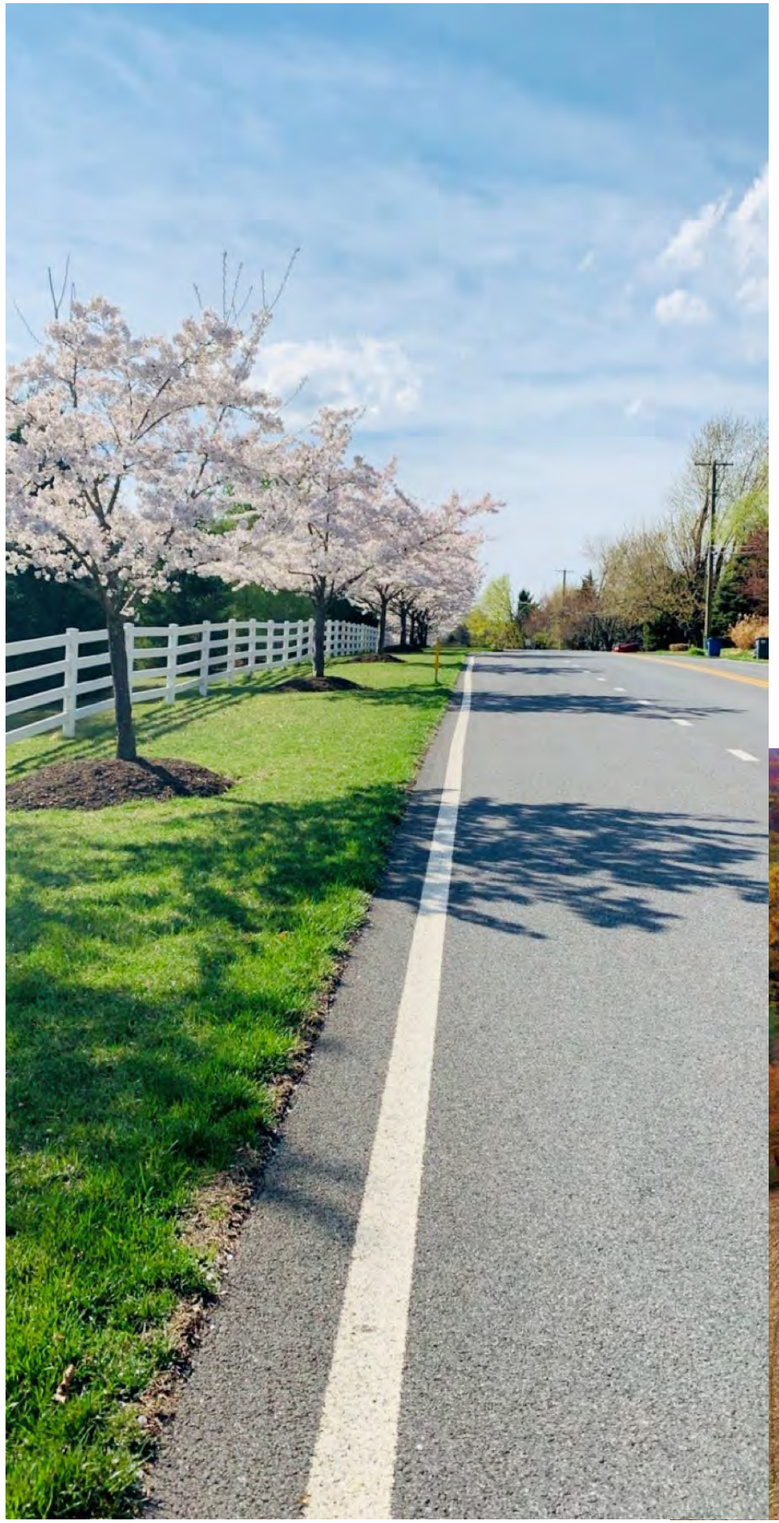

2023 Transportation Master Plan

Carroll County

Planning & Zoning Commission Approved
November 2023

Acknowledgements

The 2023 Carroll County Transportation Master Plan is the culmination of many months and years of hard work by County staff and Planning & Zoning Commission members. The result is this document. We would like to thank everyone involved for their efforts. This plan could not have been completed without their help.

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Accessibility

Copies of the 2023 Carroll County Transportation Master Plan are available…

In hardcopy at:
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Online at:
https://www.carrollcountymd.gov/government/directory/planning-land-management/comprehensive-planning/transportation/carroll-county-transportation-master-plan/

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Table of Contents

Chapter 1 Introduction

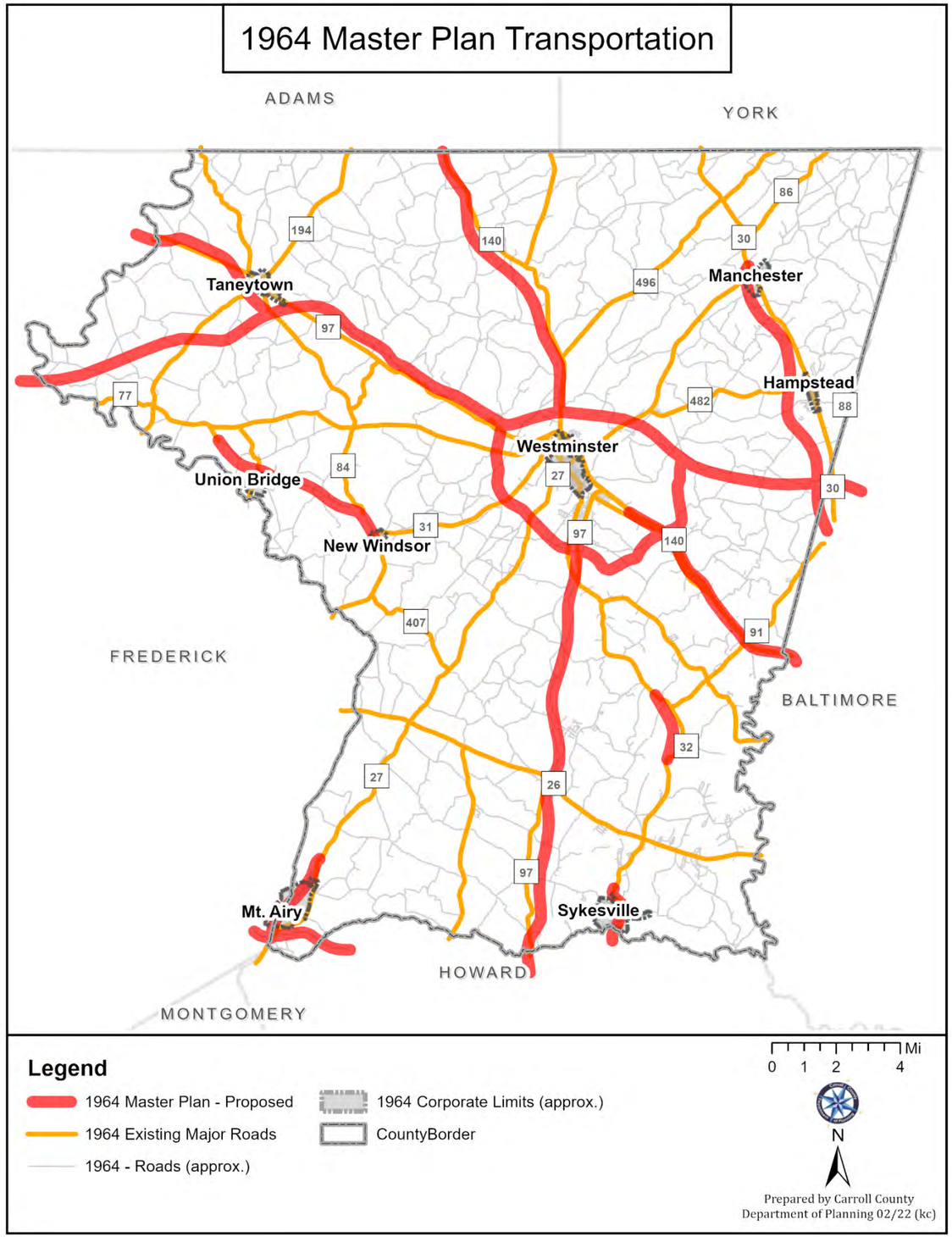
The 2014 Carroll County Master Plan as amended 2019 (CCMP) Transportation Chapter 7 goal for enhancement of how the County travels was to *provide a safe and functional intra-County transportation system that promotes access and mobility for people and goods through a variety of transportation modes.* In furtherance of this goal, one of the principal transportation-related recommendations in the Plan is to "*update the 1962 Major Street Plan with a Countywide Transportation Master Plan".* This Plan is a crucial step in recognizing the changes that have occurred over the past 60 years and implementing the 2014 Plan as amended.

The 2014 CCMP goal was built on the foundation of the original Major Street Plan adopted by the County's Board of Commissioners in 1962, two years prior to the first countywide Master Plan. The original Major Street Plan was developed in recognition of the influence of the automobile and with the express purpose of interconnecting the network of state and local roadways that would provide access and mobility for residents throughout Carroll County and its eight municipalities. A principal focus of the 1962 Major Street Plan was the construction of bypass roads around several of Carroll's incorporated towns, particularly those whose Main Streets were state highways. These bypasses, in conjunction with local collector road construction, were expected to divert heavy traffic away from the historic towns and create economic development opportunities for the County. The vision set forth by the 1962 Major Street Plan has remained the focus of Carroll's transportation planning efforts ever since.

The following recent studies also serve as the foundation of this update:

- In 2018, Maryland Department of Transportation State Highway Administration (MDOT SHA) completed a Planning and Environmental Linkages (PEL) study on MD 32 focusing on the 7.2-mile portion that is shared between Howard and Carroll Counties. The purpose of the study was to develop a long-term vision for managing future traffic, while identifying short-term safety and operational improvements that would address more immediate needs and support economic development opportunities. This is consistent with regional and local plans calling for widening the corridor from two to four lanes in the future. This study is included in this Plan as Appendix B.
- In 2020, MDOT worked in conjunction with the Carroll County Department of Planning to review the *2002 MD 26, MD 32 to the Liberty Reservoir, Corridor Planning Study (the "2002 Study")*. The objectives of this effort included updating the traffic and safety analysis, redefining existing and future roadway needs, and developing strategies to assist with gradual implementation of targeted improvements as needs and opportunities are identified. This study is included in this Plan as Appendix C.
- Also in 2020, the County, with the help of the Baltimore Regional Transportation Board's Unified Planning Work Program (UPWP), had a Transportation Corridor & Subarea Analysis completed for the entire County. This corridor and subarea analysis provides a framework for recognizing that the long list of previous studies and identified priorities in each of the County's main corridors needed to be organized into a rational framework. This corridor and subarea analysis provides such by identifying the most promising potential improvements to improve traffic congestion and support economic development that is fiscally responsible and conscious of project delivery constraints such as environmental impacts and right-of-way acquisition. The results of this study form the basis for Chapter 5 of this Plan.

These three studies, as well as input from County residents, business owners, and the eight municipalities, will help the County policymakers with prioritization and implementation of projects, which will improve mobility within and approaching the County's Designated Growth Areas (DGA) over the next 20 years.



Map 1.1: 1964 Master Plan Transportation

Vision

A “Vision Statement” defines a community’s preferred future in a broad and somewhat idealistic, but attainable vision. The following is the vision statement for the future road network of Carroll County.

Carroll County is a suburban and rural community where community members travel efficiently by automobile through a safe, well-connected, and functional transportation system. An interconnected network of state, County, and municipal roadways provides access and mobility for people and goods to reach their destinations throughout and beyond Carroll County and its eight municipalities, protects quality of life through economic prosperity, and facilitates innovative and emerging technologies.

Goals

A “goal” is a statement that supports obtaining the community’s vision. Carroll County will achieve its vision for the future road network through the following goals (in no particular order of priority):

1. Pursue policies and strategies that facilitate near-term incremental improvements to the road network that have a broad public benefit to improve mobility and safety within and approaching the County’s Designated Growth Areas. (Chapter 5 Transportation Corridor & Subarea Analysis)
2. Pursue policies and strategies that facilitate the realization of Planned Roadway Projects to improve transportation safety, connectivity, and accessibility and to further the efficient flow of traffic for the ultimate development of the County’s transportation network. (Chapter 6 Planned Roadway Projects)
3. Promote communication and coordination between and among the County, the municipalities, and the state with respect to access management, and pursue corridor-level access management planning processes. (Chapter 7 Access Management)
4. Integrate transportation planning with environmental and cleaner energy goals; transition to a cleaner and more efficient transportation system, with electric vehicle readiness and accommodation of autonomous vehicles incorporated into public and private projects. (Chapter 8 Emerging Trends)

Chapter 2 Demographics

Summary of Carroll County's Population Characteristics

Since 1960 Carroll County has seen its population triple from 52,785 to more than 172,891 in 2020, according to the 2020 Census. The period over the last 60-years saw the most rapid growth during the 1960s and 1970s. These two decades had the greatest rate of change, over 30% in 1960s and almost 40% in the 1970s.

Population Growth: Between 1960 and 1970 the population grew 30%, from 52,785 people to 69,006 people, between 1970 and 1980 the population grew just under 40% to 96,356, between 1980 and 1990 the population grew 28% to 123,372, and between 1990 and 2000 the population grew 22% to 150,881. Figures 2.1 and 2.2 illustrate these population changes over this timeframe.

From 2000 to 2020 population continued to grow in Carroll County but at a much slower pace than in the preceding decades and dropping significantly from 2010 to 2020 with only a 3.4% rate of growth. This was the slowest growth decade in the last 60 years. As of 2020, the population of Carroll County was counted as 172,891. This slower growth trend was not just unique to Carroll County, but the state of Maryland and the Country as a whole. The total population of the United States on April 1, 2020 was 331.4 million, an increase of 22.7 million from 2010. Last decade's 7.4% increase nationally was lower than the previous decade's 9.7% increase and was, in fact, the lowest since the 1930s.[1] Maryland mirrored the nation with a similar 7% rate of increase of over 400,000 from 5.7M to 6.1M new persons.[2]

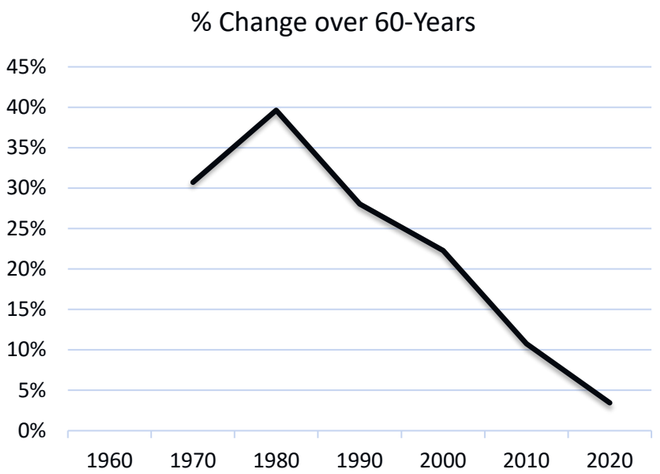


Figure 2.1: % Change over 60-Years

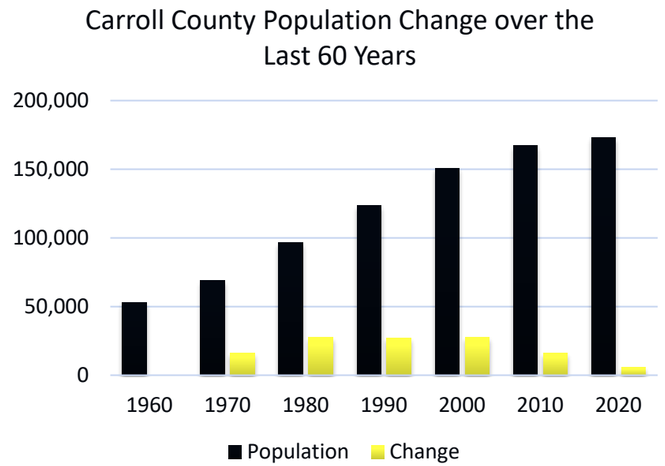


Figure 2.2: Carroll County Population Change over the Last 60 Years.

