal Wetlands Protection Act.[40] Under provisions of the Subdivision Ordinance, stream buffers include all adjacent wetlands.

100-year Floodplains

Floodplains are relatively low, flat areas adjoining rivers, streams, and other bodies of water that are usually naturally-formed, and are subject to partial or complete flooding on a periodic basis. Floodplains are typically described in terms of the frequency of flooding that they experience. The 100-year floodplain is the area that has a one percent chance of being flooded in any given year.

[39] FIRM number 2400710001A

[40] COMAR Title 26, Subtitle 23

The historical reasons for floodplain protection have been to guard against injury to people and to prevent the destruction of property. In addition, relatively undisturbed floodplains serve a variety of natural functions. Floodplains, the products of natural floods, moderate and store floodwaters, absorb wave energies, and reduce erosion and sedimentation.

Safeguarding the many natural functions performed by floodplains benefits adjoining and downstream communities by minimizing the risks associated with the loss of life and property, which may directly affect drinking water supplies and recreational opportunities.

The Town's Floodplain Management Act of 1992 prohibits most development and disturbance in the 100-year floodplain.

Threatened and Endangered Species Habitats

In Maryland, over 200 species of flora and fauna have been documented as being extinguished over the past 350 years. All human caused disappearances in Maryland were related to habitat destruction. According to the Department of Natural Resources, at least one ecosystem, the prairie-like grassland of the Hagerstown Valley, has totally disappeared.

The federal and state governments maintain separate lists and maps of the habitats of rare, threatened, and endangered (RTE) species, including plants and animals. There are 50 state-listed RTE animal species (one of which is also a federally-listed endangered species), and 88 state-listed RTE plant species (two of which are federally-listed endangered species) in Washington County. Based on sensitive species habitat mapping from DNR (as shown on Map 9.1), at least one of those species may have habitat in the southwest corner of Boonsboro.[41]

Steep Slopes

Steep slopes are defined in Boonsboro as all land with a slope greater than 25 percent, as well as land with slopes greater than 15 percent where soils are highly erodible.[42] Steep slopes are inherently unstable land forms that provide an environment for movement of soil and pollutants when land disturbance occurs. While soils have varying degrees of erodibility, all soils are nonetheless subject to movement and increasingly so as the slope of the land increases.

Changes in slope can occur from natural processes such as soil saturation from extreme rain events. However, human activity, such as excessive loading or vibrations from construction activity, filling or dumping, or changes in vegetative covers can also change slopes. Slopes affected by the removal of vegetation can expose soils to repeated erosion and movement from rainfall.

[41] State mapping does not identify the species that may inhabit these habitat areas.

[42] Source: Subdivision Ordinance, section 236.

This soil frequently ends up in streams and watercourses where it can smother vegetation and animal life and cause siltation and flooding. Identification and protection of steep slopes helps the Town of Boonsboro, as well as downstream communities avoid these hazards. It is particularly beneficial to protect slopes within or next to stream buffer areas. Protection can also provide open space and help maintain the local biodiversity found on the slopes.

Much of the land in Boonsboro and the surrounding area is gently rolling. The Town itself rests about 550 feet above sea level; the hill lying behind the Town to the southeast rises to an elevation of about 760 feet.

As shown in Map 9.1, most land in Boonsboro is relatively level for development purposes. The largest concentration of slopes exceeding 15% in Boonsboro are generally found along the eastern boundary of the Town and are associated either with the ridge line running parallel with St. Paul Street, or the upper reaches of tributary No. 102. Other scattered areas of steeply sloped lands can be found in the western part of the Town, associated with tributaries 103 and 102, and in portions of the TT&K property.

Most clearing, grading, and physical development on steep slopes is prohibited by the Subdivision Ordinance.

Wellheads and Springs

The purpose of the protection and preservation of the ground water resource of the community is to insure a future supply of safe and healthful drinking water. This valuable resource is too often taken for granted and is therefore considered a "sensitive area" of great importance. However, the protection of this life-sustaining resource may be the most difficult to achieve.

