

# KEEDYSVILLE COMPREHENSIVE PLAN MUNICIPAL GROWTH ELEMENT

## INTRODUCTION

The Municipal Growth Element begins with past and future population and housing demographics to provide the data necessary for analysis of impacts to facilities in Keedysville or land areas adjacent to Town precipitated by population growth. It will help to analyze any shortages in housing, the need for higher density in residential districts that is compliant with smart growth principals in future years, and the probability of annexation of land outside of the Town boundaries. The demographics used in this chapter will be carried over to the Water Resources Element for analysis of water and sewerage facilities.

Although at times the chapter may seem repetitive of other elements in the Comprehensive Plan, it is intended to take sections from each element that pertains to forecasting municipal growth and the required services and place them in one chapter that can stand alone from the entire Comprehensive Plan. Additionally, the Municipal Growth Element should be a specific element that addresses growth connected with all elements that result in expansion and are impacted with increased population of the town and surrounding future annexable parcels.

## PAST POPULATION

As shown in Table MG-1, Keedysville has shown a modest growth between 1930 and 2000 with the highest growth in the 1980s. The data in Table MG-1 is taken from actual census data. Percentage of change by decade is shown. All decades have the percent of change that is relatively modest; however, there has been an increase of seven percent between 1990 and 2000. This is the beginning of an increase of steady growth during the decade of the 2000s.

**Population: 1930-2000 and Percent of Change<sup>1</sup>**  
**Table MG-1**

| Year | Population | Percent of Change by Decade |
|------|------------|-----------------------------|
| 1930 | 393        | -                           |
| 1940 | 404        | 3 %                         |
| 1950 | 417        | 3 %                         |
| 1960 | 433        | 4 %                         |
| 1970 | 431        | 0 %                         |
| 1980 | 476        | 10 %                        |
| 1990 | 464        | -3 %                        |
| 2000 | 507        | 8 %                         |

<sup>1</sup> Census data for years 1930 through 2,000: US Census Bureau.  
Summarized By ARRO Consulting, Inc.

## FUTURE POPULATION AND HOUSING FORECASTING

This section includes trends that identify expected future yearly population projections, and assesses implications of expected future population trends for purposes related to accommodating community planning in the next twenty years. It places an emphasis on expected housing needs, water and sewer availability, and possible growth of community services.

As referenced in the Introduction chapter, Keedysville is a bedroom community that consists of residents who travel to work each day to jobs in Washington, Frederick, Montgomery, and other jurisdictions.

Population size serves as the benchmark for planning the physical needs of a community. It is one component for estimating overall land and facility needs. Analyzing the characteristics of the population assists the Mayor, Council, Planning Commission, and Board of Appeals in making informed decisions regarding the needs and service demands of the present population.

Although population projections are less than precise, they provide the basis for estimating housing and infrastructure impact and demand; and, an analysis of population relative to jobs and journey to work forecasting can be helpful to establish the need for businesses in town to serve the daily needs of residents. The population in Town is important to the types of services and retail establishments that can be supported in Keedysville and in areas in close proximity. The Municipal Element looks at these factors so as future population growth takes place, the appropriate infrastructure, services, and housing will be available to the Town.

Review of Census data for Keedysville and selected jurisdictions for comparison has helped to establish the growth rate for the Town. Keedysville had an average annual growth rate of approximately 9.8 percent between the years of 2000 and 2007.

**Estimated Population for Keedysville and Selected Jurisdictions  
2000-2007  
Table MG-2**

| Jurisdiction             | 2007      | 2006      | 2005      | 2004      | 2003      | 2002      | 2001      | 2000      | 2000-2007<br>Percent<br>Change |
|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------------------------|
| Maryland <sup>1</sup>    | 5,618,344 | 5,602,017 | 5,573,163 | 5,537,662 | 5,494,136 | 5,433,822 | 5,374,956 | 5,310,916 | 6.1 %                          |
| Washington<br>County     | 145,113   | 143,334   | 141,252   | 138,816   | 136,411   | 134,607   | 133,008   | 132,102   | 10.0 %                         |
| Keedysville <sup>1</sup> | 840       | 812       | 826       | 688       | 591       | 568       | 544       | 507       | 68.7                           |
| Boonsboro                | 3,379     | 3,326     | 3,053     | 3,060     | 2,919     | 2,881     | 2,880     | 2,885     | 17.0 %                         |
| Sharpsburg               | 662       | 663       | 671       | 672       | 673       | 679       | 684       | 689       | -4.2 %                         |

<sup>1</sup> Prepared by the Maryland Department of Planning, Planning Data Services

<sup>2</sup> Sources: U.S. Census Bureau, Population Division. Release Date: July 10, 2008

It is likely that the growth the Town has experienced in the last ten years will not continue until the housing market and general state of the economy improves. The growth that the Town experienced in 2000 to 2007 is a result of annexation into the Town to build a single family subdivision that would have public water and sewer. In addition, there will be competition for water taps from Boonsboro due to the town's acceptance of being designated as a Town Growth area. The County's Adequate Facilities Ordinance may be a factor in limiting additional growth until services are provided.

**Washington County Historical and Projected Household Size  
1980-2030  
Table MG-3**

| 1980 | 1990 | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|------|------|------|------|------|------|------|------|------|
| 2.70 | 2.53 | 2.46 | 2.43 | 2.43 | 2.41 | 2.38 | 2.36 | 2.34 |

Prepared by Maryland Department of Planning, Planning Data Services, December 2008.

For reference, Table MG-3 shows the most recent projections of household size for Washington County. This data is not available at a town level and would not be available until the next decennial census. Town officials believe that the 2.80 number represents the average household size in Keedysville. Therefore the Town's historical family size will be used instead of the projections shown in the County data for analysis in the Municipal Growth Element.

Table MG-4 shows population projected from 2000 to 2030. Projection in the year 2030 predicts a raise in population of 993 persons and 356 households. These numbers have been used for forecasting of the Community Facilities and Water Resources Element. Of course the national economy will affect population growth in the Town since there are not an abundance of jobs here and there is a higher cost to commute long distances to work. Many may be reluctant to invest in remodeling a home or a developer may want to wait to begin a project until the economy and the housing market improves.