Age: The County's population has been steadily shifting to an older population. Even though working aged adults make up the vast majority of Carroll County residents, this number has been steadily declining since 2010 and is expected to continue to decline into 2045. Figure 2.3 shows age breakdowns for 2020 based on 2020 Census estimates. Figure 2.4 shows these same age estimates from 2010 to 2045. By 2040 there is only 15%, or about 28,000 fewer seniors or retirees than working aged people. These working age people are being replaced at lesser levels than before.[3]

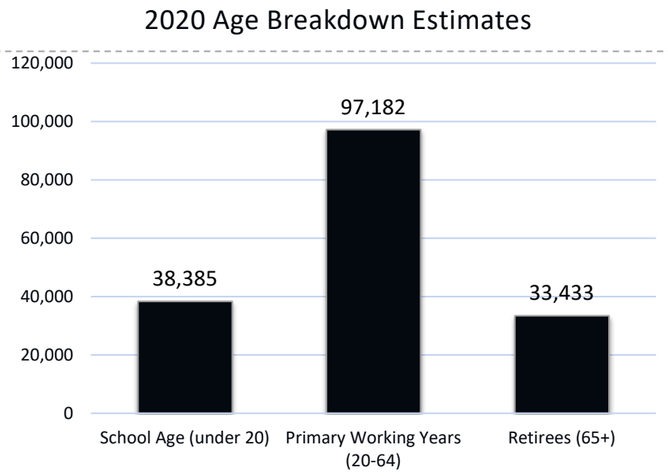


Figure 2.3: 2020 Age Breakdown Estimates

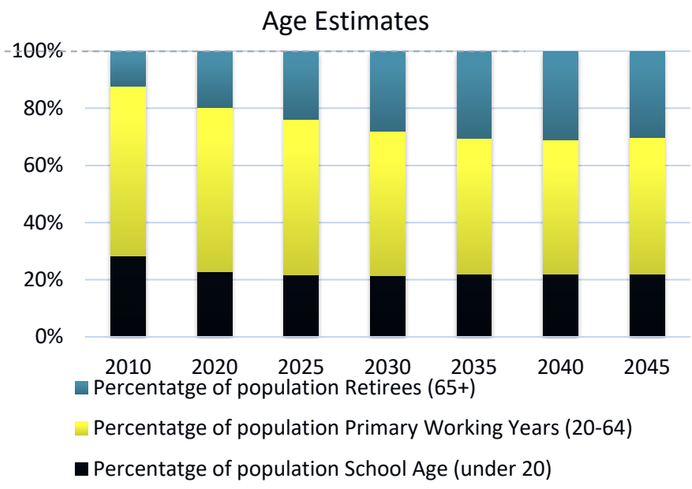


Figure 2.4: Age Estimates

[1] US Census Bureau. (2021, August). More than half of U.S. Counties Were Smaller in 2020 than in 2010. Retrieved from https://www.census.gov/library/stories/2021/08/more-than-half-of-united-states-counties-were-smaller-in-2020-than-in-2010.html.
[2] Maryland State Archives. (2022, September). Maryland at a Glance. https://msa.maryland.gov/msa/mdmanual/01glance/html/pop.html.
[3] US Census Bureau. 2016-2020 American Community Survey 5-Year Estimates_S0101-2022.

Household Size: In 2000, the average household size was 2.92 persons per household, by 2010, it was 2.85 and has steadily decreased to 2.68 persons per household. It is anticipated that household size will remain around 2.60 for the next 30 years based on Baltimore Metropolitan Council (BMC) Round 10 Cooperative Forecasting projections for the region. This smaller household size continues to keep the pace of population growth low.

Housing Growth: The number of housing units grew 5.4% between 2010 and 2020 for a total of 65,793 housing units in Carroll County. This was much less than the 17% growth rate seen between 2000 and 2010, from 52,503 housing units to over 61,000 housing units.[4] Part of this downward trend could be attributed to stronger land use controls such as the state law regulating subdivision on septic systems, referred to as the Sustainable Growth & Agricultural Preservation Act of 2012, making less land available for development. This is particularly evident in Carroll County because there is limited land with access to suitable infrastructure such as water and sewer.

Housing Values: For many reasons, quality of life, good schools and higher educational attainment, housing values in Carroll County have and remain higher than Maryland and the nation. Figure 2.5 shows the median housing value and how Carroll County compares to the state and nation using 2020 estimated data.

Income: Households in Carroll County have a median annual income of $96,769, which is more than the median annual income of $65,712 across the entire United States. This is in comparison to a median income of $93,363 in 2018, which represents a 3.65% annual growth.

Education: Carroll County has an excellent public school system and is evident in its graduation rates. According to the U.S. Census, census reporter, 93.1% of residents have a high school diploma or higher, with 37% achieving a Bachelor's degree. This graduation rate is higher than both the state and the country, which have rates of 90.6% and 88.5% repectively. As for Bachelor's degrees, the County's percentage is slightly less than the state's rate of 40.9%, but much greater than the nation of 32.9%. Figure 2.7 shows educational attainment for the County. This high education attainment level leads to lower unemployment for County residents.

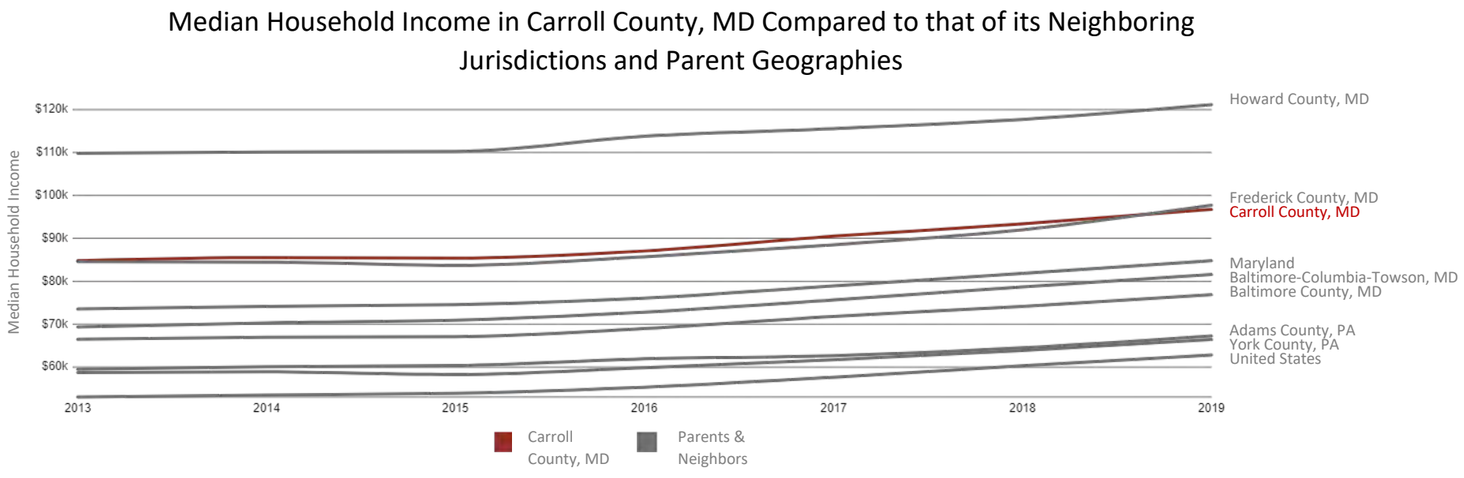


Figure 2.6: Median Household Income in Carroll County, MD Compared to that of its Neighboring Jurisdictions and Parent Geographies

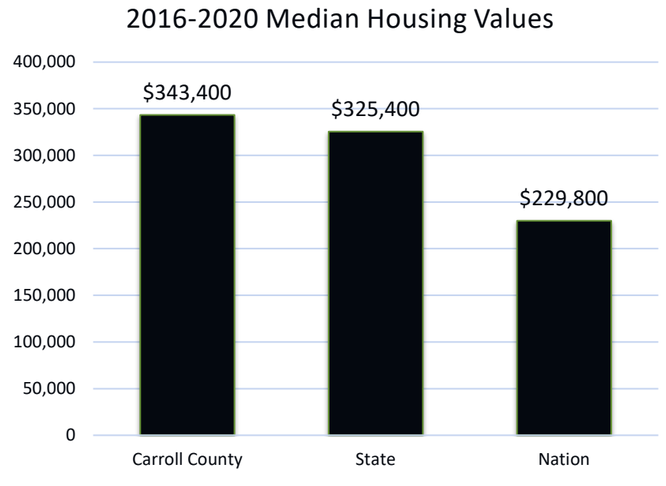


Figure 2.5: 2017-2020 Median Housing Values

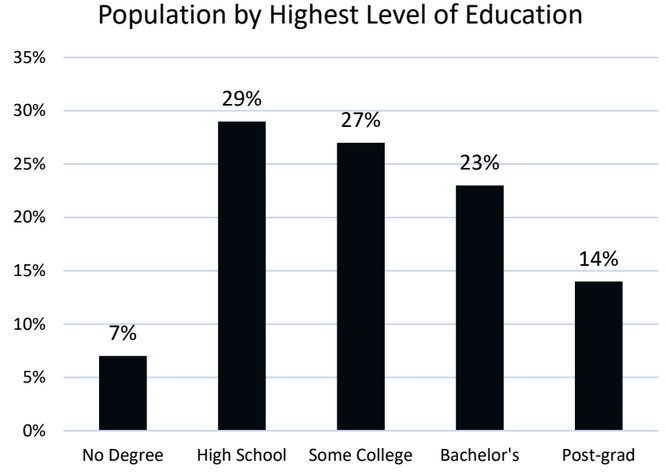


Figure 2.7: Population, 25 years and over, by Highest Level of Education

[4]Carroll County Government (2022, May). Household Estimates by Election District and Municipality. https://www.carrollcountymd.gov/media/16440/household-estimates-by-municipality-electiondistrict-_may_2022.pdf.

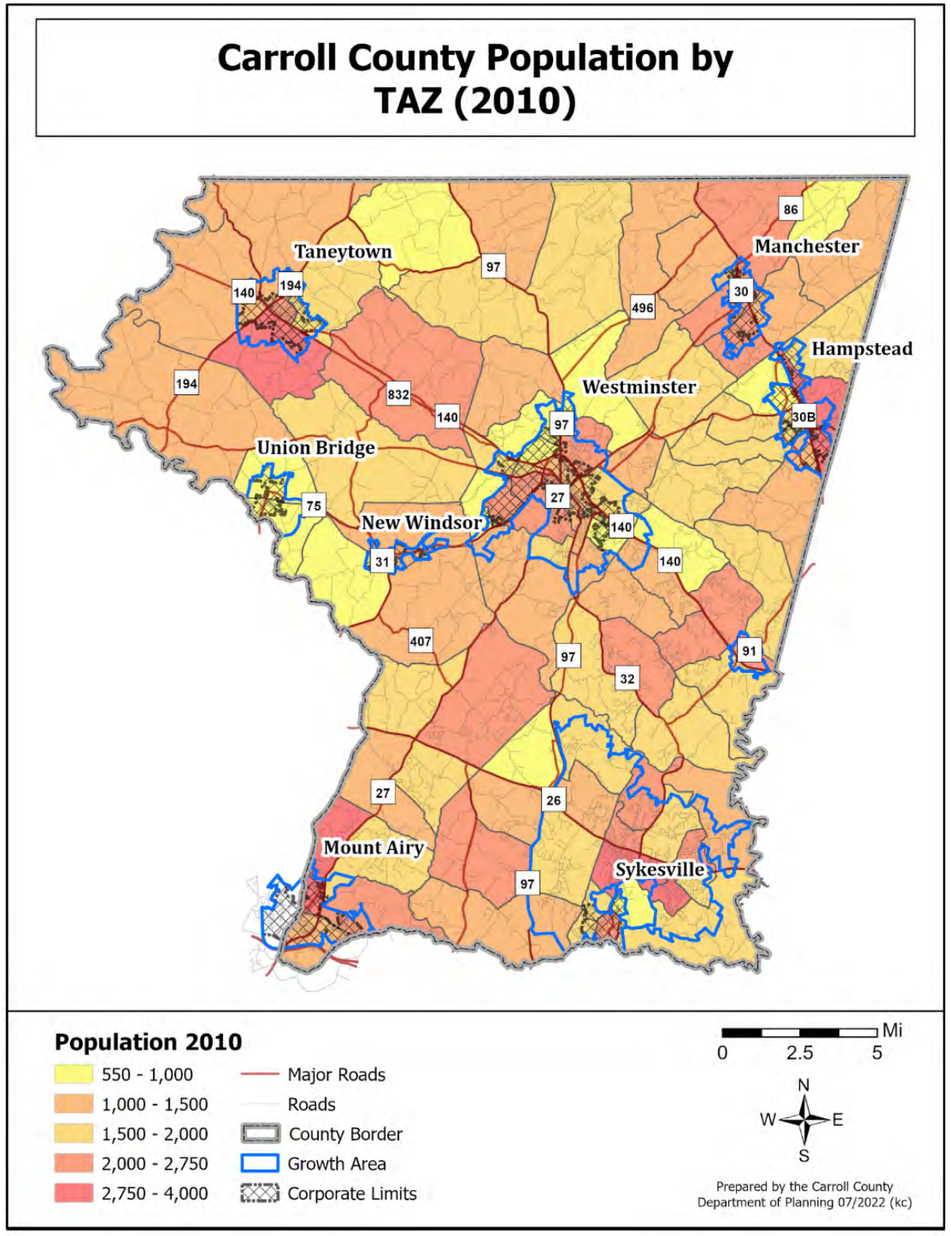
Jobs, Employment and Commuting Characteristics:

According to Lightcast Q2 2022 data set provided by the BMC, jobs in Carroll County have remained stagnant over the last decade; 2010 to 2020 saw an increase of only 1,742 jobs. This equates to a 2% job growth rate, which is 1.5% less than the population rate of increase. There are approximately 98,921 working aged persons in the County and approximately only 63,000 jobs in the County (Lightcast Q2 2022). This means that at least 36% of eligible working Carroll County residents must look outside the County to meet their employment needs. This is further substantiated by the most recent ACS data that indicates that 48.8% of county residents work outside their County of residence.

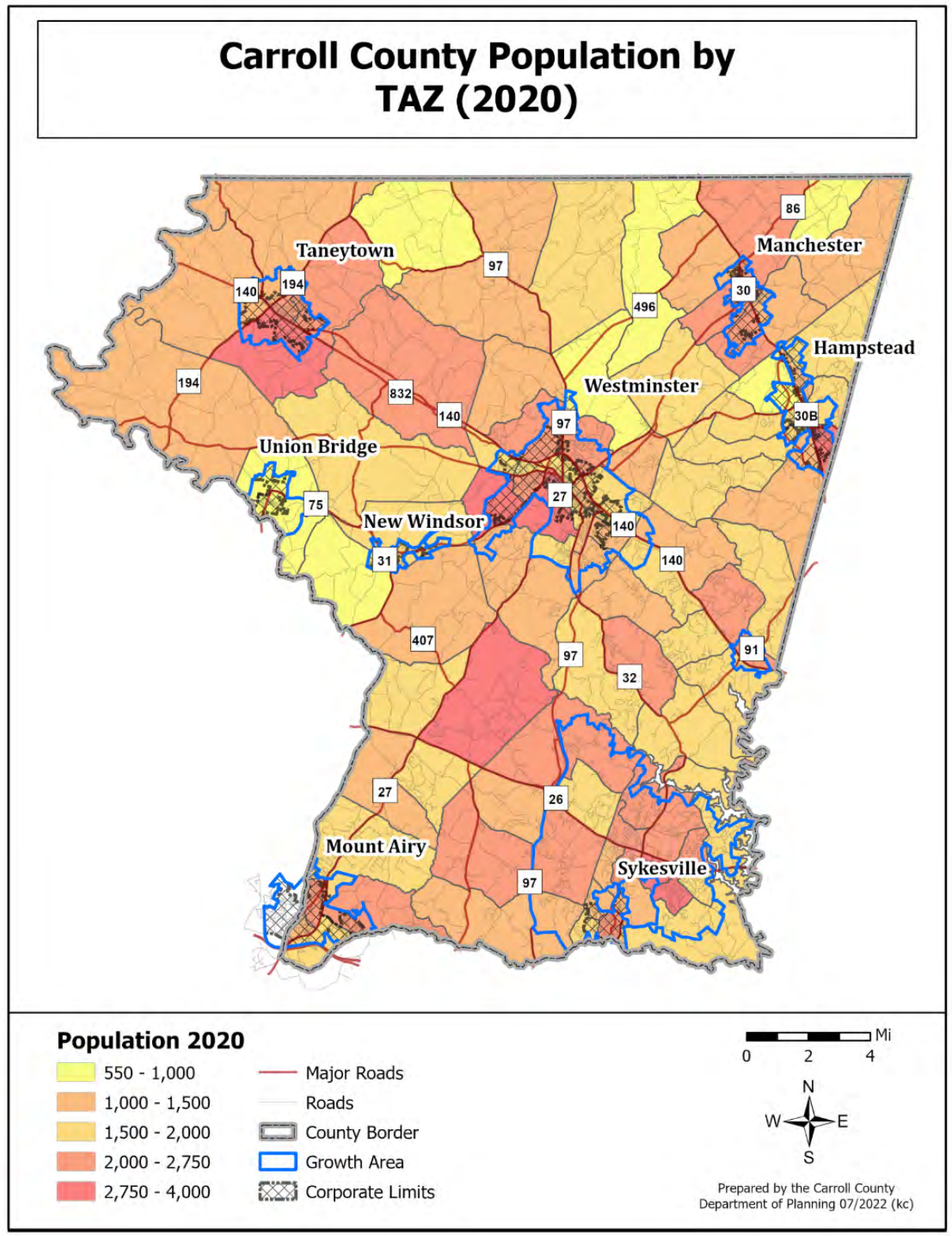
This need to seek employment outside the County leads to longer commute times for County residents, more stress on the road network, and peak hour congestion. 2020 ACS data reveals that 2020 saw peak departure times at 9am to 12pm, with 20% of the commuters having a 60-minute or more travel time. These trips are mainly single occupancy vehicles. Transit dependent workers in Carroll County are less than 1% of this population cohort. Most of these transit dependent workers make less than $25,000 per year.