The Boonsboro/Keedysville Regional Water System's supplies are derived from two springs (one of which is in Keedysville) and two wells. As described in Chapter 4, the Water Resources Element, the soils and geology underlying Boonsboro are particularly permeable, raising concerns that pollution could threaten the region's drinking water.

Forests

Forest cover is a substantial asset to the Town's natural environment. Trees—especially large blocks of contiguous forest—provide habitat for plants and animal species. In built-up areas, such as the central part of Boonsboro, trees provide shade, substantially reduce the surface temperature of underlying streets and sidewalks. In this manner, trees can substantially mitigate the urban heat island effect and resulting thermal stresses on streams. Trees also clean the air of many airborne pollutants. Mature trees create a far more pleasant environment, and thus increase property values. Wooded areas export much lower nitrogen and phosphorus loads than other types of land cover.

The Town's Forest Conservation Ordinance requires developers to conserve existing forest stands, and/or to plant additional trees to ensure forest coverage—typically 15 to 20 percent of the parcel.

Issues and Opportunities for Sensitive Areas

Groundwater sources are vulnerable to pollution.

The protection of source water areas is necessary to avoid damage to sources of public drinking water. Source water protection should consist of the complete prohibition, within close proximity of public water sources, of certain land uses, facilities and activities which involve a reasonable likelihood of discharge of pollutants to surface or ground water.

The Town has received mapping from the Maryland Department of the Environment and model ordinances for the implementation and management of this sensitive area. The development of a listing of principle and special exception uses needs to be finalized along with mapping at a scale with the accuracy needed for an overlay zone to be used in conjunction with the Town's Zoning Map.

To further protect groundwater resources, the Town should update its development regulations to incorporate the provisions of the Maryland Stormwater Design Manual, as revised by MDE to reflect provisions of the Stormwater Management Act of 2007.

Subdivision and zoning ordinances should be updated to ensure protection of environmentally sensitive areas.

The current Boonsboro Floodplain Management Ordinance which prohibits new construction within the 100-year floodplain provides adequate protection of this environmentally sensitive area. The ordinance should be periodically reviewed to insure it continues to meet its intended purpose. It should also be noted that the Town's Forest Conservation Ordinance and Federal wetland regulations are part of any development review procedure. These land use regulations often provide additional protection for floodplain areas.

Strict compliance to the Forest Conservation Ordinance, sediment and erosion control measures, and stream buffer regulations can avoid most development-related adverse environmental impacts to watercourses. The Town should continue to require developers to integrate sensitive environmental features into their plans in a way that these features are protected and established as common, open areas when applicable.

Mineral Resources

The Boonsboro area rests over extensive deposits of limestone, which is used as an ingredient in the production of steel. The only active mineral extraction activity in the Boonsboro area is the Martin-Marietta Aggregates mine, located approximately one mile northeast of Town. In the past, United States Steel owned large parcels in the Boonsboro-Keedysville area, ostensibly for possible use for mining operations. However, US Steel has sold many of these parcels, and no longer owns land in the immediate vicinity of the Town. The Maryland Geological Survey speculates that the

limestone resources there are not of adequate grade for use in modern steel making. MGS is not aware of any other extractable materials in the immediate Boonsboro area.[43]

Policies and Implementation Actions

1. Identify source water protection areas, and amend the Town's development ordinances to establish source water protection buffers (see Chapter 4). These revised development regulations should prohibit development in the source water protection area that is reasonably likely to discharge pollutants to surface and ground water.

2. Amend the Town's Stormwater Management Ordinance to Adopt the Maryland Stormwater Design Manual, as revised by MDE to reflect provisions of the Stormwater Management Act of 2007.

3. Periodically review the Zoning, Subdivision, Forest Conservation, and other development ordinances to ensure that they provide adequate protection for the Town's sensitive environmental features.

[43] This reference retained from the 1997 Comprehensive Plan.