**Projected Population and Household Projections  
2000-2030  
Table MG-4**

| <b>Year</b> | <b>Keedysville<br/><sup>1</sup> Population</b> | <b>Population<br/>Change</b> | <b>Households</b> | <b>Household<br/>Change<br/>Yearly</b> |
|-------------|--|------------------------------|-------------------|--|
| <b>2000</b> | 507  | -                            | 204               | -                                      |
| <b>2005</b> | 826  | 63 %                         | 298               | 46 %                                   |
| <b>2010</b> | 1191   | 47%                          | 430               | 44 %                                   |
| <b>2015</b> | 1287   | 8 %                          | 468               | 9%                                     |
| <b>2020</b> | 1382   | 7%                           | 508               | 8.5 %                                  |
| <b>2025</b> | 1439   | 4%                           | 533               | 5 %                                    |
| <b>2030</b> | <b>1500</b>                                    | <b>4 %</b>                   | <b>560</b>        | <b>5 %</b>                             |

Prepared by ARRO Consulting, INC.

Population and household projections for 2010 are based on the historical growth rate from 2000 to 2007 and existing Town records of dwelling units. The 2007 population from Table MG-2 is 840 and the 2009 population is 1,124 based on Town records. The 2010 population of 1,191 is projected based on the 2000-2007 growth rate. Growth from 2010 to 2020 is based on the build out of 78 approved lots already in the pipeline as of 2009. Growth from 2020 and 2030 are based on a minimal 1 percent growth rate per year.

When looking at population and household projections, it should be recognized that projections for small towns with a relatively small number of residents often leads to a possibility of large percentage errors. In addition, fluctuating household size and vacancy rates, and uncertainty about group quarters population, often make the link between population and households difficult to determine several decades into the future. Numbers can be verified and corrected with publication of the 2010 census.

**PAST GROWTH PATTERNS**

At one time in its earlier history, Keedysville had a variety of industrial and commercial enterprises clustered along Main Street. Grist and flour mills were the most significant feature of the local economy and the Town's residential housing was primarily located along Main Street. As prosperous farmers continued to patronize local businesses, Keedysville continued to grow in the early twentieth century. Keedysville had a number of small commercial businesses, a newspaper, a hotel, and doctors' offices during this period, and the northern section of Town was developed. Commercial buildings in the older sections of Town received new storefronts during this period. The railroad ceased operation in Keedysville in 1953 and in the 1950s a post office was constructed on the corner of Coffman Farm Road and Main Street. Later in the twentieth

century a bypass was constructed to carry traffic on Maryland Route 34 around Keedysville. Late twentieth century single family residential subdivisions have been constructed north of Keedysville between the Main Street and the bypass and along the eastern edge of Town. In 1993, a survey identified a historic preservation district encompassing most of the structures fronting along Main Street and the district was listed on the National Register of Historic Places.

During the late 1990s, there was an increase of single family residential development with annexation of the subdivision known as Rockingham. In 1997, the existing Comprehensive Plan was approved. Since that time Stonecrest and Cannon Ridge were additional single family subdivisions that were approved. An additional annexation of the Milburn property in 2003 resulted in the approval of a 61 single family residential development. Two Rural Legacy designated parcels have small portions of their acreage in Town with the majority of the property in the County adjacent to the southern Keedysville boundary. Approximately 11 acres are located in Town from the Burtner farm and about 11 acres are from the Flook farm. Both properties have frontage on the Little Antietam Creek and have important historical significance.

The 1997 Comprehensive Plan's existing Land Use Map depicts the Town of Keedysville as being a predominantly single family residential community. Many of the vacant parcels that were shown on that map are now areas built upon with single family dwelling units or having approvals or infrastructure on the parcels that are proposed for single family development. Some Public/Semi Public parcels and a few commercially designated parcels are shown primarily along Main Street and on the Keedysville bypass road; also known as Maryland Route 34.

The 2005 Washington County Comprehensive Plan identified Keedysville as an incorporated Town; however, multiple acres to the north, south, and west of Town are designated as Rural Residential with Rural Residential Cluster inclusions. As stated in the Introduction Chapter, there is approximately three miles between Keedysville's eastern boundary and the Town Growth Area boundary of Boonsboro which is the most likely area that will create development pressure that may threaten Keedysville's rural, small town characteristics. Areas to the north and east of the Town may be considered areas of future annexation.

A special quality of Keedysville is its close proximity to the Antietam National Battlefield. This major historical landmark has resulted in Keedysville and the County land around it to be designated in the 2005 Comprehensive Plan as a Rural Residential area; within a Special Program area; and locates Keedysville in close proximity to areas designated as a Permanent Protection area that is placed on the battlefield and on the Rural Legacy areas on their southern boundary.

There have been a number of changes to the town since approval of the 1997 Plan. This trend has continued because of the desire to have single family residential development in Town which is demonstrated by several housing developments that are in various stages of development occurring on land that was deemed vacant in 1997. The annexed property located where Cannon Ridge subdivision was built now provides 86 single family homes to new residents.

In September 2003 a property north of Maryland Route 34 was annexed into town for a single family residential development; however, due to the poor national economy the developer has asked to have his approved preliminary plan extended for a period of one year which was approved by the Planning Commission in early 2009. This trend in single family residential housing has been continuing since adoption of the last Comprehensive Plan and is expected to continue into this planning period.

The State of Maryland has designated the town as a Priority Funding Area which is shown on the 2002 Washington County Comprehensive Map.

## **EXISTING AND FUTURE LAND USE**

The 1997 Comprehensive Plan lists the following land uses on the Future Land Use Map.

|                            |                        |
|----------------------------|------------------------|
| Single Family Residential  | Two Family Residential |
| Multi-family Residential   | Commercial             |
| Public/Semi Public         | Agricultural           |
| Vacant                     | Conservation           |
| Stormwater Management      | Sensitive Areas        |
| Potential Annexation Areas |                        |

After analysis of the existing land use classifications, it was determined that some nomenclature and characteristics of these land uses needed to be revamped since some are very specific and are generally not used for future land use designations such as Stormwater Management and Vacant land. In addition, some of the classifications do not correspond well with the Zoning Ordinance. The update of this Comprehensive Plan will help to bring the two documents more in conformance with each other and will add additional land use classifications that may expand the Zoning Ordinance's designations some time in the future.