Transportation Analysis Zones:

Transportation Analysis Zones (TAZs) are special areas delineated by state and/or local transportation officials for tabulating traffic related data. TAZs typically are made up of one or more census blocks and are updated from the most recent Census geographies. These TAZs are used in modeling travel demand for the region, specifically for Carroll County and the Baltimore Metropolitian Region. Maps 2.1 and 2.2 represent the TAZs in 2010 and 2020. These maps illustrate little difference or change in patterns from the 2010 to the 2020. Of note is increasing population to the northwest portion of the County as well as continued growth in the southeast portion of the County, which contains the largest growth area in the county, the Freedom Growth Area. The southeast portion of the County is closer in proximity to other job centers out of the County, such as the Baltimore-Washington metropolitain area.



Map 2.1: Carroll County Population by TAZ (2010)



Map 2.2: Carroll County Population by TAZ (2020)

Chapter 3 Other Transportation Plans

This Transportation Plan is intended to be a comprehensive analysis of the road network and the improvements which are necessary to accomplish the long-range vision set forth in the 2014 Carroll County Master Plan as amended 2019 (CCMP), the 2018 Freedom Community Comprehensive Plan (FCCP), the 2013 Finksburg Community Plan (FCP), and the eight municipal Master Plans. This plan includes a vision, analysis, and recommendations for roads in Carroll County; it does not include other modes of transportation. The following plans are the County's guidance on the future of other modes of transportation and other aspects of transportation planning.

Carroll County Transit Development Plan (TDP)

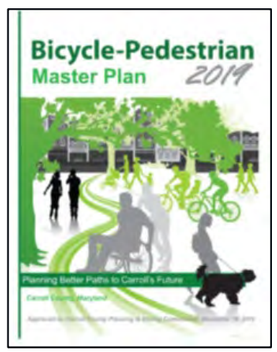
This Plan was adopted by the Board of County Commissioners in December 2019. The TDP is the result of a planning process that is undertaken on a periodic basis by every transit system in Maryland. The TDP builds upon Carroll County's goals and objectives for transit, provides a review and assessment of current transit services, identifies unmet transit needs, and develops an appropriate course of action to address the objectives in the short-range future (typically a five-year horizon). The current TDP serves as a guide for Carroll Transit Services through FY2025.

Carroll County Regional Airport Master Plan

This June 2015 Plan provides aviation activity forecasts for the Carroll County Regional Airport (DMW) over the 20-year planning horizon. These forecasts form the basis for future demand-driven improvements at DMW; provide data used to estimate future off-airport impacts such as noise and traffic; and provide a basis for determining the type, size, and timing of aviation facility development.

Carroll County Bicycle-Pedestrian Master Plan

This Plan, approved by the Planning Commission in 2019, focuses on the transportation aspect of bicycle and pedestrian movement as well as recreational and tourism opportunities countywide. It examines the implications of creating a countywide trail network that produces a multimodal transportation system and how this can benefit the County economically and environmentally. The Plan emphasizes the importance of designing with safety in mind, using best practices to create a network that will benefit all income levels, ages, races, and abilities.



Carroll County Strategic Traffic Safety Plan (STSP)

In June 2022, the Carroll County Board of Commissioners adopted the County's first Strategic Traffic Safety Plan. The vision of the STSP is to prevent all traffic crash-related fatalities and serious injuries in Carroll County and reduce the incidence of traffic crashes. To achieve this vision, the plan sets interim targets and a 2040 goal using the Toward Zero Deaths approach as outlined in the 2016-2020 Maryland Strategic Highway Safety Plan.

The mission of the Plan is to reduce the number of traffic-related crashes, injuries, and fatalities using a comprehensive yet strategic approach with the 4 Es of traffic safety (Engineering, Enforcement, Education, and Emergency Medical Services (EMS)). Emphasis areas include speeding, impaired driving, distracted driving, older and younger driver-involved crashes, and infrastructure design. An Implementation, or Action Plan, has also been developed to support each of the strategies in each of the emphasis areas.

Carroll County Community Investment Plan (CIP)

The Community Investment Plan is a six-year plan for the construction of capital projects in the County, including roads and bridges. The most recent CIP includes the following road extensions/connections that were identified as high priority in the recently adopted land use plans. These are:

- Georgetown Blvd connection to Progress Way
- Ridenour Way to Panorama Drive
- Monroe Ave connection to Bennett Road
- Market Street Extended

In addition to County transportation plans, the future of transportation in the County is directed by a number of regional, state, and municipal long and short-range transportation planning documents. Below is a summary of these plans.

Regional

A Long Range Transportation Plan is prepared every five years by the Baltimore Metropolitan Council (BMC) with the assistance of its member jurisdictions, including Carroll County. It is a fiscally constrained, regional, long-range transportation plan that seeks to make the best use of the resources that make up and support the Baltimore region's transportation system. It establishes the region's broad transportation goals and performance measures, which serve as guiding principles as the region plans and carries out projects. Resilience 2050, adopted in July 2023, contains a list of major capital transportation projects totaling $12 billion, which the region expects to implement from 2024 to 2050.

State of Maryland

The Highway Needs Inventory (HNI)

is a long term, financially unconstrained technical reference and planning document which identifies highway improvements to serve existing and projected population and economic activity in the state. It was last updated in 2020. The projects identified in this document represent only an acknowledgment of need based on technical analysis and adopted local and regional transportation plans; the HNI is not a construction program. The HNI serves as the source document for SHA's portion of the Maryland Department of Transportation's (MDOT) Capital Program, and the Consolidated Transportation Program (CTP). The state works with the County to develop the project information for the HNI.

The Maryland Transportation Plan (MTP)

is prepared every five years by MDOT. It develops a 20-year mission for transportation in the state. The MTP outlines the state's overarching transportation priorities and helps create a larger context for transportation decision-making.

The Consolidated Transportation Program (CTP)

is Maryland's six-year capital budget for transportation projects. The CTP contains projects and programs across MDOT. Each year, the Board of County Commissioners prepares a letter to the Maryland Secretary of Transportation outlining the County's priorities for improvements to transportation facilities and requesting their inclusion in the CTP.

Municipal

Carroll County has eight incorporated towns and cities, each with their own planning and zoning authority. Under the Land Use Article, each of these municipalities are responsible for adoption of their own comprehensive plans. The following municipal plans include transportation elements that are integral to the Carroll County Transportation Master Plan:

- 2010 Hampstead Community Comprehensive Plan (2017 Update)
- 2018 Manchester Community Comprehensive Plan
- 2013 Mount Airy Community Comprehensive Plan
- 2007 New Windsor Community Comprehensive Plan (2010 Amendment)
- 2021 Sykesville Community Comprehensive Plan
- 2010 Taneytown Community Comprehensive Plan
- 2008 Union Bridge Community Comprehensive Plan (2014 Update)
- 2009 Westminster Community Comprehensive Plan (2018 Amendment)

Chapter 4 Existing Facilities

Table 4.1 Lane Mileage by Functional Classification[5] [6]

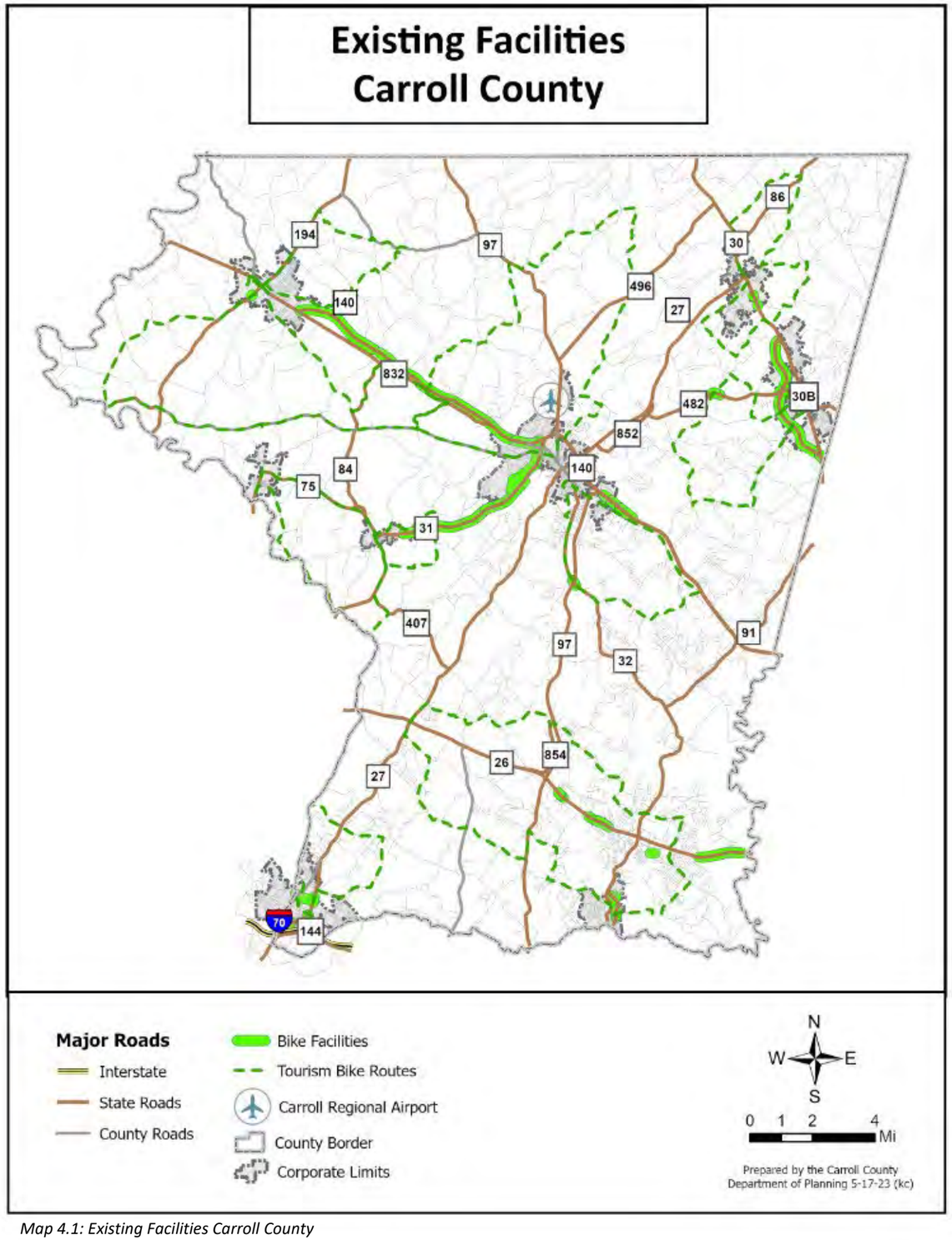
Functional Classification	Interstate Highway	State Highway	County	Municipal	Total
Interstate	9.7	-	-	-	9.7
Principal Arterial Other Freeways & Expressways	-	-	-	-	0.0
Principal Arterial Other	-	191.2	-	-	191.2
Minor Arterial	-	154.6	18.1	15.2	187.9
Major Collector	-	70.5	239.5	29.7	339.6
Minor Collector	-	8.7	176.6	1.7	186.9
Local	-	78.2	1547.5	319.7	1,945.5
Total	9.7	512.8	1,981.7	366.2	2,860.7

*Roadway Lane Mileage - not Miles of Roadway.

Carroll Transit System offers six fixed public TrailBlazer routes, which run Monday-Friday. Also offered is Demand Response Service, which is a door-to-door service based on reservation.

Carroll County offers 150+ miles of cycling over varying degrees of difficulty. The ten loop bike tours provide the recreational cyclist a unique view of scenic back roads while highlighting scenic stops and historic attractions.

Carroll County Regional Airport serves central Maryland and southern Pennsylvania with a single 5,100' long by 100' wide runway. The 2015 update to the Airport Master Plan recommends construction of a 5,500' long replacement runway.



Map 4.1: Existing Facilities Carroll County

[5]MDOT SHA (2021). 2020 Mileage Reports. Retrieved from https://roads.maryland.gov/OPPEN/2020_Mileage_Reports.pdf.
[6]MDOT SHA Data Services Division.

Chapter 5 Transportation Corridor and Subarea Analysis

Information in Chapter 5 is taken from the Carroll County Transportation Corridor & Subarea Analysis study produced in 2020 by consultant Mead & Hunt and with assistance from the Baltimore Regional Transportation Board's Unified Planning Work Program (UPWP).

Goal Pursue policies and strategies that facilitate near-term incremental improvements to the road network that have a broad public benefit to improve mobility and safety within and approaching the County's Designated Growth Areas.

Background & Study Purpose

Like most local governments in Maryland, Carroll County has a limited span of responsibility and authority for transportation planning and investment. While the County provides and maintains 901 miles of paved roadways (compared to 219 miles by MDOT SHA), these local roads carry only approximately 9% of all vehicle miles travelled in the County. The major roadways in the County are state roads, over which the County has very little control but on which the most congestion occurs. As such, the County's primary tools to address traffic congestion are land use management, the prioritization of and advocacy for roadway improvements by the state, and coordination with state and municipal agencies on development and highway access issues. The County can also influence transportation planning by providing matching funds for state improvements and by requiring developers to finance roads and/or road improvements associated with their development. As the 2014 Carroll County Master Plan as amended 2019 (CCMP) points out, this has not always resulted in cohesive, connected roadway networks.

The County's approach to master planning framework for land use and infrastructure focuses growth in eight designated areas (DGAs) (see Figure 5.1), while continuing to preserve productive farmland through the locally successful and nationally recognized Carroll County Agricultural Land Preservation Program. The DGAs range in size from the small industrially-oriented communities of New Windsor and Union Bridge to the suburban neighborhoods of the Freedom Area and the historic County seat of Westminster. Their transportation challenges range from Main Street truck traffic to traffic congestion on thoroughfares that serve commuters from all corners of Carroll County and beyond. Transportation investment choices must balance local trips in small towns, travel to commercial and industrial employment within the County, and longer-distance Washington and Baltimore metropolitan areas, including trips which originate within the bordering counties of Pennsylvania.

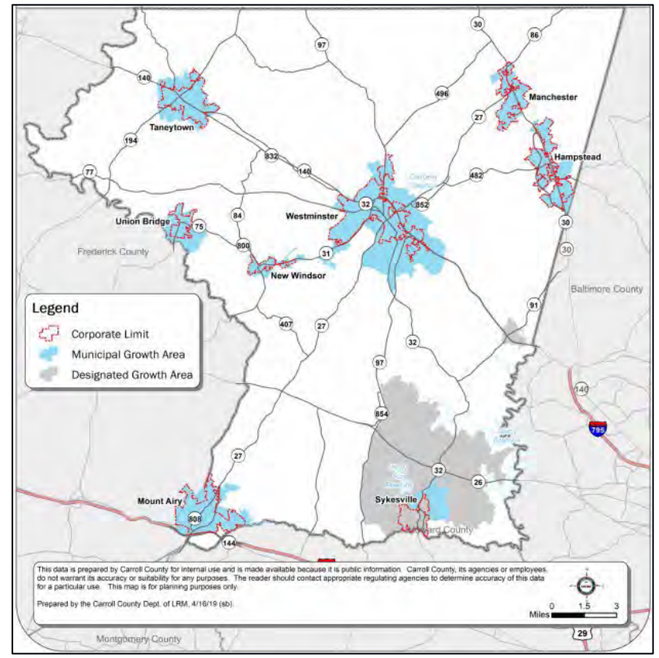


Figure 5.1. Carroll County's Designated Growth Areas Transportation Plan

Carroll County has had a relatively consistent approach to transportation planning over the past sixty years. In 1962, the Carroll County Board of Commissioners adopted a Major Street Plan which envisioned construction of bypass roads around several of Carroll's incorporated municipalities, particularly those whose Main Streets were state highways. These bypasses, in conjunction with local collector road construction, were expected to divert heavy traffic away from the historic towns and create economic development opportunities for the County. Over the past 60 years, many of these major streets have been built as envisioned and successfully achieved their aims. In other parts of the county, the bypasses and collector roads have been partially built or languished altogether for various reasons.

In both the 2000 and 2014 Master Plans, the County Commissioners acknowledged that relying on or expecting implementation of the Major Streets Plan was an insufficient tool to support the County's overall growth framework.

The County's growth management policies have resulted in travel between the DGAs being generally reliable and with moderate congestion but getting through and traveling within the DGAs can be slow during the peak travel times. Several intersections in Westminster, Eldersburg, Sykesville, and Manchester operate over capacity and with failing levels of service.

Compared to roadways statewide, Carroll County fares very well with only two arterial roadway segments being listed among MDOT SHA's most congested: Southbound MD 97 between Stone Road and Magna Way (4th most congested arterial segment statewide in the AM peak) and northbound MD 30 between MD 30 (Bus.) and MD 27 (14th most congested arterial segment in the PM Peak). MDOT SHA is addressing these locations with new turn lanes, changes to signal timing and phasing and other incremental improvements.

2000 Comprehensive Plan

Traditionally, it has been County policy to depend completely on the Maryland Department of Transportation (MDOT) for their timely construction of the County's proposed bypasses and other state road improvements. Expansion of state roadway facilities which are, in many cases, Main Streets in local municipalities, have not been forthcoming. Carroll County and its municipal governments, expecting timely state investments in its roadway network, have allowed residential, commercial, and industrial development to proceed. The lack of state road construction as envisioned on the Major Street Plan has created near-failing and failing conditions at multiple locations along several state roadway segments in Carroll County.