Town of Boonsboro, Maryland

2009 COMPREHENSIVE PLAN

Appendix

Municipal Growth Element Appendix

Determination of Maximum Zoned Density

Zoning District	*Minimum Lot Size Per Dwelling Unit (Square Feet)*					Maximum Density (DU/acre)
	Single-Family detached	Two-Family	Townhouse	Apartment	Condominium	
RR	29,000	N/A	N/A	N/A	N/A	1.5
SR	15,000	N/A	N/A	N/A	N/A	2.9
TR	10,000	9,000	4,000	3,600	3,600	12.1
TC	5,000	5,000	3,000	3,600	3,000	14.5
MR	N/A	N/A	4,000	3,600	3,600	12.1

Water Resources Element Appendix

Physiographic Location

In geologic terms, the Town of Boonsboro is located in the eastern-most edge of the Blue Ridge and Valley Province, a part of the Appalachian Highlands. The Blue Ridge Province (including South Mountain, Elk Ridge and their foothills) lies to the east. The division between these two provinces is somewhat arbitrarily set at the line separating the Tomstown and Antietam geologic formations; this line occurs immediately east of, and approximately parallel to, Boonsboro Mountain Road and St. Paul Street extended. Except for a very small area below Mousetown Road, all of the Town lies within the Hagerstown Valley while the hill overlooking the Town is part of the Blue Ridge Province.

Soils

Although topography does not seriously limit development in Boonsboro and its environs, soil conditions have a potentially more significant effect. This analysis examines three: wetness and flooding, shallowness, and sewage disposal/groundwater.

Alluvial Soils

Because alluvial soils have often been deposited by past flooding, areas featuring such soils are likely candidates for flooding in the future. Such soils are generally located immediately adjacent or within existing 100 year floodplain boundaries of the two unnamed tributaries and are often wet and have a seasonably high water table. These factors all combine to restrict development.

Within the pre-2007 Town boundaries the principal area with serious soil limitations occurs along the north branch of the Little Antietam. This soil (Lindside silt loam) covers much of the open land along the north side of MD 34 in the vicinity of King Road. North of MD 34, it extends the entire distance northward (about 600 feet) to the next low ridge; south of MD 34, this soil occupies a band about 300 feet wide along the creek.

Approximately at Monroe Road, the floodplain along the north branch of the Little Antietam loses its high water table characteristic and the soil is re-classified as "Huntington silt loam." Although this soil is similar to the Lindside and was deposited originally by floods, it is probable that the area is not now subject to very frequent or prolonged flooding. Because the Huntington is also a deep and well-drained soil, it is thus rated excellent for most kinds of farming, but its suitability for development sites is still questionable because of potential flood problems.

The floodplain area of Huntington silt loam extends along the north branch's northern tributary, past (and including) the area of Boonsboro's sewage lagoons. Part of Shafer Memorial Park lies in an area of Huntington soil; much of the southeastern part of the Park is in the Lindside soil area. Another band of soil with both high water table and flooding characteristics extends along the upper reaches of tributary No. 102 running in a north-to-south direction east of town.

As more development occurs on land upstream which drains into these watercourses around Boonsboro, these flood-prone areas will likely become even more unsuitable as building sites because of an increased potential for flooding. These alluvial soils serve a vital natural function in absorbing storm water runoff.

Shallow Soils

The soils that are very shallow over bedrock are generally found along Monroe Road and the northern tributary of the Little Antietam Creek north branch. Soil here is both shallow and moderately eroded. It would present further erosion hazard if the soil is further disturbed. Most of the area containing the Town Farm and TT&K properties contains soils with irregular depth ranging from zero to seven feet to bedrock. This highly variable depth makes it necessary to conduct detailed studies to determine those soils' suitability for development and/or land application of treated effluent.

The north end of town contains shallow soils associated with moderate slopes along US 40A. Overall the northern part of the Town contains generally deep, relatively level, and well-drained soil.