When creating Table MG-5, the land uses that correspond to the Zoning Ordinance are listed. Although there are approximately 22 acres of agricultural land in Town that are protected by Rural Legacy easements, there is no additional agricultural activity in Town thereby making the Agricultural designation unnecessary. In addition, an agricultural classification is contradictory to the Smart Growth concept adopted by the State, County, and Town. However, the Rural Legacy area designation will protect the two small pieces of land that cross the southern boundary of the Town. The Conservation designation that will be shown on the Future Land Use map would include sensitive and environmental areas. Table MG-5 shows the Town's land uses and their corresponding Zoning districts currently adopted in the Zoning Ordinance. The Residential, Commercial, and Mixed use zoning designations are compatible and may still be used within the Proposed Land Use Map.

**Existing Zoning and Land Uses  
Table MG-5**

| Land Use Type                          | Corresponding Zoning District                |
|--|--|
| <b>Residential: Low Density</b>        | <b>Suburban Residential District (SR)</b>    |
| <b>Residential: Medium Density</b>     | <b>Town Residential District (TR)</b>        |
| <b>Commercial: Neighborhood</b>        | <b>Neighborhood Commercial (NC)</b>          |
| <b>Traditional Neighborhood Design</b> | <b>Traditional Neighborhood Design (TND)</b> |

Prepared by ARRO Consulting, Inc.

Table MG-6 contains the existing land use designations and the current zoning in Town and a brief definition of the function of each. After analysis of the existing zoning classifications, it was determined that the nomenclature and characteristics of the current zoning districts needed to be revamped to define density, intensity, and the general types of uses that are permitted in each district and the TND overlay zone. This change should be reflected in the Zoning Ordinance during the next up date of that ordinance.

Since the Town has some areas with small lots, the compatibility of uses is of importance. The Zoning Ordinance should be revised as the population grows and higher densities are requested for approval. Zoning regulations such as buffer yards, screening, impervious surface ratios, and landscaping requirements should be reevaluated to be sure different adjacent land uses with higher intensity can be compatible. The Planning Commission's evaluation of compatibility and mitigation of any negative land use should take place during development review of future projects.

Compatibility issues, also, can be addressed by such instruments as Town Ordinances that address noise issues, adoption of design guidelines which gives guidance concerning location and design of trash enclosures, street amenities, signage regulations, and other infrastructure.

**Land Uses Allowed in Existing Zoning Districts and Comprehensive Plan Designations  
Table<sup>1</sup> MG-6**

| Zoning Classification  | Definition   |
|--|--|
| Residential : Low Density;<br>Suburban Residential District (SR) | Intended to preserve and protect the primarily single-family detached residential character of the district and to keep these areas free from the land uses that are incompatible with and/or might adversely affect these single-family neighborhoods. Development is permitted at a moderate density. Maximum density is 2.4 dwelling units per acre.  |
| Residential: Medium Density;<br>Town Residential (TR)            | Intended for continuation of the Town's downtown area which contains a mix of residential, commercial, and public service uses. It provides for development of a pleasant living environment with multiple housing types, parks, and other commercial low impact land uses that complement residential and services that are compatible with residential use and provide daily needs of the residents. Maximum density is 4.36 dwellings per acres which meets the Smart Growth requirement. |
| Commercial;<br>Neighborhood Commercial District                  | Intended to provide establishment of commercial services, shopping, professional offices, civic buildings, general office uses, and other services that may be permitted in Town Residential   |

<sup>1</sup>Table has been prepared using the 1997 Keedysville Comprehensive Plan and Zoning Ordinance.

In addition to the three land use designations that Keedysville currently uses, there are two overlay districts that are included in the Zoning Ordinance that should be included in this Comprehensive Plan. They are Traditional Neighborhood Design (TND) and Historic District.

The Traditional Neighborhood Design Overlay (TND) may be placed on a property with approval of the Planning Commission. It provides for more flexible standards in the development of a mixed-use project that may include a residential single family, multi-family, and limited neighborhood commercial much like the downtown district. The TND density of four units per acre and up to a maximum density of twelve units per acre can be modified by the Planning Commission based on the determination that the proposed development achieves excellence in site design, architecture, and other amenities.

Table MG-7 identifies the proposed land use categories, recommended densities and uses. Table MG-8 provides the land use by area for the various land use categories.



**Future Land Use Classifications  
Table MG-7**

| Land Use   | Recommended Density               | Recommended Uses   |
|--|-----------------------------------|--|
| Neighborhood Commercial                            | Variable                          | Retail and office uses within or in close proximity to residential areas that provide residents pedestrian access to essential and convenience services needed on a daily basis.   |
| Residential, Low Density                           | 3.5 to 8 DU/AC                    | Single-family, detached, attached, and multi-family, and residential accessory uses. Neighborhood-serving retail and services provided that land uses are compatible with and do not adversely affect residential neighborhoods.                     |
| Residential, Medium Density                        | 9 to 12 DU/AC                     | Single-family, detached, attached, and multi-family, and residential accessory uses. Neighborhood-serving retail and services provided that land uses are compatible with and do not adversely affect residential neighborhoods.                     |
| Residential, Traditional Neighborhood Design (TND) | Overlay District<br>4 to 12 DU/AC | The Planning Commission may modify the density of a TND based on such elements as excellence of design, excessive landscaping and open space, recreational land, and architectural design.   |
| Recreation and Parkland                            | N/A                               | Lands and facilities generally owned and operated by the Town or other level of government for the purpose of recreation or public open space.   |
| Conservation and Sensitive Areas                   | N/A                               | Publicly or Privately owned environmentally sensitive areas including steep slopes, non-tidal wetlands, floodplains, and endangered species.   |
| Historic District Overlay                          | 9-12 DU/AC                        | The Historic District follows the underlying zoning since it is an overlay district. In this case it will follow the Medium Density Residential Comprehensive Plan designation which would be equated to the Town Residential Zoning Classification. |
| Rural Legacy Designated / Agriculture              | N/A                               | Land Uses will remain as they were at the time of placing the Rural Legacy easement on the property.   |

Prepared by ARRO Consulting, Inc.

The Proposed Land Use Map shows Keedysville as it is today with only a few differences: additional land in adjacent Washington County has been included to show future possible annexation areas and vacant land that has been annexed; but, is not yet under construction.