2014 Comprehensive Plan (as amended in 2019)

[it] is apparent that continuing to rely on the state exclusively for state transportation improvements is not realistic planning. It is becoming clear that the County will have to provide higher levels of funding for its transportation projects. The realization of the complete transportation network in Carroll County, including the successful implementation of the Major Street Plan, an interconnected Countywide trail system, and new roadway improvement needs identified, would be very costly. The Major Street Plan includes a combination of state and County roads which exceeds $3.3 billion in total construction costs.

Still, Carroll County residents have the third longest average one-way commute time in the state at 36 minutes, behind only Calvert and Charles Counties. The average commute time has grown by approximately 5% between 2010 and 2019. Although moderately improving, the County's jobs/housing imbalance results in 68% of all commutes to locations outside of the county. There is nothing to indicate that this pattern will change dramatically over the next twenty years; long commute times will continue with more than 85% of all commuting trips being made alone.

Faced with very limited funding at the municipal and county level and state investments which are focused on the major interstate bottlenecks in the metropolitan areas, the County faces a fundamental choice: focus on winning state investments in projects which cost hundreds of millions of dollars and hope that one or more advances through the gauntlet of planning, engineering, permitting and construction or focus on near-term incremental improvements that improve local mobility while gaining some larger regional benefit.

Purpose and Use of Study

The purpose of this Transportation Corridor & Subarea Analysis is to help County policymakers with prioritization and implementation of projects which will improve mobility within and approaching the County's DGAs over the next 20 years. While the County, municipal governments and the Maryland Department of Transportation's State Highway Administration (MDOT SHA) have identified through their own planning processes more than 100 potential transportation improvements, there is less of a framework for deciding which improvements should advance over the next twenty years.

This plan reviews those 100 potential transportation improvements to identify the most promising potential improvements which have a broad public benefit, improve mobility within municipalities and/or are critical to economic development. Unlike the County's 2014 CCMP and municipal master plans, this transportation plan is not exhaustive of all transportation improvements which are necessary and desirable. It does not rely on the Major Streets Plan as a starting point for review nor does it consider projects which have as their primary purpose to facilitate specific development projects or open up new land to development within DGAs.

This analysis also aims to identify how the largest of transportation projects could be implemented incrementally to achieve mobility benefits sooner rather than later. In some cases, this plan recommends thinking beyond major projects which have long been identified and desired, in favor of improvements which can maintain or improve today's traffic congestion levels even as the number of trips increases over the next 20 years. To improve project delivery, this analysis also identifies rights-of-way that need to be acquired or designated for acquisition, suggests transportation improvements which have the least likelihood of extensive environmental permitting processes, and are cost-effective in meeting the desired objective.

While the scope of this study did not permit a detailed analysis of every area of the county, it does provide a window into the types of choices that county policymakers should consider when making investment and prioritization decisions. For example, a project that costs several hundred million dollars faces significant risk of not advancing through the pipeline of planning, engineering, right-of-way acquisition and funding for construction – thus why many of the roadways from the 1962 Major Streets Plan have not advanced. Policymakers might also consider that a project primarily benefiting out of state commuters may reduce the amount of investments available for projects that have a more localized benefit for county residents.

Plan Development

This plan was developed with input from county agencies and technical support from the Baltimore Metropolitan Council which funded the project through its annual transportation planning work program. The planning process began by identifying all of the proposed roadway improvements by municipal, county or state agencies within the past decade and assessing their status. The project team then reviewed land use and development patterns, growth projections and their impact on the road network to understand what congestion might look like by 2045 with and without the proposed roadway improvements.

It became apparent to the project team that some of the most expensive investments proposed in the region's Constrained Long-Range Transportation Plan did not necessarily yield any long-term improvement in volume/capacity ratios after the project was built. For example, as highlighted in the maps below, despite a proposed $271 million investment to widen MD 140 from 6 to 8 lanes through Westminster and build a full interchange at MD 97, volume/capacity ratios would be higher in 2045 than they are expected to be in 2023. In another example, the proposed full interchange at MD 140/MD 91 in Finksburg reduces volume/capacity ratio to acceptable levels at a cost of $170 million; however, a near-term "jug handle" improvement could still achieve significant benefit for less than $3 million and is presently under design by MDOT SHA.

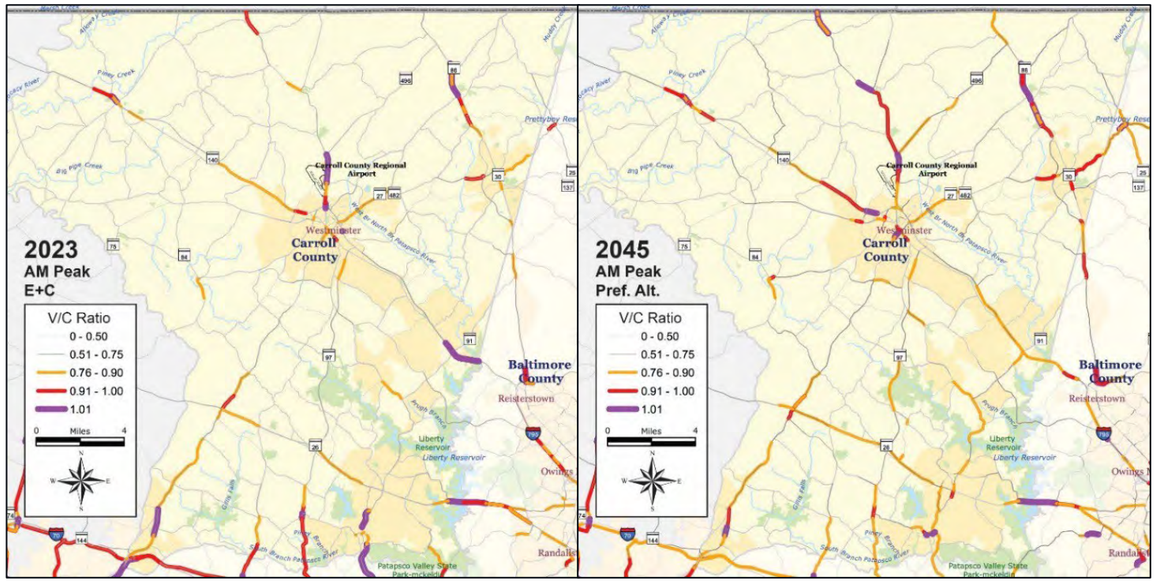


Figure 5.2. Existing (left) and 2045 Forecasted (right) Traffic Congestion under the Regional Constrained

With a project development process that is slow to deliver too few congestion-relief benefits and at such an extraordinary cost, the project team decided to refocus its efforts. Priority would be given to operational improvements, break-out projects and phasing strategies that could actually be implemented in the 20-year time frame that would, at worst, hold existing traffic congestion levels steady even with modest growth in traffic volumes through 2045. The team then proceeded to identify promising concepts and apply traffic models to better quantify the benefits of those alternatives, then used the modeling results to select the promising potential improvements for inclusion in this transportation plan. All improvements measured the intersection level, identified levels of service, and anticipated motorist delay both in the current year and in 2045, as necessary. The project team also considered the ability of agencies to deliver the break-out, phased, or operational improvement projects in the context of available right-of-way and minimizing environmental impacts.

Countywide Forecasts & Commuter Flows

The Baltimore Metropolitan Council projects moderate growth in Carroll County over the next 20 years. The County's population is anticipated to grow by approximately 13,000—or 7.4 percent—over the next 20 years, reaching approximately 182,000 by 2040. This represents a slowing of population growth over past rates and is lower than forecasted population growth in Howard, Montgomery, and Frederick Counties (10.4, 13.7, and 24.0 percent respectively); only Baltimore County (6.3 percent) has a lower forecast growth rate than Carroll County among its neighbors. The Westminster area will gain more than 4,500 new residents—more than a third of the Countywide growth, and nearly twice as much as the growth forecast for second-ranked Eldersburg (just over 2,300 new residents).

Employment is forecasted to grow at a more rapid rate—12.2 percent over the next twenty years—yet the number of Carroll County residents who work is forecasted to decline by 2.8 percent over the next two decades. This is likely related to an aging population, Carroll County's "working age" cohort aged 20 to 64 is anticipated to decline by about 12,000 between 2020 and 2040 to become a minority of the County's population, while those aged 65 and older will increase by nearly 23,000. Therefore, while commuting trips within and outside the County will remain a key factor in planning the County's transportation network, short trips to local destinations such as grocery stores, libraries, senior centers, and medical offices will assume greater importance for the County's roadway system.

Level of Service (LOS)

LOS is the grading scale assigned to traffic operations by transportation agencies to determine how efficiently the roadway operates. LOS grades are expressed as A through F, with A being the condition in which the least delay is experienced by motorists and F being the most delay. As with all public facilities, the goal is to design for the typical condition rather than expend public dollars for a brief situation, LOS D is the desired condition. The table to the top right found in the Highway Capacity Manual (HCM) expresses LOS for intersections by average seconds of vehicle delay.

Level of Service	Signalization	STOP Sign
A	≤ 10 Sec	≤ 10 Sec
B	0-20 Sec	10-15 Sec
C	20-35 Sec	15-25 Sec
D	35-55 Sec	25-35 Sec
E	55-80 Sec	35-50 Sec
F	≥ 80 Sec	≥ 50 Sec

As there are twenty-four hours in a day, there are 24 separate opportunities to evaluate the intersection's ability to manage the traffic that use it. Normally there are periods (typically less than one hour) when the intersection's ability to manage traffic is challenged by the amount of demand and those periods are commonly called the peak hour. In more urbanized areas, this period of demand can exceed a single hour during the morning and afternoon peaks. The more urbanized the area, typically the longer the duration of the demand or peak period.

In less urbanized and rural areas, or where controlled intersections are greater than one mile apart, the characteristics or attributes of the roadway section such as number of lanes, width of lanes, presence of shoulders, sidewalks, passing areas determine the LOS of that roadway. The desired design standard remains LOS D along the roadway, but rather than being measured in terms of delay (seconds per vehicle), the grade is established based on density of use (numbers of cars in a given distance of the roadway). The table to the bottom right displays roadway LOS based on vehicle spacing and driver level of comfort.

Level of Service	Average Spacing	Traffic Flow	Level of Driver Comfort
A	550 Ft	Free Flow	Very High
B	330 Ft	Reasonable Flow	High
C	220 Ft	Stable	Comfortable
D	160 Ft	Approaching Unstable	Some Concern
E	120 Ft	Poor	Poor
F	Minimal	Breakdown	Much Discomfort

Table 5.1 Forecasted population, employment, and worker population changes in Carroll County between 2020 and 2040 (county-wide and by subarea)

	2020			2040			Absolute Change			Percent Change		
	Pop.	*Emp.*	*Workers*	*Pop.*	*Emp.*	*Workers*	*Pop.*	*Emp.*	*Workers*	*Pop.*	*Emp.*	*Workers*
Carroll County *Unincorporated & Incorporated	169,200	77,415	90,253	181,803	86,818	87,755	12,603	9,403	(2,498)	7.4%	12.1%	(2.8%)
Eldersburg-Sykesville	37,071	15,253	19,143	39,387	17,108	18,474	2,316	1,855	(669)	6.2%	12.2%	(3.5%)
Finksburg	9,559	2,511	5,449	10,216	2,816	5,301	657	305	(148)	6.9%	12.1%	(2.7%)
Hampstead-Manchester	24,877	8,481	13,634	26,683	9,513	13,298	1,806	1,032	(336)	7.3%	12.2%	(2.5%)
Mount Airy	17,053	7,167	9,349	18,448	8,038	9,164	1,395	871	(185)	8.2%	12.2%	(2.0%)
Taneytown	12,432	3,997	6,264	13,750	4,483	6,260	1,318	486	(4)	10.6%	12.2%	(0.1%)
New Windsor-Union Bridge	9,539	2,125	5,552	10,079	2,383	5,349	540	258	(203)	5.7%	12.1%	(3.7%)
Westminster	58,669	37,881	30,862	63,240	42,477	29,909	4,571	4,596	(953)	7.8%	12.1%	(3.1%)

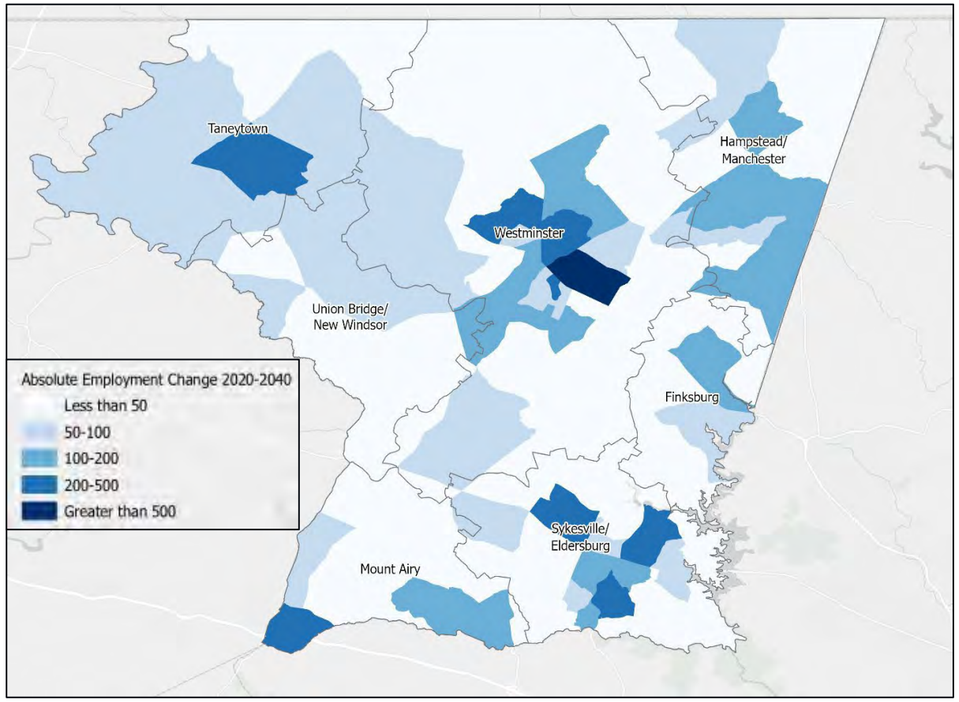


Figure 5.3. Carroll County Forecast Employment Growth, 2020-40

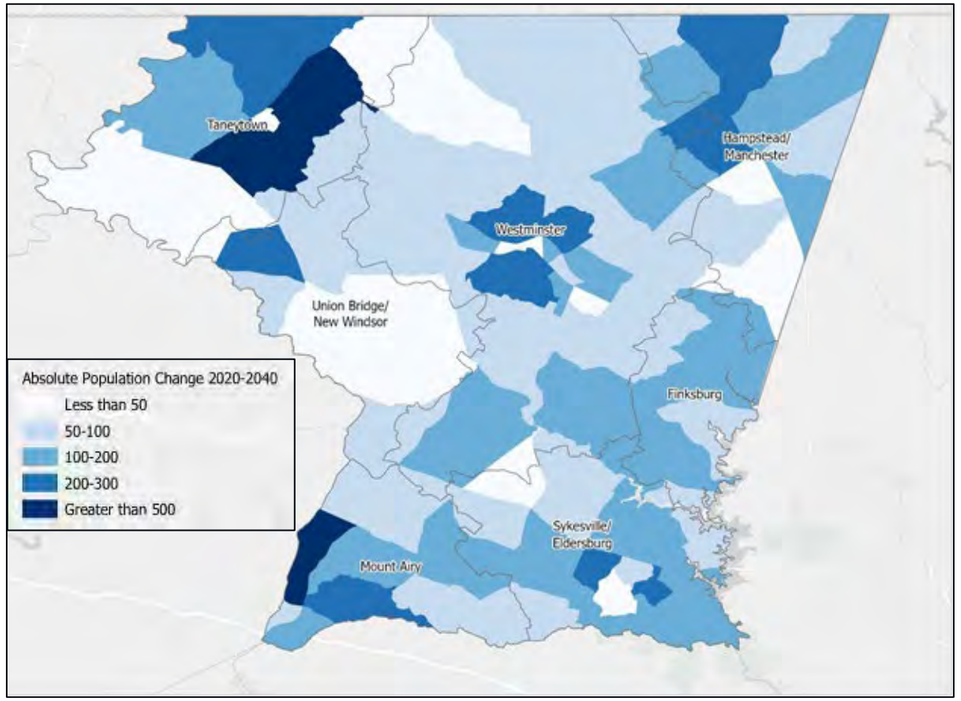


Figure 5.4. Carroll County Forecast Population Growth, 2020-40

While job growth is forecasted to be modest in Carroll County, there is significant projected job growth in neighboring Howard County, the Frederick area and in the I-270 corridor of Montgomery County, which are each a 30- to 45-minute drive from most parts of Carroll County. Roughly a third of Carroll County workers have their place of employment within the County. These roughly 28,000 workers constitute about half of all those who work in the County. Among those who commute outside Carroll County, Baltimore County (20 percent of commuters) and Howard County (13 percent of commuters) are the most frequent destinations. The average commute time for Carroll County residents is 36 minutes, but nearly 20% of residents have commutes that are over an hour.