Soil Percolation and Related Factors

The Tomstown Formation is one of the most productive aquifers in the County. Yet the rock is generally beset by cracks and underground channels that make this groundwater extremely vulnerable to pollution from septic systems, agricultural wastes, and fertilizers. Septic systems are a particular threat because the cracks in the limestone allow effluent to percolate too rapidly and reach the underground water before it has been cleansed by the action of the bacteria in the soil.

These geologic conditions have potentially serious consequences in the case of Boonsboro because the water supplies in Town and at Keedysville are fed by the groundwater around Boonsboro. Additionally, the Town has established a well near Graystone Hills subdivision, and currently a residential developer and the Town are in the process of establishing a well at the Crestview subdivision. Pollution in the groundwater here would seriously affect Town efforts to meet its existing and future water needs by putting these wells at risk.

While the exact nature of the specific dolomite around Boonsboro is not known, the Maryland Geological Survey, in its Bulletin 24, states that the local Tomstown Dolomite "is probably highly fractured and probably contains many underground solution channels" in the territory near its contact with the Antietam Formation east of Town. The County Health Department has found well pollution in areas around Boonsboro suggesting that water resources are indeed vulnerable. County Health has strongly warned against the proliferation of wells and septic systems near Boonsboro, recommending instead that new development be served by public water and sewerage. The Town's and the Boonsboro Municipal Utilities Commission's policy requires all new construction to be served by public utilities. In addition, a major impetus for the Mayor and Council's willingness to adopt in conjunction with the County Commissioners a

Town Growth Area designation was that future growth in the Boonsboro area be served by public utilities.

Geology

With the exception of the eastern part of Town, as noted above, Boonsboro is underlain by bedrock of the Tomstown Dolomite Formation. It is very hard rock composed of yellowish dolomite interbedded with massive white limestone strata some of which have been recrystallized to marble. The Formation also is cavernous in various places most notably at Crystal Grottoes, Maryland's only commercial caverns. The dolomite strata occur both as massive layers and as thin-bedded, often-shaly dolomitic layers. Obviously, excavation through such bedrock could be difficult or costly.

Immediately east of the Tomstown dolomite lies the Antietam quartzite Formation, an older and even harder rock than the dolomite. It is composed of coarse-grained quartzite and sandstone. Because it is relatively more weather-resistent, the quartzite formation has remained while the comparatively softer limestone and dolomite have eroded to lower elevation. The Antietam Formation thus outcrops as very steep, rock-strewn hills (such as the one immediately east of Boonsboro) that are ill-suited for farms or home sites.

Nonpoint Source Modeling Methodology

In conjunction with Models and Guidelines 26, the official guidance for preparing the Water Resources Element, MDE developed a spreadsheet-based model to calculate existing and projected future nitrogen and phosphorus loads from nonpoint sources (e.g., runoff and septic systems), based on land use (specifically, GIS layers showing existing and projected future land use).

The County used MDE's model is the basis for the Nonpoint Source Loading portion of the 2009 Comprehensive Plan's Water Resources Element. The inputs for this model, and the Town's modifications to the model (which were made to reflect local conditions, and did not alter the model's overall methodology) are described in this section. A digital version of the spreadsheet model is available from the Department of Planning and Zoning upon request (the spreadsheets themselves are difficult to reproduce in print form).

Loading Rates

The Town's consultant, Environmental Resources Management, discovered a discrepancy in the MDE Nonpoint Source model, in which the nutrient loading rates for the impervious and pervious portions of each Land Use/Land Cover type appear to be reversed, with higher loading rates for pervious areas than for impervious areas.[44] After consultation with, and upon the advice of MDE, the consultant used a revised version of the NPS model, in which the pervious and impervious loading rates were reversed.

[44] For example, the MDE model shows that the *impervious* portion of Deciduous Forest areas (LULC code 41) generate no nutrient loading, but that the *pervious* portion (the area that should normally absorb rainfall) generates 2.01 lbs/acre/year.