**Proposed Land Use Classifications<sup>1</sup>**  
**Table MG-8**

| Land Use                      | Acreage       | Percent      |
|-------------------------------|---------------|--------------|
| Neighborhood Commercial       | 6.37          | 1 %          |
| Residential Low Density       | 392.28        | 73 %         |
| Residential Medium Density    | 98.89         | 18 %         |
| Parkland and Recreation       | 10.08         | 2 %          |
| Conservation                  | 11.37         | 2%           |
| Rural Legacy/<br>Agricultural | 20.08         | 4 %          |
| <b>Total Town Area</b>        | <b>539.07</b> | <b>100 %</b> |
| Historic Overlay District     | 96.77         | 18 %         |
| <b>Total Town Area</b>        | <b>539.15</b> | <b>100 %</b> |

<sup>1</sup> The Right of Way for Md. Route 34 is not included in this calculation. Prepared by ARRO Consulting, Inc. from the Proposed Land Use Map.

**DEVELOPMENT CAPACITY ANALYSIS**

**Population/ Housing Analysis**

The development capacity analysis is the basis for determining whether existing developable land will accommodate future population growth or whether redevelopment of parcels with higher density, development on existing vacant land, adaptive reuse of structures, or annexation is required. This is one function of the Municipal Growth Element that is mandated to appear in the Comprehensive Plan by State law. This analysis is important because it helps to determine if there is an adequate balance between land supply, demand, services, and infrastructure.

During preparation of this Comprehensive Plan, the possibility of annexation of adjacent land areas was analyzed and it appears that there is 68.88 acres of land that are in the process or have expressed interest in annexation in the past.

It is prudent for the Town to encourage infill development that can improve the quality of the historic part of Town. Infill development is in keeping with Smart Growth and is urged by the State as an efficient method of development because the infrastructure is already present at potential development sites. However, it is important when reviewing projects that infill development be designed to be attractive and compatible with the existing development in the community. Some small lots in Town may need to be consolidated. Incentives may be necessary

for redevelopment or adaptive reuse of existing structures to increase density in the later part of the planning period. In addition, the Town will need to acquire additional sewer and water taps to increase density.

Population projections show that between 2010 and 2030 an additional 309 residents will need housing which will require approximately 130 dwelling units. There are 78 single family dwelling units approved by the Town but have not been built upon and additional 52 dwelling units will be needed for the remaining population. Additional land for dwelling units are expected to occur in the Medium Density Residential land located in the vicinity of downtown which is located mostly along Main Street. Redevelopment of this land is not expected to occur until year 2020 due to the number of water taps available to the Town. The Maryland Department of the Environment has indicated that due to restrictions on withdrawal from the spring's aquifer, approximately 100 additional taps may be allowed for the Town use. This will not be sufficient to support the growth projected to 2030. An additional 37,210 GPD of water supply will be needed between 2009 and 2030. Restrictions on the water supply may be an impediment to the projected growth rate beyond year 2020 if additional water supply cannot be achieved. The Town may, also, be able to increase water supply by reducing the unaccounted water loss. Aside from a new 61 unit development planned on the opposite side of Maryland Route 34 and 21 undeveloped lots in existing Stonecrest subdivision, the Towns' future growth is expected to result from infill, redevelopment and higher densities. In addition there is a possibility of annexation, if additional water taps can be achieved to support additional development. Table MG-9 below clarifies future population and household projections in 5-year increments between 2000 and 2030.

**Development Capacity Analysis  
Table MG-9**

| Year | Population | Households | Projected from Infill/Redevelopment |           | Projected from approved lots within Town |           | Projected from Annexations |           | Acreage in Town (acres) | Remarks |
|------|------------|------------|-------------------------------------|-----------|--|-----------|----------------------------|-----------|-------------------------|---------|
|      |            |            | Population                          | Household | Population                               | Household | Population                 | Household |                         |         |
| 2000 | 507        | 204        | -                                   | -         | -  | -         | -                          | -         | -                       | -       |
| 2005 | 826        | 298        | 0                                   | 0         | 319                                      | 94        | 0                          | 0         | 539                     |         |
| 2010 | 1,191      | 430        | 0                                   | 0         | 365                                      | 132       | 0                          | 0         | 539                     |         |
| 2015 | 1,287      | 468        | 0                                   | 0         | 96                                       | 38        | 0                          | 0         | 539                     |         |
| 2020 | 1,382      | 508        | 0                                   | 0         | 95                                       | 40        | 0                          | 0         | 539                     |         |
| 2025 | 1,439      | 533        | 0                                   | 0         | 0  | 0         | 57                         | 25        | 551                     | R #1    |
| 2030 | 1,500      | 560        | 23                                  | 10        | 0  | 0         | 38                         | 17        | 608                     | R #2    |

Table prepared by ARRO Consulting, Inc.

Remarks:

R #1 Annexation Area #1 – Maximum projected households based on 3.5 du/ac is 42 units.

R#2 Annexation Area #2 and #3 – Maximum projected households based on 3.5 du/ac is 200 units.

## **ANNEXATION**

The Future Land Use Map shows 68.88 acres of land that has the potential of being annexed into the Town of Keedysville all of which would be required to come into the Town with a Suburban Residential Zoning Classification. The Low Density Residential land use classification equates to Suburban Residential zoning which is proposed to have a density of 3.5 to 8 DU per acre which would theoretically yield a minimum of 241 dwelling units on the 68.88 acres and a maximum of 551 dwellings units on the same area. Since the Town's density is currently 2.4 dwelling units per acre, it is expected that the lower yield would be more likely and desired by those who already reside in Town. In addition some of the acreage that may be interested in annexation into the Town has a single family residence already on the property; however, additional units would be possible because these 17 lots have a minimum of County lot size of 40,000 square feet. It is possible that failure of private wells could require a need for public water in the future on these 17 lots since their wells have failed during drought events. The Town should condition any annexation resolutions on being able to connect to the Town's public water and sewer lines with abandonment of private wells and septic systems. The 17 lots represent 51 acres of the 68.88 acres annexable area overall. Seventeen of the acres are vacant at this time. All of this property in conjunction with any infill or redevelopment will be adequate to accommodate the additional 52 dwelling units projected for future growth until year 2030.