Baltimore County is also the most common place of residence for those who commute into Carroll County; 12 percent of those employed in Carroll County reside in Baltimore County. Frederick County (7.5 percent) is the second-most common place of residence for commuters into the County, while Howard, York, and Adams counties supply 4 to 5.5 percent each. This data emphasizes the dual roles of Carroll County's transportation system: providing mobility for regional trips and providing local access within the County.

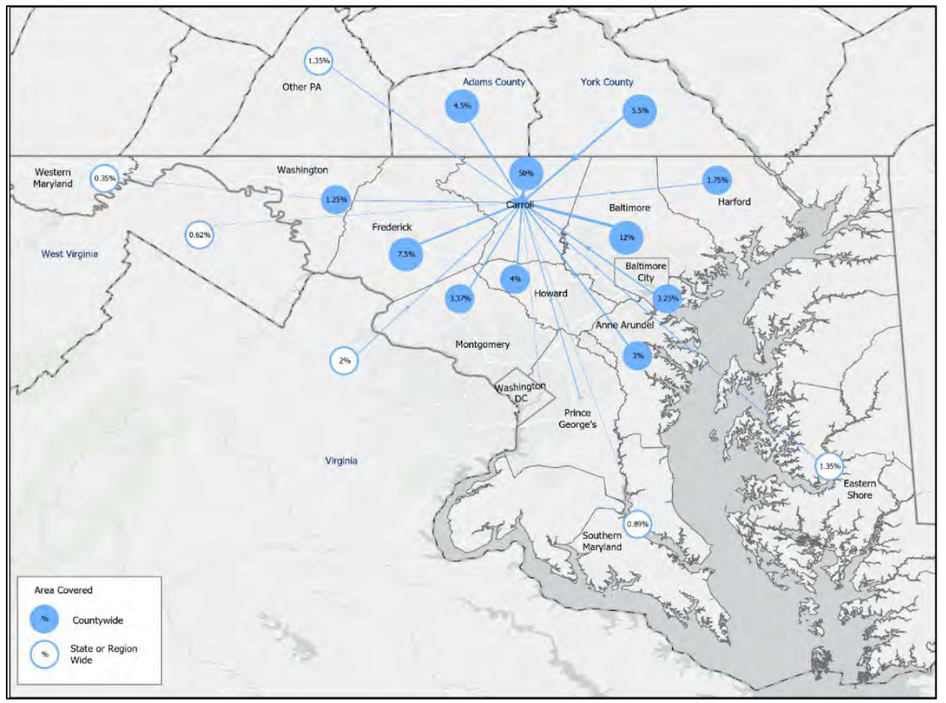


Figure 5.5. Commuting Flows to Carroll County

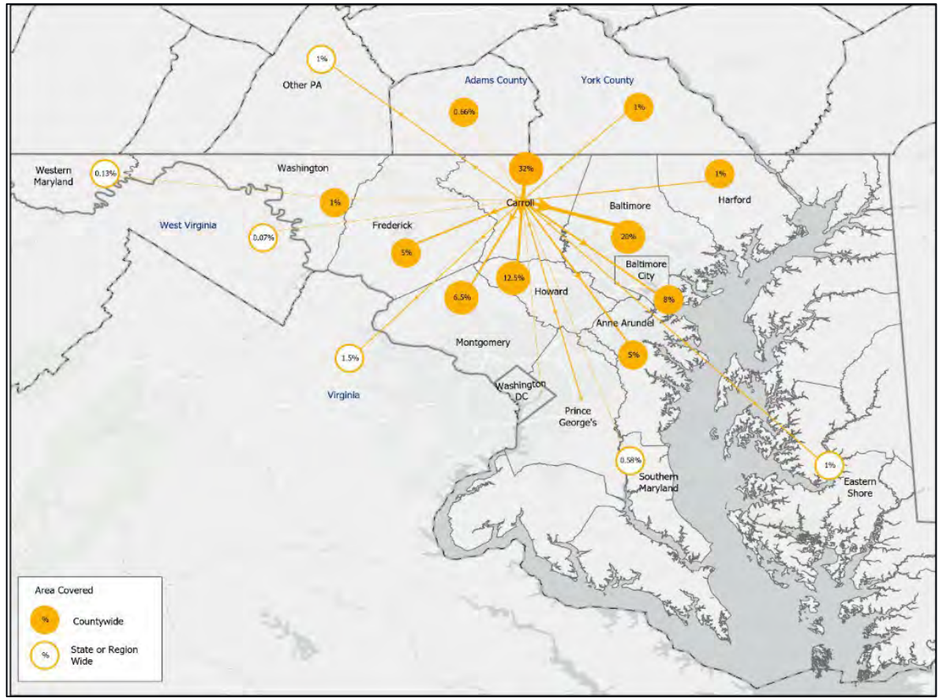


Figure 5.6. Commuting Flows from Carroll County

Table 5.2 Most Promising Potential Improvements Countywide

Location	Sub Area	Project Name
1	Eldersburg-Sykesville	MD 32/MD 26 Quadrant Roadway
2	Eldersburg-Sykesville	Dickenson Road Extended & MD 26 Access Management
3	Eldersburg-Sykesville	Georgetown Boulevard Extended
4	Eldersburg-Sykesville	MD 32 Operational Improvements – Main Street to Howard County Line
5	Eldersburg-Sykesville	Southeast Quadrant Connectivity
6	Finksburg	MD 140/MD 91 Jug Handle
7	Finksburg	MD 140 Median
8	Finksburg	Dede Road Extension
9	Finksburg	Old Westminster Pike at MD 140 Access Management
10	Hampstead-Manchester	MD 27/Westminster St Roundabout
11	Hampstead-Manchester	MD 30 at Westminster Street New Left Turn
12	Hampstead-Manchester	MD 30 at MD 27 Intersection Improvements
13	Hampstead-Manchester	MD 30 at New Street – New Left Turn
14	Hampstead-Manchester	Southwestern Avenue Extended
15	Hampstead-Manchester	Maiden/Long Lane Upgrade
16	Mount Airy	South Main Street Roundabout
17	Mount Airy	Center Street East
18	Mount Airy	Center Street
19	Mount Airy	Century Drive Extension
20	Mount Airy	MD 94 Corridor Improvements
21	Taneytown	MD 140/MD 194 Left Turn Bay Extension
22	Taneytown	Allendale Lane/Antrim Blvd Extension
23	Westminster	Gorsuch Rd at MD 140 Right-In/Right-Out
24	Westminster	MD 14 at Ralph Street/Cranberry Road

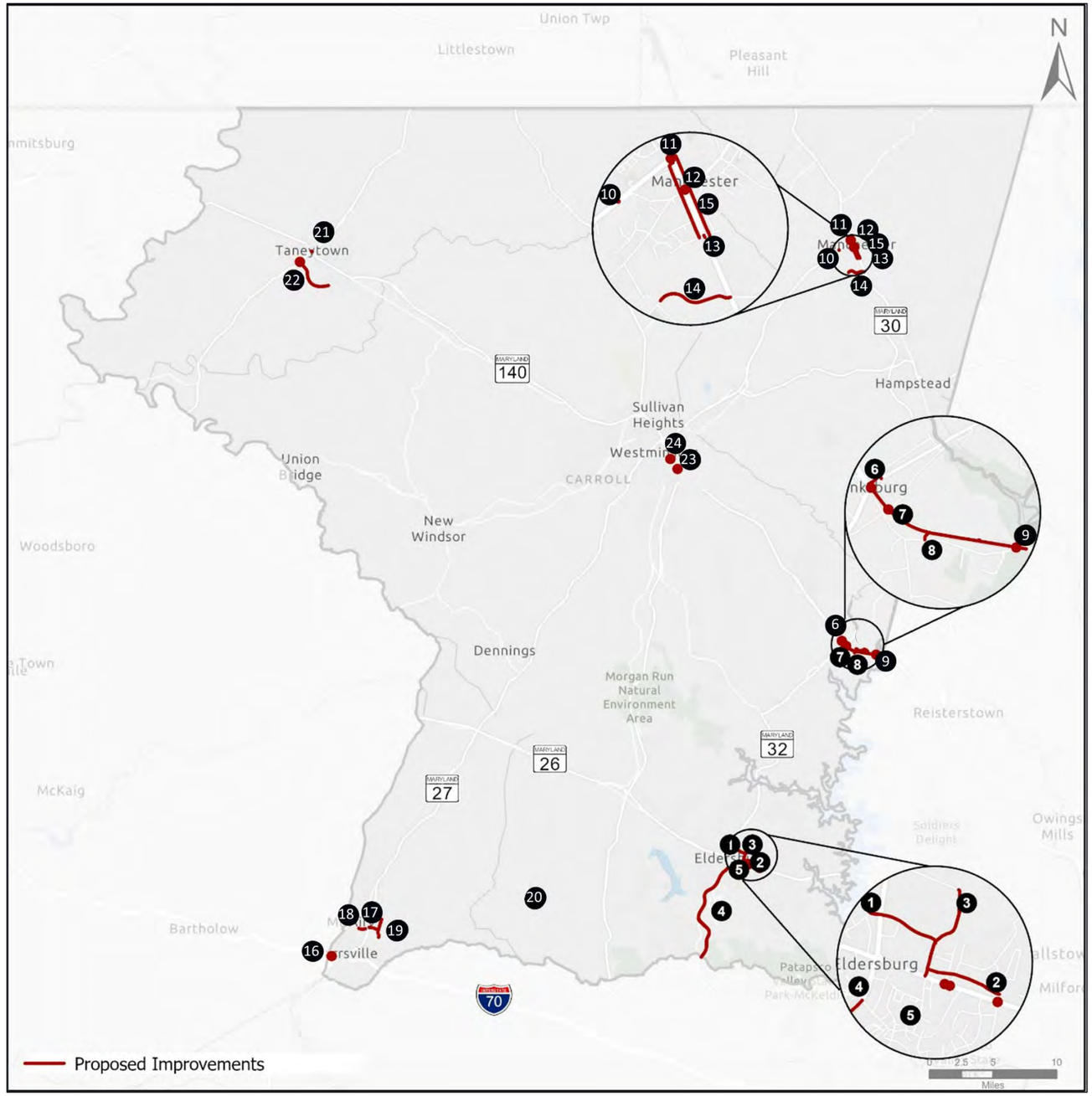


Figure 5.7 Most Promising Potential Improvements to Improve Mobility and Reduce Traffic Congestion

Eldersburg/Sykesville

Road Network

The Eldersburg/Sykesville Subarea (broadly referred to as the "Freedom Area") is in the southeastern corner of Carroll County, centered on the intersection of MD 32 and MD 26. MD 32 is classified as a principal arterial for its full length through the subarea and provides access south to Howard County and north to Finksburg and Westminster, while MD 26—which provides access east to the Baltimore metropolitan area—is classified as a principal arterial only between the western branch of Liberty Reservoir and Emerald Lane and is classified as a minor arterial elsewhere in the subarea. The area is also bisected in a north- south direction by MD 97, which is classified as a major collector south of MD 26 before entering Howard County and ultimately onward to Montgomery County, passing through Brookeville and Olney on its way to Wheaton and Silver Spring. North of MD 26, MD 97 is classified as a minor arterial and provides access to Westminster.

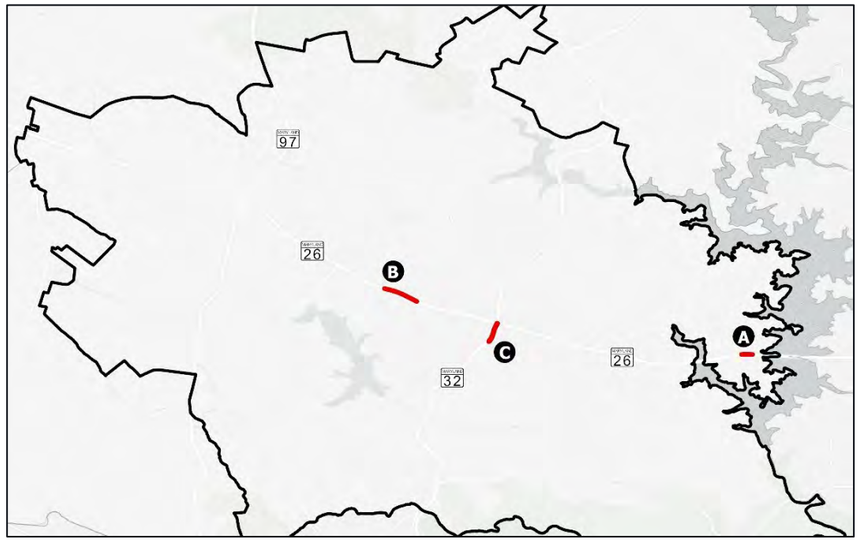


Figure 5.8 Recent and Committed Projects in the Freedom Area

Table 5.3 Recent and Committed Projects in the Freedom Area

Location	Project	Status	Construction Cost
A	MD 26 - Turning Lanes Construction at Oakland Mills Road in Carroll County. Improvements include the addition of right and left turn lanes and a new traffic signal.	Completed Spring 2018	$2,720,000 Source: CTP
B	MD 26 – Intersection Capacity Improvements at Emerald Lane to Calvert Lane	Completed Summer 2019	$5,027,000 Source: CTP
C	MD 32 – Road Widening from Main Street to Macbeth Way	Completed Fall 2020	$4,180,000 Source: CTP

Land Use and Demographics

Despite a low overall growth rate, the Eldersburg/ Sykesville Subarea is expected to add the second most amount of people, households, and jobs in Carroll County. Over the past several years, the Eldersburg/Sykesville Subarea has rezoned many of its industrial parcels to commercial, creating ample opportunity for retail and office growth in the area. Most of the growth is expected to be contained along the main corridors, MD 26 and MD 32.

The most significant growth within the Eldersburg/ Sykesville Subarea is along MD 26, in Eldersburg's main growth area. Within the past five years, several major big box and chain stores have opened along MD 26 in Eldersburg. Retail jobs will continue to grow along the corridor, but the majority of Eldersburg's commercial growth will be in the northeast quadrant of the intersection of MD 26 and MD 32 and the growing Liberty Exchange Business Park. Additionally, about 300 new jobs are predicted east of the intersection of MD 26 and MD 97.

The Freedom Maryland National Guard Readiness Center was completed in 2020 and the development of Warfield at Historic Sykesville is underway. Warfield at Historic Sykesville will consist of new residential and commercial uses, including 145 recently constructed residential units. While the new Freedom Readiness Center generated approximately 10 full-time jobs, it houses hundreds of members of the National Guard for weekend drills. There are no areas of projected increase in worker population, indicating that traffic flow will be largely into and through this subarea.

Table 5.4 Freedom Area Growth 2020-40

Type	Growth	Percent
Population	2,316	6.2%
Workers	(669)	-3.5%
Employment	1,855	12.2%

Land Use and Demographics Cont.

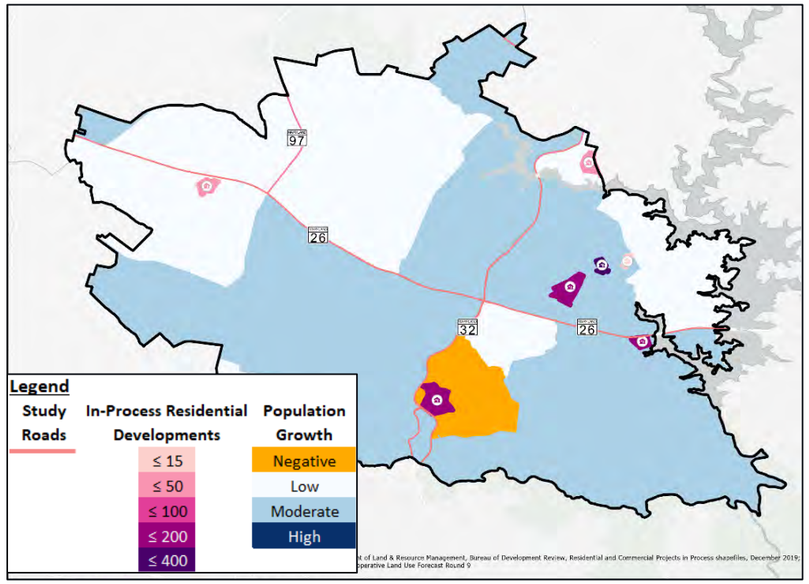


Figure 5.9 Freedom Area In- Process Residential Developments and Population Growth 2020-40. [NOTE: The negative growth shown along MD 32 results from the closure of the Springfield Hospital Center.]

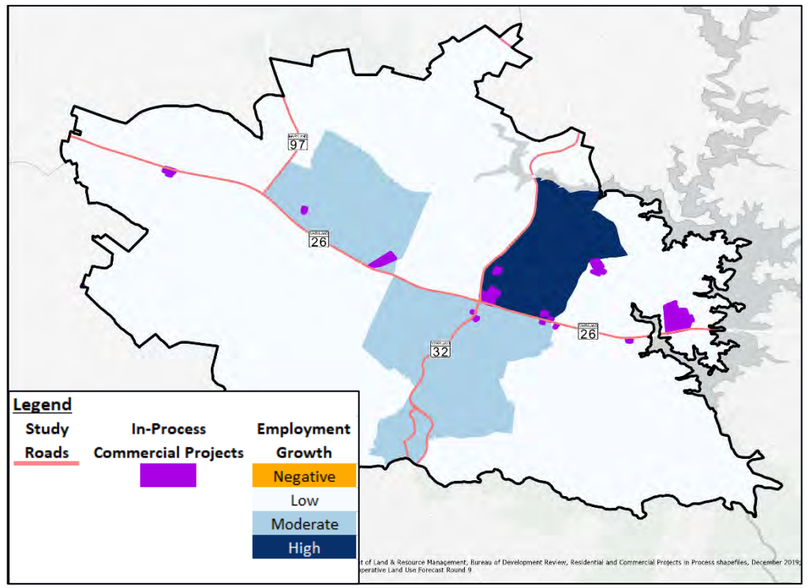


Figure 5.10 Freedom Area In-Process Commercial Developments and Employment Growth 2020-40.