Base Year Land Use

Base year land use data were developed by adjusting MDP's 2002 LU/LC GIS layer to reflect subdivisions and major commercial activity that existed as of the end of 2007.[45]

Future Year (2030) Land Use

Year 2030 land use data were developed by modifying the Base Year shapefile (e.g., an improvised Year 2007 Land Use/Land Cover dataset) to reflect "pipeline" development (projects with approved plats) and projected residential and non-residential development. Projected development (845 residential units and approximately 280 EDU of commercial development) was allocated to the following ways:

- It was assumed that approximately 10 percent of new development would be infill—new units or businesses in areas already identified as being developed in the LU/LC layer.

- The remaining projected residential development (approximately 760 units) was assumed to develop at a density of 3.5 units per gross acre, corresponding to new Medium Density Residential land (LU/LC category 12).

- The remaining projected nonresidential development (190 EDU) included as Commercial (LU/LC category 14). The 190 new EDU at 250 gpd per EDU equals 47,500 gpd for all new commercial development. Assuming that commercial development would use 1,300 gpd per acre of development (per *Models and Guidelines 26*, MDE's official guidance on the Water Resources Element), this would equate to approximately 36.5 acres of new commercial development.

- It was assumed that new development (other than infill) would avoid forested areas (LU/LC categories 41-45), or would mitigate to ensure that no net loss of forest occurred. New development would instead displace agriculture or pasture (LU/LC categories 21 and 22).

[45] MDP's 2007 Land Use/Land Cover dataset for Washington County was not available at the time of publication of this document.

Transportation Element Appendix

Functional Classification System

Planning for street improvements and future street construction depends on a proper classification system for thoroughfares. Such a system accomplishes several major purposes:

- Identifying those major thoroughfares which carry the heaviest traffic will help the Town allocate its financial resources for the repair/upkeep of roads which bear the heaviest traffic burden. Also, future residential streets can be designed to funnel traffic onto those major arteries once they are identified and classified.

- This system permits minimum standards for right-of-way width, number of lanes, paving width and parking to be consistent with the function of each street. Also, these standards are the basis for road specifications and requirements as established in the subdivision regulations and play an essential part in planning efforts to ensure that an adequate street system is provided to residents in newly-developing areas. This is particularly important given the extensive new development expected in Boonsboro.

Major road classifications and standards applicable to the Town are based upon the Washington County Highway Plan and the Boonsboro Comprehensive Plan recommendations are as follows:

Arterials

Arterial highways carry large volumes of regional and interstate traffic and link heavily populated urban nodes. In the Boonsboro area, I-70 is a major arterial carrying interstate and statewide traffic. Maryland Routes 34, 66, 67 and 68, along with US Alternate 40, now serve as minor arterials beyond the Town limits. Their function will remain that of carrying intra-regional traffic between population centers.

Collectors

Major collector streets are designed to carry relatively high traffic volumes to the arterials. Such collectors often provide access to major uses such as industrial, commercial and residential within a town or county.

Minor collectors carry traffic within communities, distributing it from local streets to major collectors and arterials. Minor collectors in Boonsboro are Orchard Drive\St. Paul Street\Boonsboro Mountain Road, Stouffer Avenue and King Road.

Local Streets

These thoroughfares lie entirely within the Town and consist of local residential streets which connect the abutting development to the collector and arterial thoroughfares.

Street Design Standards by Functional Classification

	LOCAL	MINOR COLLECTOR	MAJOR COLLECTOR	MINOR ARTERIAL	PRINCIPAL ARTERIAL
Jurisdiction	Town	Town or County	Town or County	State or County	State
Right-Of-Way (feet)	50	60	80	100	150-300
Number of Lanes	2	2	2-4	2-4	4
Paving (feet)	36	38-42	40-46	44-50	Minimum 48, plus shoulders and median
Parking	Both sides	Discouraged, prohibition desirable	Discouraged, prohibition desirable	Discouraged, prohibition desirable	Not permitted
Access	Unrestricted	Minimum 100' distance between property access points. Minimum 250' between public street access points.	Minimum 300' distance between all new access points.	Minimum 500' distance between all new access points.	No direct property access. Grade separated interchanges only.

SOURCES: Washington County Highway Plan and the Town of Boonsboro.