## **NECESSARY PUBLIC SERVICES**

### **Public School Analysis**

Students from Keedysville attend Boonsboro Elementary, Boonsboro Middle School and Boonsboro High: all located on one main campus. The Town of Boonsboro is currently constructing a new sewer treatment plant that will increase their capacity and enable them to serve subdivisions that have been waiting for completion of the plant. This will place additional student capacity pressure on the Boonsboro schools although both subdivisions will have to meet requirements of the APFO. If the enrollment exceeds 100 percent of local rated capacity, (90 percent in the case of elementary schools) the schools may still be deemed adequate if an adopted redistricting plan results in less than 100 percent capacity for the upcoming school year. The County considers a school under capacity when all public elementary and secondary schools which will serve a proposed residential subdivision or residential development will accommodate the pupil yield from that residential subdivision or residential development without exceeding 100 percent or the rated capacity of a particular school.

**Boonsboro Elementary, Middle, and High Schools Enrollment  
2008/2009**

**Table MG-10**

| <b>Schools</b>              | <b>State Rated Capacity</b> | <b>Local Rated Capacity</b> | <b>August 2008 Enrollment</b> |
|-----------------------------|-----------------------------|-----------------------------|-------------------------------|
| Boonsboro Elementary School | 514                         | 463                         | 599                           |
| Boonsboro Middle School     | 872                         | 872                         | 766                           |
| Boonsboro High School       | 1,030                       | 1,030                       | 1,003                         |

Washington County Public School Staff Interview October 2008 Prepared by ARRO Consulting, Inc.

Local rated capacity in Table MG-10 is calculated as ninety percent of the State rated capacity. As shown in the table, enrollment in August 2008 was over capacity at the elementary school by State and County standards. Although the middle and high schools were not over capacity they are close to being over capacity. Since there are significant space challenges in these schools, the situation is being remedied at present by using portable classrooms.

As Keedysville continues to grow and new residential units are constructed, the school populations will increase. Keedysville has adopted the Adequate Public Facilities Ordinance of Washington County. Pupil yields are forecasted using the proposed housing units to be built in the planning period and the values assigned for each type of housing as shown in Table MG-11 below that provides the pupil yield values by household type. Schools that become overcrowded would be considered for realignment.

Although public schools are controlled by the State and County, and the Town does not have the responsibility of providing schools, the Comprehensive Plan needs to evaluate the amount of growth in the Town in the years up to 2030. It has been determined that population in 2030 is expected to be approximately 1500 if the Town continues to grow at the forecasted rates. Table MG-11 shows that each household is estimated to have an average of .74 students for each single family dwelling, an average of .33 for each student in townhouses and .20 students for each multi-family dwelling. Keedysville has more single family dwellings than other types of dwellings; therefore the .74 pupil yield will be used in the Municipal Growth element to calculate expected numbers of students that the Town will contribute to the student population.

**Pupil Yields by Household Type  
Table MG-11**

| <b>Household Type</b> | <b>Grades K-5</b> | <b>Grades 6-8</b> | <b>Grades 9-12</b> | <b>Totals</b> |
|-----------------------|-------------------|-------------------|--------------------|---------------|
| Single-family         | .38               | .16               | .20                | .74           |
| Townhouse             | .21               | .05               | .07                | .33           |
| Multi-Family          | .09               | .04               | .07                | .20           |

Data from Washington County Board of Education Interview October 2008.

Since approximately 91 percent of the existing dwelling units in Town are single family dwelling units, and there is a number of senior citizens living in Town, the additional 154 dwelling units

(from 2009 to 2030) yet to be constructed during the planning period will be calculated with a single family average of .74 which will yield 114 additional students over and above those that are attending Boonsboro schools today. The 114 additional students will be distributed at the rate of 59 to grades K-5; 25 to grades 6-8; and 30 to high school.

These enrollment projections indicate the elementary school and high school will reach or exceed capacity with the planning period if only considering Keedysville's contribution. The School Board has in fact anticipated the overcrowding and is currently building the new East City High School in 2011 and additions to the elementary school beginning in 2010. These improvements together with the possibility of redistricting, should alleviate the overcrowding of schools.

### **Keedysville Library Analysis**

The collection in Keedysville Branch includes in excess of 3,100 items consisting of books, reading material, CDs, videos, and digital books which have been increased since the renovation of the library. There are two computer stations for the public to use. Until 2008, the library shared space with the Keedysville Town Hall; however, after the Town Hall was moved to Main Street, the library was able to occupy the entire 950 square feet of space. The expansion has doubled the space available for library activities and patrons. Using a service ratio of 1.65 persons per square foot, the Library should be able to serve approximately 1567 persons that would accommodate the Town through the twenty year planning period which forecasts having 1500 people in 2030. Since the Town's library is connected to the main library of Washington County and other libraries throughout the State, this library is equipped to serve a much greater population than is expected by 2030.

### **Stormwater Management Analysis**

The Town currently enforces storm water management regulations for new or redevelopment using the State of Maryland 2000 Maryland Design guidelines and the 2007 revisions, due for adoption on or before May 4, 2010. In urban sub water sheds, such as Keedysville, American Forests recommend an overall twenty-five percent tree canopy and fifteen percent in commercial areas. Tree canopies intercept and absorb rainfall, filter pollutants, and reduce temperature at the ground which is important especially where heat islands are created due to asphalt and roof top absorption of the sun's rays. Encouraging planting of trees within the Town can have a beneficial effect and assist reducing rain water, providing a cooler environment, and reduce storm water. Keedysville is currently about twenty-percent impervious. Stormwater runoff from the Town drains to the Little Antietam Creek, a tributary of the Antietam Creek. Antietam Creek ultimately drains to the Potomac River and the Chesapeake Bay. There is not a current Total Maximum Daily Load (TMDL) allocation for nitrogen and phosphorous for the Antietam Creek or the area of the Potomac River at the point at which the Town's stormwater runoff drains; however, the Town recognizes the importance of minimizing nitrogen and phosphorous runoff to the waters of the Chesapeake Bay.

A summary of impervious and pervious urban land cover within the Little Antietam drainage basin is presented in Table MG-12. The percent impervious values for the Zoning categories below are based on the 2006 Total Maximum Daily Load Implementation Guidance for Local Governments. The typical single family lot in the Low Density Residential Land Use category is at least one-third of an acre to one-half of an acre or larger: one-half of an acre was used as a conservative value, as pervious urban area contributes larger quantities of nitrogen and phosphorous runoff. (See analysis in the following paragraphs.)

The typical single family lot in the Medium Density Residential Land Use category is approximately one-quarter of an acre and limited institutional and commercial uses are present in this Zoning District as well. However, non-residential uses generally maintain the same setbacks in this land use category and parking facilities are generally on the public street due to topography and the presence of the Town's historic district and built environment.