Commuter Flows

Note: Numbers do not add to 100% due to rounding and because very small flows (<1%) are not shown.

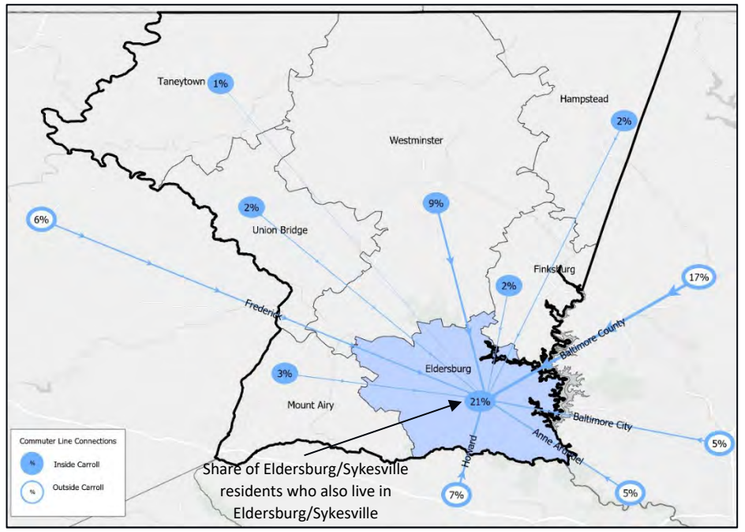


Figure 5.11 Commuting to Eldersburg/Sykesville, % of Eldersburg/Sykesville Workers by Place of Residence

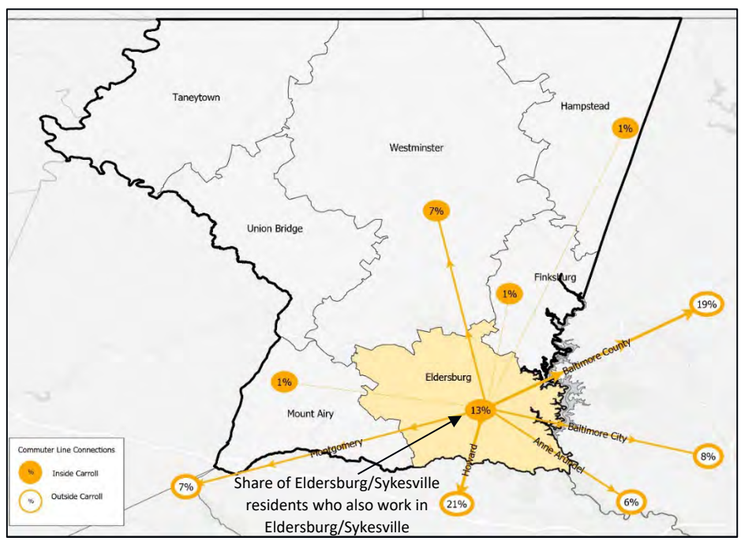


Figure 5.12 Commuting from Eldersburg/Sykesville, % of Eldersburg/Sykesville Working in Each Subarea/Jurisdiction

Local Goals and Policies

Transportation challenges in the Eldersburg/Sykesville Subarea are related to three factors: historical indecision as to the function of MD 32, a mismatch between the County's land use plan, access controls, and supporting roadway network, and the state's interest and ability to deliver on a project which supports the County's vision. The earliest state plans for MD 32 envisioned a freeway running from Annapolis to Westminster that have since been curtailed in favor of dualized highway only as far as I-70, a project which was completed in 2022. Looking ahead, despite local master plans calling for a dualized 4-lane roadway, the MD 32 Planning and Environmental Linkages (PEL) study completed by MDOT SHA in 2018 concluded that such widening is not justified based on traffic forecasts through 2040. Still, the concentration of residential growth along MD 32, traffic volumes from further north towards Westminster and frequent driveway and side street access (without secondary access to MD 26) have created localized congestion that is difficult to resolve without further investments in the secondary road network and access controls.

The County's 1962 Major Street Plan provided for several new major collectors to be constructed east of MD 32 that would knit together the local roadway network and provide connectivity to the area's major roadways for new developments. Of these, most of Macbeth Way and parts of Georgetown Boulevard and Monroe Avenue have been constructed. The local road network has developed into a connected set of streets that provide access between residential neighborhoods and the arterial throughways. There is some disconnectedness in the southeast quadrant of MD 32 and MD 26 which should be addressed, although there is no consensus on how to do so. In contrast, MD 26 primarily provides access to local destinations and serves as a commuting route into Baltimore County for Eldersburg and Sykesville residents, as communities to the north and south have their own arterial routes east (MD 140/I-795 and I-70, respectively), which were constructed largely as they were envisioned at the time the 1962 Major Street Plan was adopted.

These differing functions for the Freedom Area's arterials within the regional highway network have affected how the roadway corridors have developed in the area's core. Although the County's early master plans envisioned commercial development along both MD 26 and MD 32 as far south as Freedom Avenue in Eldersburg, development trends and land use designations have oriented commercial uses along MD 26 and only a short stretch of MD 32 between Piney Ridge Parkway/Macbeth Way and Johnsville Road/Bennett Road—a trend gently accelerated with the 2018 Freedom Community Comprehensive Plan—and maintained a primarily residential and rural character along MD 32 south of Eldersburg.

Existing Traffic Conditions

The MD 26 corridor in Eldersburg experiences moderate intersection delay during peak hours and experiences reduced speeds between Ridge Road and MD 32 (See Figure 5.12). Its intersections with Panorama Drive and MD 32 operate at LOS D during both the AM and PM peak hours and its intersection with Ridge Road operates at LOS D during the PM peak hour. However, only at MD 32 do the eastbound and westbound approaches along MD 26 operate at LOS D or worse. At Panorama Drive and Ridge Road, eastbound and westbound approaches along MD 26 all operate at LOS C or better, while the northbound approach at Panorama Drive operates at LOS D and the northbound and southbound approaches at Ridge Road/Oklahoma Road operate at LOS E in the AM peak hour and LOS F and E, respectively, in the PM peak hour. This reflects prioritization of throughput on MD 26 over access to MD 26 from side streets.

Typical travel speeds along Liberty Road through the commercial area range from 35-44 miles per hour in the eastbound direction and 30-34 miles per hour in westbound direction—dropping to as low as 20 miles per hour close to MD 32—during the AM peak hour. In the evening, travel speeds drop below 30 for a larger area along MD 26 through Eldersburg in both directions, and speeds drop as low as 15 miles per hour close to MD 32.

By contrast, MD 32 does not have any intersections that operate at LOS D or worse other than at MD 26, but experiences reduced travel speeds and queueing concerns through the center of Eldersburg between Johnsville Road/Bennett Road and Piney Ridge Parkway/Macbeth Way as well as at Freedom Avenue and Springfield Avenue. As along MD 26, side-street delays are greater than mainline delays along MD 32; all MD 32 signalized intersection approaches operate at B or better during the AM peak hour and LOS C or better during the PM peak hour, while all side-street intersections operate at LOS C or worse during the AM peak hour and LOS D or worse during the PM peak hour.

Travel speeds along MD 32 operate from 35-44 miles per hour through most of the corridor, with reduced speeds (as low as 30 miles per hour) just north of Springfield Avenue and even more lower speeds (as low as 25 miles per hour in the northbound direction and 20 miles per hour in the southbound direction) north of MD 26.

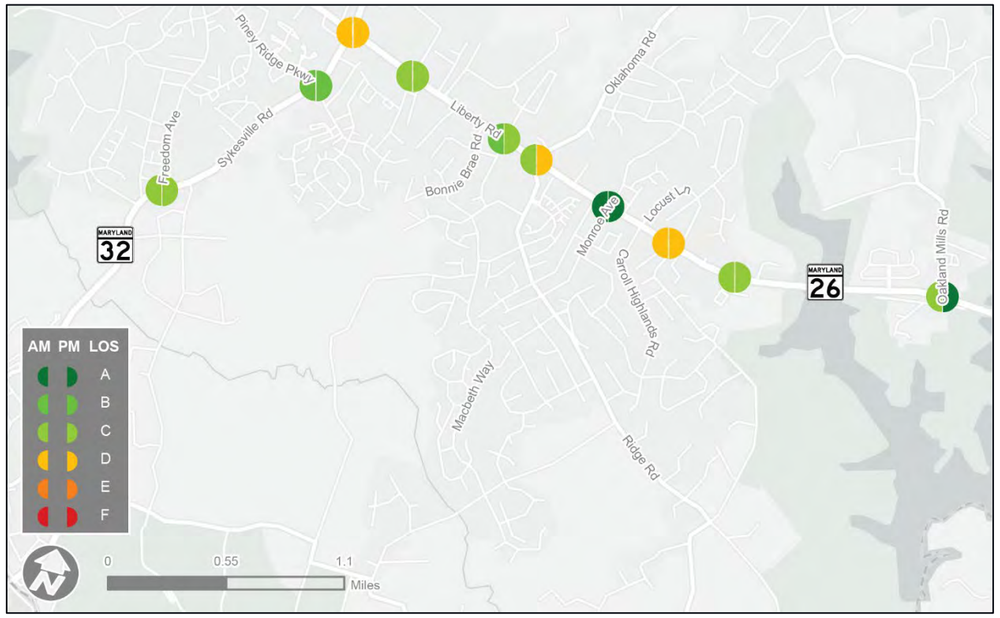


Figure 5.13 Eldersburg/Sykesville Existing Traffic Conditions

2040 Traffic Conditions with No Improvements

Traffic conditions along MD 26 are anticipated to deteriorate over the next two decades. While LOS at the Panorama Drive intersection will not degrade substantially, the MD 26/MD 32 intersection is forecast to drop to LOS F during the PM peak hour by 2040. In addition, the intersection of MD 26 with Hemlock Drive will remain the same, MD 26 with Georgetown Boulevard will degrade to LOS D during the PM peak hour, and the intersections of MD 26 with Fallon Road will drop to LOS F during the AM and PM peak hours. The intersection of MD 26 with Oakland Mills Road is forecast to drop to LOS E during the AM peak hour and LOS C during the PM peak hour by 2040. As they do today, side street approaches to MD 26 will experience greater delay than eastbound and westbound approaches. Along MD 32, conditions will worsen to LOS D during the AM peak and LOS F during the PM peak at the Freedom Avenue intersection.

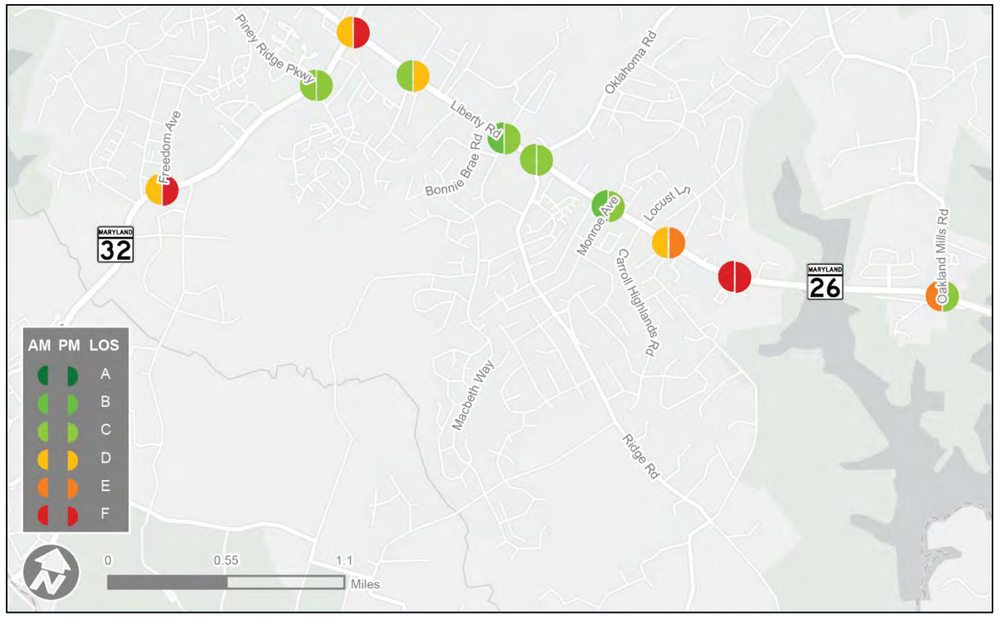


Figure 5.14 Eldersburg/Sykesville 2040 No-Build Traffic Conditions

Planning Approaches

Both the Freedom Community Comprehensive Plan and previous MD 32 planning studies recognize that a four-lane, dualized cross section of MD 32 would provide significantly more capacity than the roadway presently does. However, MDOT SHA's most recent planning study (2018) for MDOT SHA found that dualization of the roadway would not be necessary by 2040 to maintain acceptable operations. Similarly, the 2002 planning study for MD 26 proposed a four-to-six-lane dualized cross-section between MD 32 and the Liberty Reservoir; however, MDOT SHA's 2019 update of the MD 26 study found that traffic volumes had grown more slowly than expected. Widening and dualizing these arterials would require substantially more investment than making strategic improvements—whether along the arterial corridor or adjacent to it. The 2018 MD 32 Planning Study emphasizes strategic intersection improvements along MD 32 such as lengthening turn lanes or better managing access to reduce delays and queueing impacts. This approach supports traffic growth along the arterial roadway and is particularly useful when a high proportion of trips travel through the study corridor without turning onto or off of the arterial road.

Planning Approaches Cont.

A further study for MD 32 at MD 26 known as the Practical Design Concept Study identified strategies to improve intersection operations without a grade separation or major reconstruction of the intersection. Two concepts were identified as the most promising: creating a peak-hour only “managed lane” by connecting a series of acceleration and deceleration lanes along the south side of MD 26 east of MD 32; and using the existing roadway network as a “quadrant roadway” that diverts left turns through an intersection to use another intersection with less congestion to facilitate the left-turns.

The approach endorsed by the 2018 Freedom Community Comprehensive Plan prioritized increasing connectivity parallel to arterial roadways such as MD 26 and MD 32. This approach is intended to minimize the impact of local traffic on arterial intersections and helps to mitigate an imbalance between mainline and side street delays by allowing motorists from adjoining areas to access destinations in the corridor without having to turn onto the arterial road.

Recommended Approach

Neither MD 26 nor MD 32 need to be dualized during the two-decade time horizon of this analysis. However, the nature of each arterial roadway demands a different approach for each. Along MD 32, through traffic volumes at the most congested intersections (Sandosky Road/Raincliffe Road and Freedom Avenue) are five to seven times higher than side-street volumes. Therefore, **this analysis recommends prioritizing throughput along MD 32 as outlined in the 2018 MDOT SHA planning study.**

The most congested intersections along MD 26, in contrast, have mainline volumes only three to four and a half times higher than the side street volumes. Therefore**, prioritizing connectivity alongside MD 26 will help to address local access needs without further burdening through travel on the arterial.** These approaches are consistent with the Freedom Community Comprehensive Plan and MD 32 Planning Study, although the Freedom Community Comprehensive Plan would benefit from strengthening of its secondary road network recommendations, particularly in the southeast quadrant of MD 32 and MD 26. A quadrant roadway would require less (if any) construction than the “managed lanes” concept and could be quickly implemented to address delays at MD 32 and MD 26.

Note

*Planned major street MacBeth Way and Lee Lane, from the 2014 Carroll County Master Plan as amended 2019, are recommended for removal. Most promising potential improvement **#3** connecting sections of MacBeth Way and Lee Lane may not be feasible and other alternatives for connectivity should be explored.