With Low Density Residential, a conservative assumption of one-half acre and exclusion of the non-residential uses was made in order to present a "worse case" scenario of potential nitrogen and phosphorous runoff quantities.

**Current Land Cover**  
**Table MG-12**

| Comprehensive Plan Land Use         | Usage/Estimated Land Cover            | Total Area in Acres | Pervious Area in Acres | Impervious Area in Acres |
|-------------------------------------|---------------------------------------|---------------------|------------------------|--------------------------|
| Commercial                          | Commercial/ 85 % Impervious           | 6.37                | 0.96                   | 5.41                     |
| Low Density Residential             | .50 Acre – Residential 25% Impervious | 392.28              | 294.21                 | 98.07                    |
| Medium Density Residential          | .25 Acre- Residential 25% Impervious  | 98.89               | 64.28                  | 34.61                    |
| Agricultural/ Rural Legacy Easement | Agricultural-Low Till/ Pervious       | 20.08               | 20.08                  | -                        |
| Conservation                        | Forest/Pervious                       | 11.37               | 11.37                  | -                        |
| Parkland                            | Mixed Open/ Pervious                  | 10.08               | 10.08                  | -                        |
|                                     |                                       |                     |                        |                          |
| <b>TOTAL AREA</b>                   |                                       | <b>539.07</b>       | <b>400.98</b>          | <b>138.09</b>            |

Table prepared by ARRO Consulting Inc.

Nonpoint source nitrogen and phosphorous loading values based on land cover were determined based on the most recent (2007) Potomac River, Maryland watershed data in the Watershed Model Output Data available from the Chesapeake Bay Program. The total nitrogen and

phosphorous loading for each land use in the watershed were divided by the total acreage for each use, with the resultant values being the nitrogen and phosphorous loading in pounds per acre per year for each type of land use. Based on the Watershed Model Output Data classifications, land use within the Town of Keedysville is primarily "Pervious Urban" or "Impervious Urban", with proportions equivalent to the pervious and impervious percentages as shown in the preceding table. A small portion (approximately 8%) of the Town area is comprised of parkland, forest/nontidal wetland conservation, and rural legacy agricultural uses.

Table MG-13 summarizes projected nitrogen and phosphorous loading in the Little Antieam drainage basin based on the current and future loading values and land cover.

**Projected Point and Nonpoint Source Loading  
Table MG-13**

| YEAR  | Non-Point Source N (lbs/yr) | Non-Point Source P (lbs/yr) | Point Source N (lbs/yr) | Point Source P (lbs/yr) | Total N (lbs/yr) | Total P (lbs/yr) |
|-------|-----------------------------|-----------------------------|-------------------------|-------------------------|------------------|------------------|
| 2000  | 4,354                       | 440                         | 1,429                   | 238                     | 5,783            | 678              |
| 2005  | 4,354                       | 440                         | 2,088                   | 348                     | 6,442            | 788              |
| 2010  | 4,354                       | 440                         | 3,013                   | 502                     | 7,367            | 942              |
| 2015  | 4,354                       | 440                         | 3,588                   | 589                     | 7,942            | 1,029            |
| 2020  | 4,354                       | 440                         | 4,081                   | 680                     | 8,435            | 1,120            |
| *2025 | 4,912                       | 499                         | 4,423                   | 737                     | 9,335            | 1,236            |
| *2030 | 4,912                       | 499                         | 4,793                   | 799                     | 9,705            | 1,298            |

\* Impacts from annexation added in year 2025 and 2030.

The total projected loading to Little Antietam Creek in year 2030 from the Town is 9,705 lb/year of nitrogen and 1,298 lb/year of phosphorous. The projected population growth will occur as infill within residentially zoned area of Town. The infill and associated new infrastructure will result in a net increase in impervious cover, which based on the historical trends in the Watershed Model should decrease nitrogen and phosphorous loading. Thus, the values calculated above represent maximum nitrogen and phosphorous loading for the projected growth period; future development trends along with implementation of best management practices in stormwater design should help reduce the ultimate loadings to Little Antietam Creek from the current and future areas of the Town.

### **Police and Emergency Services Analysis**

The Washington County Sheriff's Department located on Western Maryland Parkway in Hagerstown provides police services to the Town. Keedysville has contracted resident deputy



service from the Sheriff's Department along with other municipalities in the County. Although this contractual service is not full time and there isn't a station in Town, it is important to have a police presence in the community part time. As population increases, the Town and County should provide a location for a full time police officer. Using an accepted standard of 1.6 sworn police officers per 1000 people, the Town should have a full time police officer to serve its 881 people at the present time. In 2015 or when the Town reaches 1250 people, the Town should have two police officers to serve that population.

The Town's fire, emergency, and rescue services are provided by the First Hose Company of Boonsboro (Boonsboro Fire) and Sharpsburg Volunteer Fire Company, Boonsboro Area EMS and Sharpsburg Area EMS. Boonsboro Fire and EMS are primary coverage for addresses on North Main Street and side street addresses north of the railway bed in Town. Sharpsburg Fire and EMS primarily handle responses on South Main Street and addresses south of the railway bed. Along Shepherdstown Pike primary coverage is divided at Coffman Farms Road with Boonsboro Fire and EMS handling calls north of the intersection and Sharpsburg handling calls on Coffman Farms Road and south of the intersection.

On structure fires in Keedysville, Washington County's Standardized Dispatch Policies requires a minimal response of three fire stations. The north side of Town covered on this type of call by Boonsboro, Sharpsburg, and Rohrsersville fire stations while the south side is covered by Sharpsburg, Boonsboro and Fairplay fire stations.

Based on the Insurance Services Office standard that projects the number of in service fire engines that would be required to protect a given area, Keedysville would only generate the need for one engine by 2030.

### **Parks and Recreation Analysis**

The availability of land reserved by the public for recreational use, relaxation, and enjoyment of the outdoors will become increasingly important over the twenty year planning period.

Taylor Park, located along North Main Street, includes facilities for basketball, playground equipment for young children, a pavilion, picnic tables, concession stand and open space. The park was deeded to the Town by a previous mayor who is the grandson of Christian Keedy, for whom the town is named. In addition to Taylor Park, there is a ball park located in Town which consists of a softball diamond and auxiliary diamond.

In addition to the Town parks, two regional parks that are significant are: the C & O Canal Trail located in close proximity to the Town to the west along the Potomac River and the Appalachian Trail to the east and south along the Frederick County Line which may provide recreation opportunities for residents.

The National Recreation and Park Association suggest that for a park system, the minimum acreage should be 6.25 to 10.5 acres of developed open space per 1000 population. This varies from community to community; however, Keedysville meets the requirement now and will meet

it at 2030 at the lower end of the standard. There are two regional parks in the area and most of the development is single family which justifies the lower requirement. It is important to encourage the potential rails to Trails Park that the County also endorses.

### **Drinking Water Supply Assessment**

Keedysville shares a water system with Boonsboro through a twelve inch line and master meter that connects the two towns. Keedysville filters water from a spring and disinfects with chlorine prior to pumping into the distribution system. The majority of the distribution system ranges in size from a four inch line to an eight inch line. The Town meters all of its customers. All properties in the municipal boundaries should be provided with potable water by connecting to existing water lines or by extending a water line to connect to the existing Town water lines. The presence of private wells in Town is discouraged and such wells must be abandoned. Eliminating or disallowing private wells minimizes the potential of cross connections within the Town potable water system.

Since the town treatment plant must be capable of pumping to Boonsboro's water storage tank, high pressures are experienced within Keedysville's distribution system. The high pressure in excess of 100 pounds per square inch (psi) has placed a strain on its older water lines and as a result a high leak rate has developed.

The Town currently has plans to replace the aging water main in Main Street and install a booster pump and 300,000-gallon storage tank to help mitigate this problem by year 2012. The Town's water filtration plant was constructed in 1998 and consists of two (2) diatomaceous earth filters, two (2) high service pumps, chlorine disinfection and a concrete clear well under the building. Raw water is pumped from the spring near the plant through the filters into the clear well. High service pumps distribute treated water into the distribution system. Each filter and high service pump is capable of treating and pumping 150 gallons per minute or 216,000 GPD. The current water use is 80,000 GPD or 197 GPD per dwelling unit. The Town's water storage is provided by the Town of Boonsboro's one million gallon in ground storage.

The state has indicated that due to restrictions on withdrawal from the spring's aquifer, approximately 100 additional taps will be allowed. This may not be sufficient to support the growth projected to 2030. An additional 37,210 GPD of water supply will be needed from 2009 to 2030. Restrictions on the water supply may be an impediment to the projected growth rate beyond year 2020 if additional water supply cannot be achieved as illustrated in Table MG-14. The Town may, also, be able to increase water supply by reducing the unaccounted water loss. Aside from a new 61 unit development planned on the opposite side of Maryland Route 34 and 21 undeveloped lots in existing Stonecrest subdivision, the Towns' future growth is expected to largely result from infill, redevelopment and higher densities. In addition there is a possibility of annexation, if additional taps can be achieved.

The projected population and water demand is shown in Table MG-14. Using the State's estimate of 250 GPD per dwelling, the projected year 2030 water demand is shown in Table

MG-14. The projected population as indicted in Table MG-14 is 1500 persons which is an increase of 993 persons spread over the timeframe from 2000 to 2030. The increase in households is 358 over this same period. It must be noted here as is stated elsewhere in the Comprehensive Plan, these projections will be effected somewhat by the slow down of the national and local economy and the dated material since the next census is only a year away; therefore, during the next six year update of the Plan, the projections should be revisited.

**Water Demand Projections for 2030  
Table MG-14**

|                    | 2000   | 2005   | 2010   | 2015   | 2020    | 2025    | 2030    | Supply or Treatment Capacity |
|--------------------|--------|--------|--------|--------|---------|---------|---------|------------------------------|
| Population         | 507    | 826    | 1,191  | 1,287  | 1,382   | 1,439   | 1,500   |                              |
| Households         | 204    | 298    | 430    | 468    | 508     | 533     | 560     |                              |
| Water Demand (GPD) | 40,188 | 58,706 | 84,710 | 94,210 | 104,210 | 110,460 | 117,210 | 105,000 GPD                  |

**NOTE:**

1. New Development beyond year 2010 is computed at 250 GPD/dwelling unit per MDE guidelines.
2. Water demand figures include 10% for non-residential consumption (10% of the EDUs represent non-residential demand) based on historical water billing rates.
3. Water supply capacity is based on an additional 100 taps @ 250 GPD/tap beyond the current 80,000 GPD existing use in the absence of a firm limit imposed by MDE.

The Town's existing potable water storage is provided by Boonsboro's one million gallon storage tank. Analyzing the sufficiency of the existing storage requires a judgment involving the quantity and duration of fire flow. Given the nature of development in town of residential, relatively small-scale multi-family and commercial, and the ability of the existing main to convey flow, a value of 1,500 GPM for two (2) hours were used. An analysis of the existing storage volume given the existing and 2030 projected population is provided in Table MG-15. Although the analysis illustrates existing storage is adequate, the Town is planning a new storage tank and booster pump station within the Town boundaries to be more self reliant and lower water pressures.

**Water Storage Analysis  
Table MG-15**

| YEAR | POP   | 1<br>EDU's | 2<br>Average<br>Daily<br>Demand<br>(GPD) | 3<br>Equalizing<br>Storage<br>(GAL) | 4<br>Fire<br>Flow<br>(GAL) | 5<br>Emergency<br>Reserve<br>(GAL) | 6<br>Required<br>Storage<br>(GAL) | 7<br>Existing<br>Storage<br>(GAL) | 8<br>Storage<br>(GAL)<br>Surplus<br>(+) |
|------|-------|------------|--|-------------------------------------|----------------------------|------------------------------------|-----------------------------------|-----------------------------------|---|
| 2000 | 507   | 204        | 40,188                                   | 10,449                              | 180,000                    | 63,483                             | 253,932                           | Town of<br>Boonsboro<br>1,000,000 | +746,068                                |
| 2005 | 826   | 298        | 58,706                                   | 15,263                              | 180,000                    | 65,087                             | 260,350                           | Town of<br>Boonsboro<br>1,000,000 | +739,650                                |
| 2010 | 1,191 | 430        | 84,710                                   | 22,025                              | 180,000                    | 67,342                             | 269,367                           | Town of<br>Boonsboro<br>1,000,000 | +730,633                                |
| 2015 | 1,287 | 468        | 94,210                                   | 24,495                              | 180,000                    | 68,165                             | 272,660                           | *300,000                          | +27,340                                 |
| 2020 | 1,382 | 508        | 104,210                                  | 27,095                              | 180,000                    | 69,032                             | 276,127                           | *300,000                          | +23,873                                 |
| 2025 | 1,439 | 533        | 110,460                                  | 28,720                              | 180,000                    | 69,573                             | 278,293                           | *300,000                          | +21,707                                 |
| 2030 | 1,500 | 560        | 117,210                                  | 30,475                              | 180,000                    | 70,158                             | 280,633                           | *300,000                          | +19,367                                 |

\*Keedysville's own 300,000 gallon storage tank expected on line by 2012.