Table 5.5 Most Promising Potential Improvements for the Eldersburg/Sykesville Area

#	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1, 2, 4	**Construct Dickenson Road between Oklahoma Road and Georgetown Boulevard** and manage access to MD 26 **Cost: $1M to $2.5M**	This will provide connectivity to all the commercial properties along the north side of MD 26 for residents of the residential neighborhoods in the northeast quadrant of Eldersburg without requiring them to travel on MD 26 or MD 32, as well as allow inter- parcel connectivity between the commercial properties along MD 26 without requiring motorists to turn onto or travel on Liberty Road. The planned eastern segment of Dickenson Road between Oklahoma Road and Monroe Avenue would partially duplicate existing connectivity provided by Monroe Avenue north of MD 26 and should be prioritized lower than this western segment.	Y	0	N	N
3	Re-examine the need for **connectivity in the southeast quadrant** of MD 32 and MD 26. **Cost: TBD**	This study does not recommend a specific improvement for this quadrant. However, the lack of a connected network in the southeast quadrant of MD 32 and MD 26 appears to hamper local circulation and add trips to MD 32 and MD 26 at the intersections where there is already the most congestion. *Connecting the two sections of MacBeth Way is the most logical route, although connecting the two sections of Lee Lane or extending Allen Drive to 2nd Street may also improve the efficiency of the secondary roadway network.	N/A	N/A	N/A	N/A
5	Implement the **Quadrant Roadway concept** from the MD 32 at MD 26 Practical Design Concept Study. **Cost: $100K to $250K**	This will improve performance at the MD 32 at MD 26 intersection by removing the turning phase from eastbound MD 32 to southbound on MD 26, thereby reducing queues and delays for through travelers on MD 32. As noted in the MD 32 at MD 26 concept study, the quadrant roadway approach for the northeast quadrant (Londontown Boulevard and Georgetown Boulevard) could be implemented quickly and easily with signing, marking, and flexible delineators as a pilot of this concept.	N	0	N	N
6	**Extend Georgetown Boulevard** between Londontown Boulevard and Progress Way **Cost: $2.5M to $5M**	In conjunction with the new segment of Dickenson Road, this will provide inter-parcel connectivity to the full northeastern quadrant of Eldersburg’s commercial core, as well as reduce burden on the MD 26/MD 32 intersection. Limiting the extension to Progress Way maintains separation between the commercial/light industrial and residential land uses.	Y	4	N	N
7	Construct strategic operational improvements along MD 32 between the Howard County line as outlined in the MD 32 Planning Study **Cost: $10M to $25M**	MDOT SHA has determined that the dualization of MD 32 is not warranted by forecasted traffic volumes through at least 2040. These improvements will improve traffic flow and reliability in the corridor.	Y	2	N	Y

Explanation of Benefits/Impacts

Cost Range: Cost estimates used in this study come from a range of sources each with their own assumptions and methodology (i.e., level of design, year of expenditure, contingency percentage, etc.) Rather than identifying a specific cost estimate, a common range category is used across all projects for comparative purposes.

Potential Impacts: Impacts are shown as a surrogate measure for project complexity as well as the potential for environmental harm. Projects requiring right-of-way acquisition typically have a longer project development life- cycle than those that do not require acquisition; projects which cross streams or wetlands or are in the floodplain require additional analytical rigor and permitting than those which do not cross through; impact analysis was performed by desktop review using Maryland's Environmental Resources and Land Information Network (MERLIN).

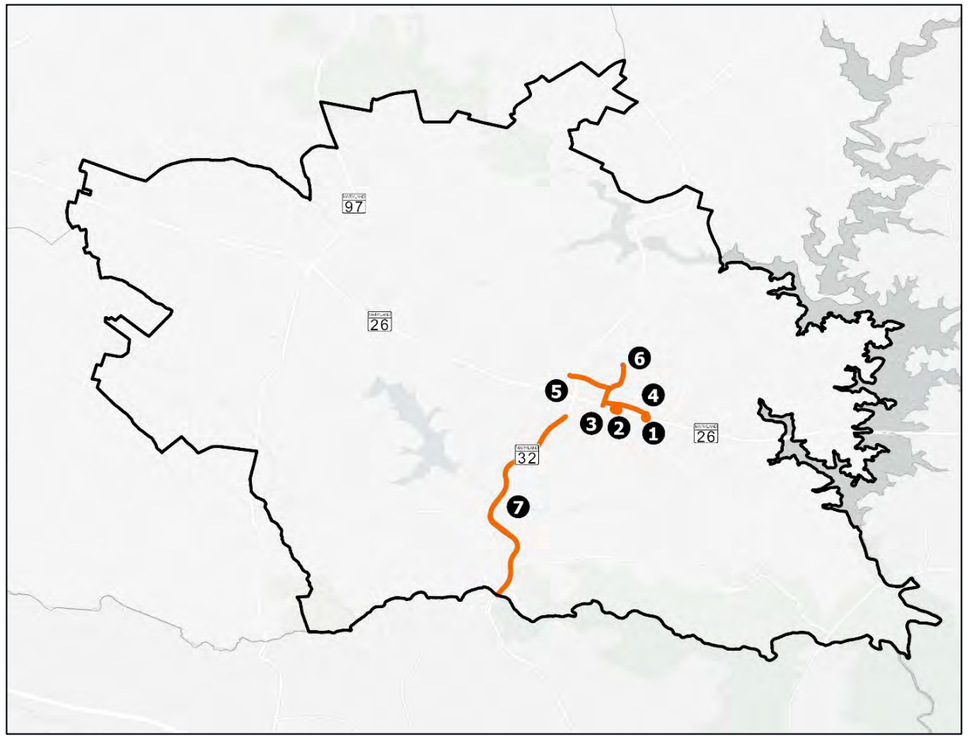


Figure 5.15 Most Promising Potential Improvements in the Freedom Area

Benefits and Impacts

According to the traffic analysis from the MD 32/MD 26 Practical Design Concept Study prepared by MDOT SHA, implementing the northeast quadrant roadway (Londontown Boulevard to Georgetown Boulevard) would improve intersection operations considerably. Performing the MD 26 improvements will ease access to the commercial properties along Liberty Road and improve operations at arterial intersections by reducing local motorists' need to travel through them. Specifically, constructing Dickenson Road between Oklahoma Road and Georgetown Boulevard will reduce side-street demand at those intersections. Along MD 32, constructing Georgetown Boulevard between Londontown Boulevard and Progress Way will reduce side-street demand at Progress Way as well as left-turn and southbound demand at the MD 32/MD 26 intersection. Finally, constructing strategic intersection improvements as outlined in the MD 32 Planning Study will improve travel times and reduce queuing delays for through travelers along Sykesville Road.

Constructing targeted improvements along Sykesville Road in the Freedom area will help reduce travel times from areas north of Eldersburg to points south along MD 32 and reduce demand on other north-south routes within the County such as MD 97 and MD 27. Increasing local connectivity for businesses along Liberty Road in Eldersburg will support the County's development and growth management goals by helping to focus commercial and industrial development in the core of the Freedom area.

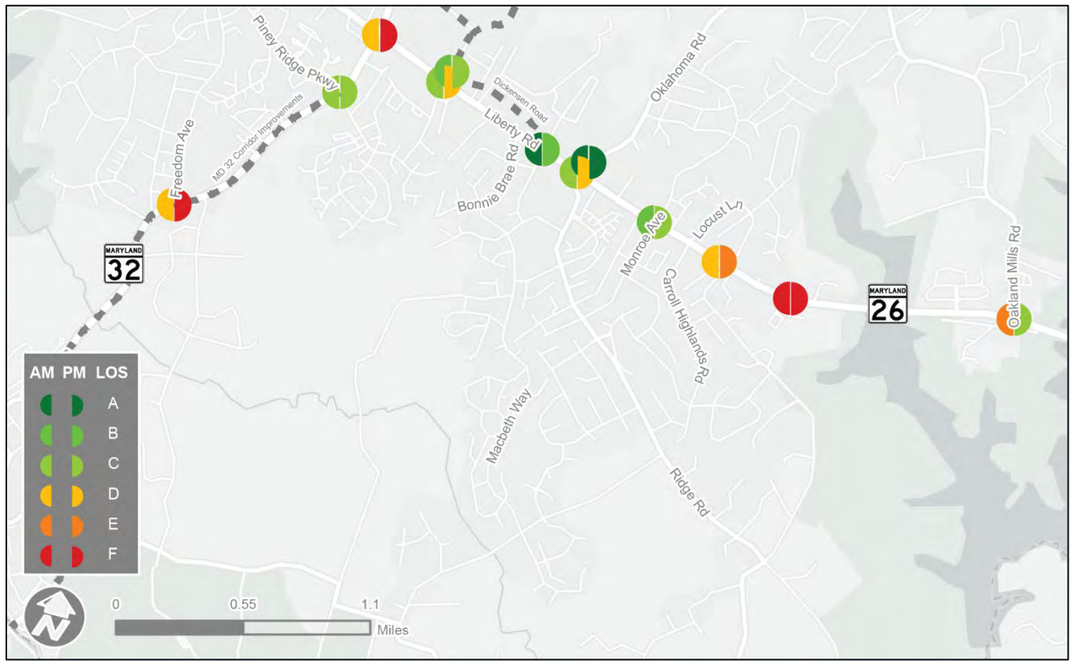


Figure 5.16 Eldersburg/Sykesville 2040 Traffic Conditions with Most Promising Potential Improvements

Finksburg

Road Network

Finksburg is in eastern Carroll County, southeast of Westminster and north of Eldersburg. MD 140, a principal arterial, runs in a northwest-southeast direction between Westminster and Reisterstown and is the primary axis along which Finksburg is oriented. Intersecting MD 140 in Finksburg is MD 91, which is classified as a minor arterial north of MD 140 and a major collector north of the Patapsco River before it crosses into Baltimore County near Upperco. South of MD 140, MD 91 is a principal arterial and runs 3.2 miles southwest to a "T" intersection with MD 32, which is classified as a principal arterial south of MD 91 and a minor arterial north of the intersection and provides access south to Sykesville and north to Baltimore County.

Figure 5.17 Recent and Committed Projects in the Finksburg Area

Table 5.6 Recent and Committed Projects in the Finksburg Area

Location	Project	Status	Construction Cost
A	**MD 140 – New acceleration lane** from Kays Mill Road onto eastbound MD 140	Completed 2015	$487,000 Source: CTP

Land Use and Demographics

The Finksburg Subarea is an area of Carroll County with a low population and moderate commercial activity. While the Subarea is on pace with the growth rates of the other Carroll County subareas over the next 20 years, actual development is expected to be minimal (Table 5.7).

The small amount of population, household, and employment growth anticipated to occur in the Finksburg areas will primarily occur along MD 140 from the Baltimore County line to Kays Mill Road. The Finksburg Corridor, as described in the 2013 Finksburg Corridor Plan, is home to small businesses, office, and retail uses, while surrounding areas of Finksburg contain more service and industrial uses. The residential area of Finksburg, which is located within the northeast quadrant of the intersection of MD 140 and MD 91, is projected to contain the largest share of Finksburg's population growth.

Table 5.7 Finksburg Area Growth 2020-40

Type	Growth	Percent
Population	657	6.9%
Workers	(148)	-2.7%
Employment	305	12.1%

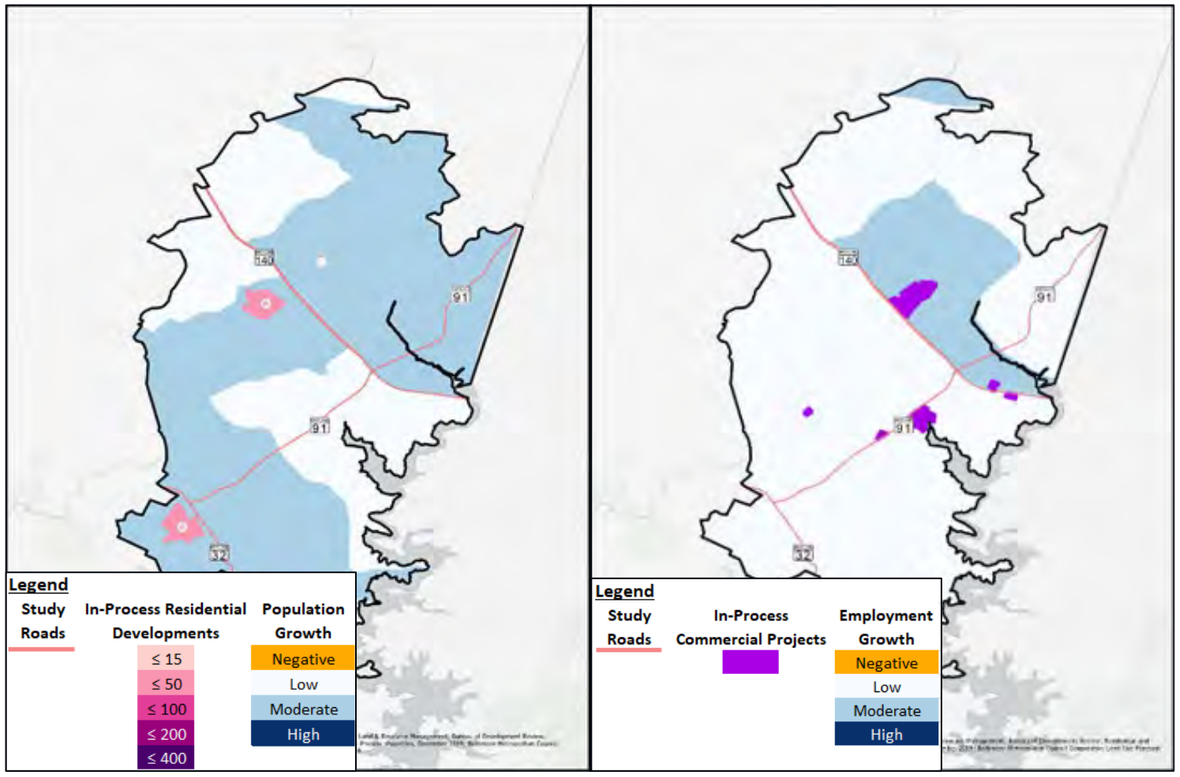


Figure 5.18 (left) Finksburg Area In-Process Residential Developments and Population Growth 2020-40. Figure 5.19 (right) Finksburg Area In-Process Commercial Developments and Employment Growth 2020-40

Commuter Flows

Note: Numbers do not add to 100% due to rounding and because very small flows (<1%) are not shown.

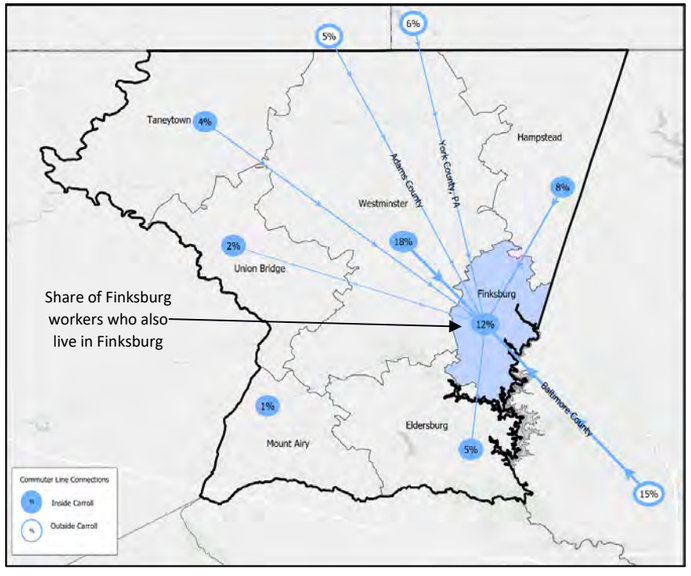


Figure 5.20 Commuting to Finksburg, % of Finksburg Workers by Place of Residence.

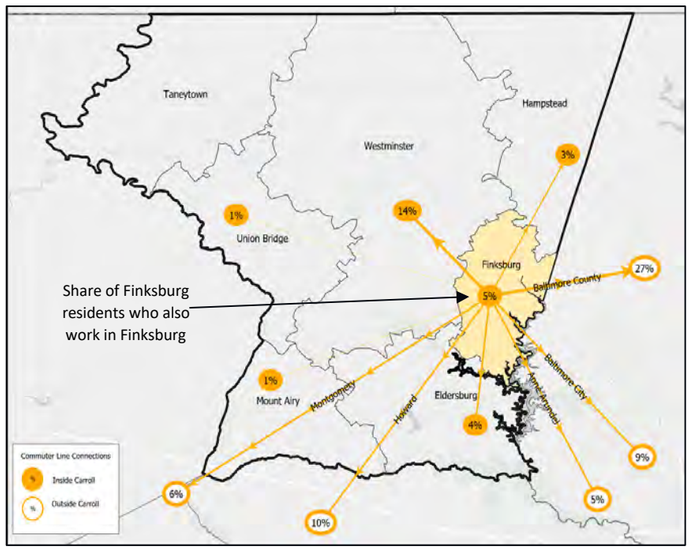


Figure 5.21 Commuting from Finksburg, % of Finksburg Working in Each Subarea/Jurisdiction.

Local Goals and Policies

MD 140 through Finksburg is a primary arterial route between central Carroll County, northwestern portions of Baltimore County, and Baltimore City. In Finksburg, the roadway was realigned onto a new widened alignment in the 1940s and the old alignment was maintained as Old Westminster Pike. Approximately twenty years later, in the early 1960s, MD 91 was realigned to bypass what is now Old Gamber Road and Cedarhurst Road, and the alignment of arterial roads in Finksburg assumed its present form.

In 1970, the Major Street Plan for the Finksburg-Woolery's area recommended 77 miles of new roads in the Finksburg area that would create a large suburban residential street network straddling MD 140 between the Baltimore County Line and Westminster. Nearly all of these recommendations were west of MD 91, but the plan did recommend a new roadway (known as Charlton Road) that would connect MD 91 near Beaver Run with Old Westminster Pike near Roaring Run Community Park.

As desired land use in the area became less dense due to concerns about loss of agricultural land and runoff into the Liberty Watershed, the major street plan was revised for the 1981 Finksburg and Environs Comprehensive Plan to remove nearly all the proposed suburban roadways and retain only proposals intended "to minimize the impact of future traffic on existing heavily traveled roadways, [with] … particular evidence …placed on the road network in the area of Gamber and the MD 140 and MD 91 intersection." The retained proposals primarily comprised alignment straightening in Gamber and completion of several under-development roadways from the 1970 street plan.