Column 3 – Equalizing storage is 20% of maximum daily demand – Maximum daily demand is assumed at 1.3 x average daily demand.

Column 4 – Fire Flow at 2 hours duration (per AWWA Manual M31) at 1,500 GPM

Column 5 – Emergency Reserve is 25% of total storage.

Column 6 – Required Storage is Column 3 + 4 + 5

NOTE: Keedysville is interconnected to Boonsboro's water system for emergency

### **Wastewater Treatment**

Keedysville is currently served by the Antietam Water Reclamation Facility which is operated by Washington County. The existing County treatment plant is permitted and designed to treat 163,000 gallons per day and currently treats an average daily flow of 113,000 GPD based on the average of the last three years. The County is currently planning on upgrading the existing plant with design now underway. The Town's sewer collection system consists of grinder pumps and low pressure sewers in the entire town except for Cannon Ridge East development which is served by gravity sewers. As a result of the low pressure sewer system, inflow and infiltration is minimal and is relatively consistent flows are achieved. There are no septic systems within the Town. The only central pump station is owned and maintained by the County along Maryland Route 34. The pump station receives 52,000 GPD on average and is currently at 89 percent capacity. The County has plans to increase the capacity in conjunction with a new 61 unit subdivision along MD. Rte. 34 with contributions by the developer. With 560 total dwellings projected for the planning period an additional 35,540 GPD will be generated from 2009 to 2030. The existing wastewater treatment plant does have sufficient capacity for the projected growth.

Table MG-16 summarizes existing and future projected sewage demand.

**Sewer Demand Projections for 2030**  
**Table MG-16**

|                         | 2000   | 2005   | 2010   | 2015   | 2020   | 2025   | 2030   | Supply or Treatment Capacity |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|------------------------------|
| Population              | 507    | 826    | 1,191  | 1,287  | 1,382  | 1,439  | 1,500  |                              |
| Households              | 204    | 298    | 430    | 468    | 508    | 533    | 560    |                              |
| Wastewater Demand (GPD) | 26,112 | 38,144 | 55,040 | 64,540 | 74,540 | 80,790 | 87,540 | 102,000 GPD                  |

**NOTE:**

1. New Development beyond year 2010 is computed at 250 GPD/dwelling unit per MDE guidelines.
2. Sewer demand figures include 10% for non-residential consumption (10% of the EDUs represent non-residential demand) based on historical water billing rates.
3. Wastewater treatment capacity is based on 163,000 GPD design and permit capacity at the wastewater treatment plant and 61,000 GPD existing use by the Town of Sharpsburg. Sharpsburg is not anticipated to receive substantial future growth.

**FINANCING MECHANISM TO SUPPORT NECESSARY INFRASTRUCTURE**

The national recession is being felt in Keedysville, as well as, Washington County and the region. Increased unemployment, decrease in property values, and loss of tax revenues will affect development of the Town and provision of infrastructure improvements that are needed.

During this poor economic time, the Town should be more inclined to have developers pay their way when developing within the Town, apply for grants that will help to pay for infrastructure improvements, and concentrate on development in the Town before encouraging annexation. There is an immediate need for repair of sidewalks and infrastructure on Main Street which is a State road that needs to be addressed by the State.

This Comprehensive Plan supports these and other goals, policies, and strategies. Effort should be made to amend the Town's development ordinances and polices, in a timely manner, and implement them as they are programmed in the Implementation section of the Plan.

**ANNEXATION POLICIES/ COMPETITION OF TRANSITIONAL LAND USES**

The Annexation process is provided for in Article 23 A of the Annotated Code of Maryland. Areas that are annexed must be contiguous to the municipal boundaries of Keedysville and cannot create an "enclave" of an unincorporated area. A Cost/Benefit analysis should be conducted before each petition for annexation is processed to determine the impact the annexation will have on the Town. The zoning of the land brought into the Town must be compatible with and logical to the surrounding area which can be a challenge since most of the adjacent parcels to the Town are protected by Rural Legacy, National Parkland that is

permanently protected, or designated as Rural Residential which is preserved by Washington County conservation zoning. (Maps delineating these areas may be found in Appendix A and throughout this Comprehensive Plan.)

Keedysville has a policy relative to annexation that has been consistently followed with any land that is brought into the municipal boundaries via annexation. All landowners that petition annexation of their property must bring the land into the Town under the Town's lowest density zoning which is Suburban Residential. This zoning district provides for suburban-type development in areas of similar existing development where natural features of the land and capacities of utility, street, or other service systems may require this type of development.

|                                    |  |  |
|------------------------------------|--|--|
| <i>Suburban Residential Zoning</i> | <i>Single Family<br/>Lot Size: 18,000 sq. ft</i> | <i>Two Family<br/>Lot Size: 10,000 sq. ft.</i> |
|------------------------------------|--|--|

The potential annexable areas that are delineated on the Future Land Use Map are areas that have had failed wells during drought events that may need to annex to have the benefit of public water. The additional vacant potential annexable land is located to the East which is an area that will endure the development pressure of the Boonsboro Town Growth area, within three miles of the municipal boundaries, until 2020 when they may need to consider annexation due to population increase in the Town. The more immediate focus of Town officials in Keedysville, relative to future development in the municipality, is to concentrate on construction of 78 single family dwellings that are already in the pipeline and approved. In addition, redevelopment and adaptive reuse of existing structures in Town and development of the vacant lots are higher priority areas for growth rather than annexation.

The Town officials and their citizens believe it is very important to build their existing infrastructure, improve their streetscape, and develop Main Street and approved commercial sites with low impact services to serve their daily needs. They expect new development to meet their design guidelines and respect the historic character that has been in Keedysville since the late eighteenth century. They expect to retain their small town charm, a sustainable community, and quality of life they have always enjoyed.