Of these recommendations, only the median between Kays Mill Road and MD 91 and the present jug handle were constructed by 2013, when the present Finksburg Corridor Plan was Adopted. At that time, the access management, Dede Road extension, and Walnut Park Internal Circulation Road recommendations from the 1981 plan were carried forward, while the MD 140/MD 91 recommendation was revised to request that MDOT SHA study the intersection to identify alternatives that would "[address] traffic safety and congestion." To this end, the BMC Constrained Long-Range Transportation Plan included $170 million for a full interchange at MD 140/MD 91 and associated intersection improvements, bicycle and pedestrian facilities.

In the core area of Finksburg, however, the analysis resulted in several relevant recommendations, which included creating a new median barrier along MD 140 through Finksburg, extending Dede Road across MD 140 to Old Westminster Pike, constructing the existing jug handle that serves eastbound-to-northbound left turns at the MD 140/MD 91 intersection, and realigning Old Westminster Pike at MD 140 to create a perpendicular intersection. The plan also noted that "the northwest quadrant of the MD 140/MD 91 intersection presents unique problems that do not appear to have any easy solutions."

Existing Traffic Conditions

MD 140 through Finksburg experiences congested and highly directional traffic during peak hours; nearly three-quarters of traffic during the AM peak hour travels eastbound, while more than two-thirds of traffic during the PM peak hour travels westbound, and the peak hour directions experience congestion at the MD 140/MD 91 (Gamber Road/Emory Road). While there is significant intersection delay at the MD 140/MD 91 intersection—the intersection operates at LOS D during the AM and PM peak hours with 100 to 125- seconds of delay typical for through movements along MD 140—travel speeds remain above 45 miles per hour along MD 140 and above 35 miles per hour along MD 91 during both peak hours. Planned residential and economic growth in points north and west (Westminster, Taneytown, southern Pennsylvania) will contribute to continued traffic congestion along MD 140 through 2040.

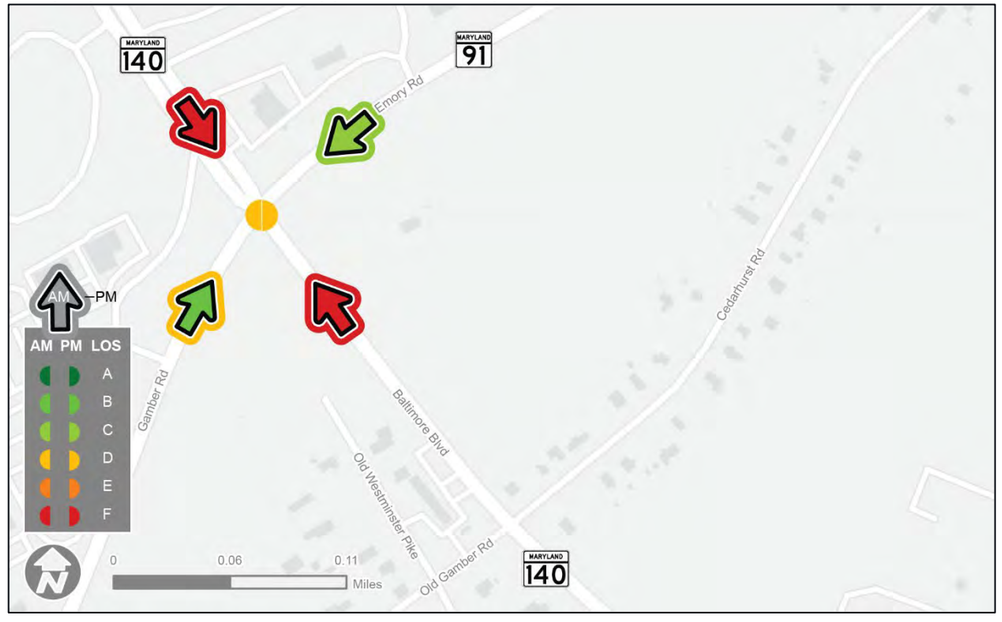


Figure 5.22 Finksburg Existing Traffic Conditions

Planning Approaches

Two overarching approaches could be taken to address Finksburg's transportation challenges: stay the course managing growth in the area, acknowledging that development farther north in Westminster will continue to strain the local transportation network and therefore transportation improvements in Finksburg must be supplied exclusively by the County or MDOT-SHA, or permit additional local development in order to leverage private investment into a better local transportation network. Staying the course would conform to the Carroll County Master Plan and the expectations of local residents but would require additional public funding, while permitting additional local development would lessen the need for public funding but represent a departure from four decades of local land use policy.

Table 5.8 Most Promising Potential Improvements for the Finksburg Area

#	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1	Convert the intersection of **Old Westminster Pike and MD 140** to right-in/right-out access **Cost: $100K to $250K**	This will allow construction of the continuous median, and aid in the consolidation of left turns at Dede Road and MD 91.	N	N/A	N	N
2	**Extend Dede Road** across MD 140 to connect to Old Westminster Pike **Cost: $1M to $2.5M**	This will provide access from westbound MD 140 to Old Westminster Pike once the median and access closures are constructed, as well as provide local access between the Walnut Park industrial park and destinations along Old Westminster Pike.	Y	0	N	N
3-4	MD 140/MD 91 Jughandle **Cost: $1M to $2.5M**	The Baltimore Region's Constrained Long-Range Transportation Plan includes $170 million for a full interchange at the intersection of MD 140/MD 191. This is a worthy planning goal that can be implemented incrementally as land is acquired and resources become available. The most critical element of this improvement is the proposed jug-handle interchange to remove left turns from MD 140 onto southbound MD 91 from the signal phase. This will increase throughput on MD 140 and have a particular benefit to afternoon peak hour traffic which is the high point of congestion in Finksburg.	Y	0	N	N
5-6	**MD 140 Median** Construct a median from the Baltimore County line to MD 91, with a single break at Dede Road **Cost: $1M to $2.5M**	This will eliminate midblock left turns by removing the existing center turn lane and turn lanes at Cedarhurst/Old Gamber Road and consolidating left turns at MD 91 and Dede Road. North/south movements across the Cedarhurst/Old Gamber intersection will not be permitted.	N	0	N	N

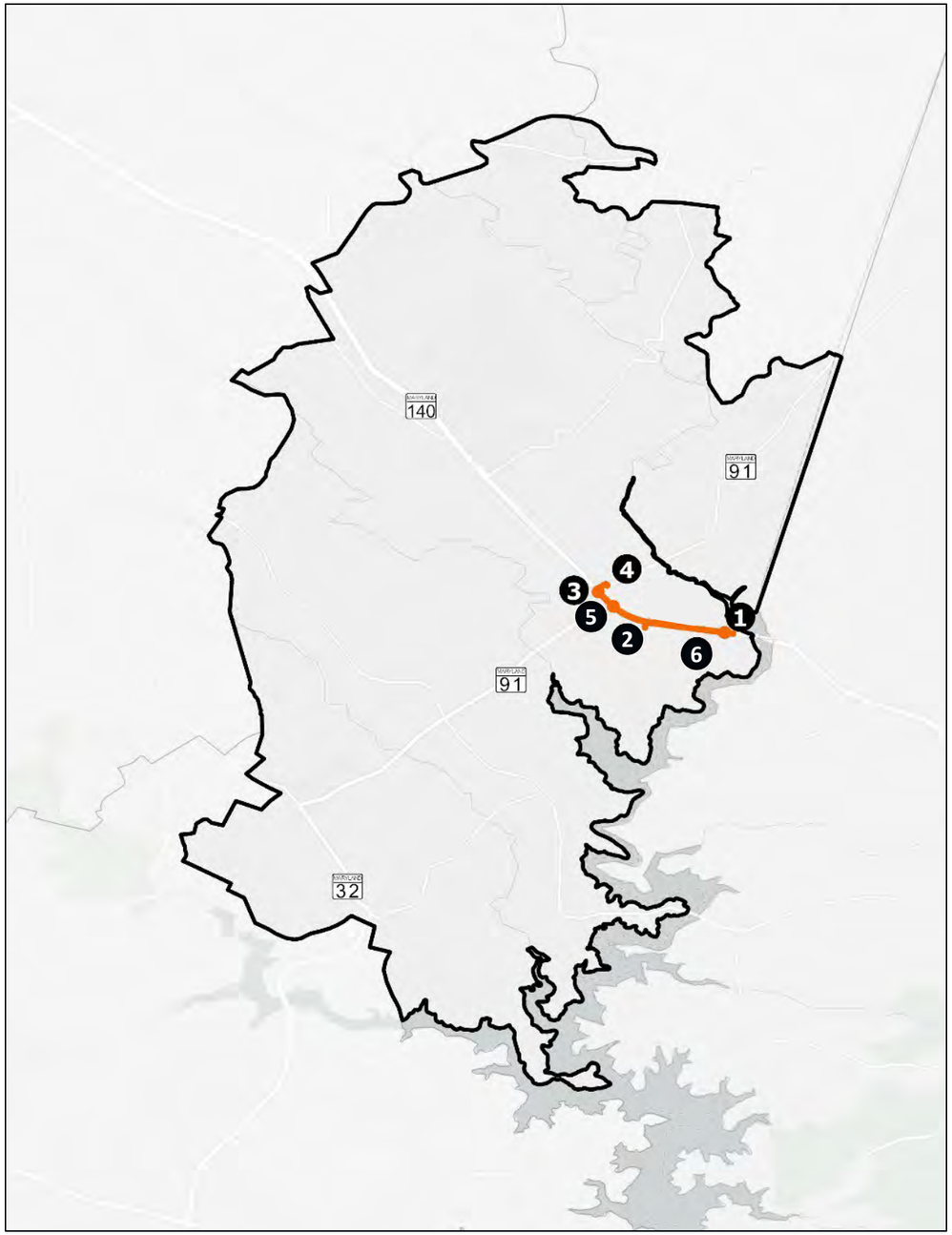


Figure 5.23 Most Promising Potential Improvements in the Finksburg Area

Recommended Approach

Because of the growth-management focus on Finksburg, which has been County policy since 1981, the local road network in Finksburg has not been fully developed except where put in place to support specific development projects. However, the land use designations in the adopted Finksburg Corridor Plan lay the framework for an appropriate level of development needed to support improvements to the local transportation network. Therefore, this analysis recommends "staying the course." The County and MDOT SHA should continue to pursue access management strategies along MD 140 in Finksburg, and to ensure that employees, customers, and residents of Finksburg are still able to access local destinations, the County should pursue strategic roadway connections that will allow for access to and from MD 140 from nearby residences and businesses while minimizing impacts on the arterial roadway.

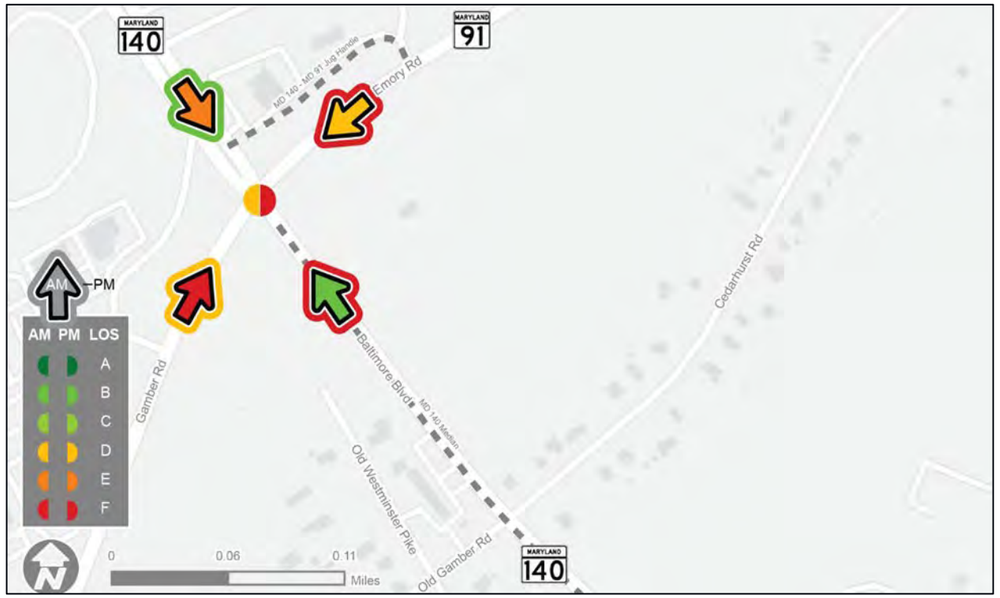


Figure 5.24 Finksburg 2040 Traffic Conditions with Most Promising Potential Improvements

Benefits and Impacts

These improvements will allow for greater separation between motorists heading to and from destinations within Finksburg and through travelers between Baltimore County and points north. Specifically, shifting local traffic from MD 140 to parallel roads by constructing a median and extending Dede Road will allocate more capacity along MD 140 to through vehicles and reduce delays caused by left-turning vehicles.

Construction of the jug handle at the MD 140/MD 91 intersection will eliminate left turns off MD 140 in both directions, making more signal cycle time available for through traffic. In the eastbound direction, this would reduce AM peak hour through delays to around 60 seconds and PM peak hour through delays to less than 20 seconds. In the westbound direction, queues to access the jug handle may extend back to and through the MD 140/MD 91 intersection during the PM peak, which would result in delays similar to existing conditions. Along MD 91, queues and delays would lengthen, especially for the southbound approach. In summary, the proposed jug handle would improve operations for the eastbound approach during both peak hours and for the westbound approach during the AM peak hour. The northbound and southbound approaches would have moderately longer queues and delays than under existing conditions, but volumes along MD 91 are much lower than along MD 140. Combined with access management improvements along MD 140 these improvements would improve throughput and reduce delays on MD 140 while maintaining access to businesses and residences in Finksburg.

Because MD 140 through Finksburg is a major route between Carroll County and the Baltimore metropolitan area, reducing delay through Finksburg would ease travel for commuters from Westminster and points west. Reducing delays on MD 140 may also induce some commuters who currently travel south on MD 32 towards and experience congestion at the MD 32/MD 26 intersection to travel south on MD 140 instead.

Hampstead/Manchester

Road Network

Hampstead and Manchester are located in the northeastern corner of Carroll County. MD 30 (Hanover Pike) (Main Street in the Towns), a principal arterial, traverses the two towns within the subarea in a north-south direction and provides access south towards Upperco and Reisterstown and north into Pennsylvania, where it continues as PA 94 towards Hanover, PA. MD 482 and MD 27 intersect MD 30 in Hampstead and Manchester, respectively. Both are minor arterials through the subarea except for short segments near their intersections with MD 30, and both provide access west to Westminster.

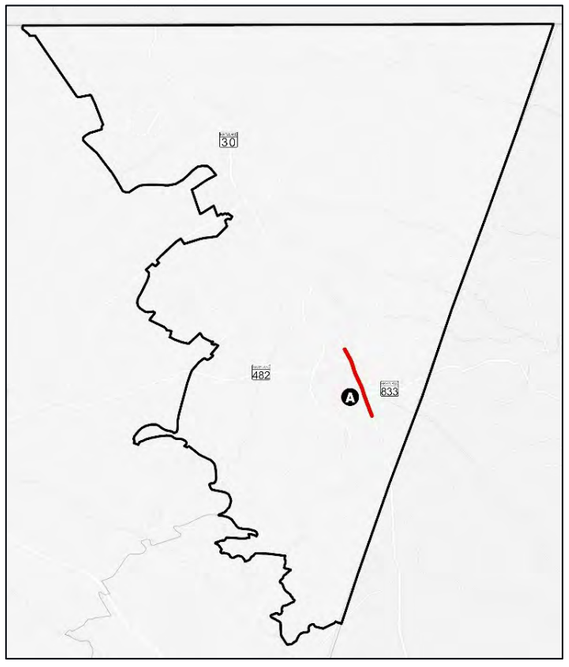


Figure 5.25 Recent and Committed Projects in the Hampstead/Manchester Area

Table 5.9 Recent and Committed Projects in the Hampstead/Manchester Area

Location	Project	Status	Construction Cost
A	**MD 30 – Streetscape Improvements** to improve roadway, drainage, and streetscape from North Woods Trail to CSX Railroad (Urban Reconstruction). Bike-ped	Completed 2020	$27,400,00 Source: CTP

Land Use and Demographics

The Hampstead/Manchester Subarea contains two MGAs, Hampstead and Manchester, between which most of the subarea's growth will be split.

Much of the development exists along the MD 30 corridor, contained within the boundaries of the Towns of Hampstead and Manchester. This trend is expected to continue; the subarea will see most of its population growth in the northern part of the MD 30 corridor in Manchester and most of its employment growth in the southern part of the MD 30 corridor in Hampstead, which is home to several corporate headquarters. There are also three large areas in Hampstead that have potential for industrial development, located north of MD 482 and west of Main Street, south of Houcksville Road and west of Main Street, and north of Trenton Mill Road and east of Main Street. Another pocket of population growth is expected to the east of the Hampstead/Manchester Subarea in Baltimore County, which may influence travel patterns within the area.

Table 5.10 Hampstead/Manchester Area Growth 2020-40

Type	Growth	Percent
Population	1,806	7.3%
Workers	(336)	-2.5%
Employment	1,032	12.2%

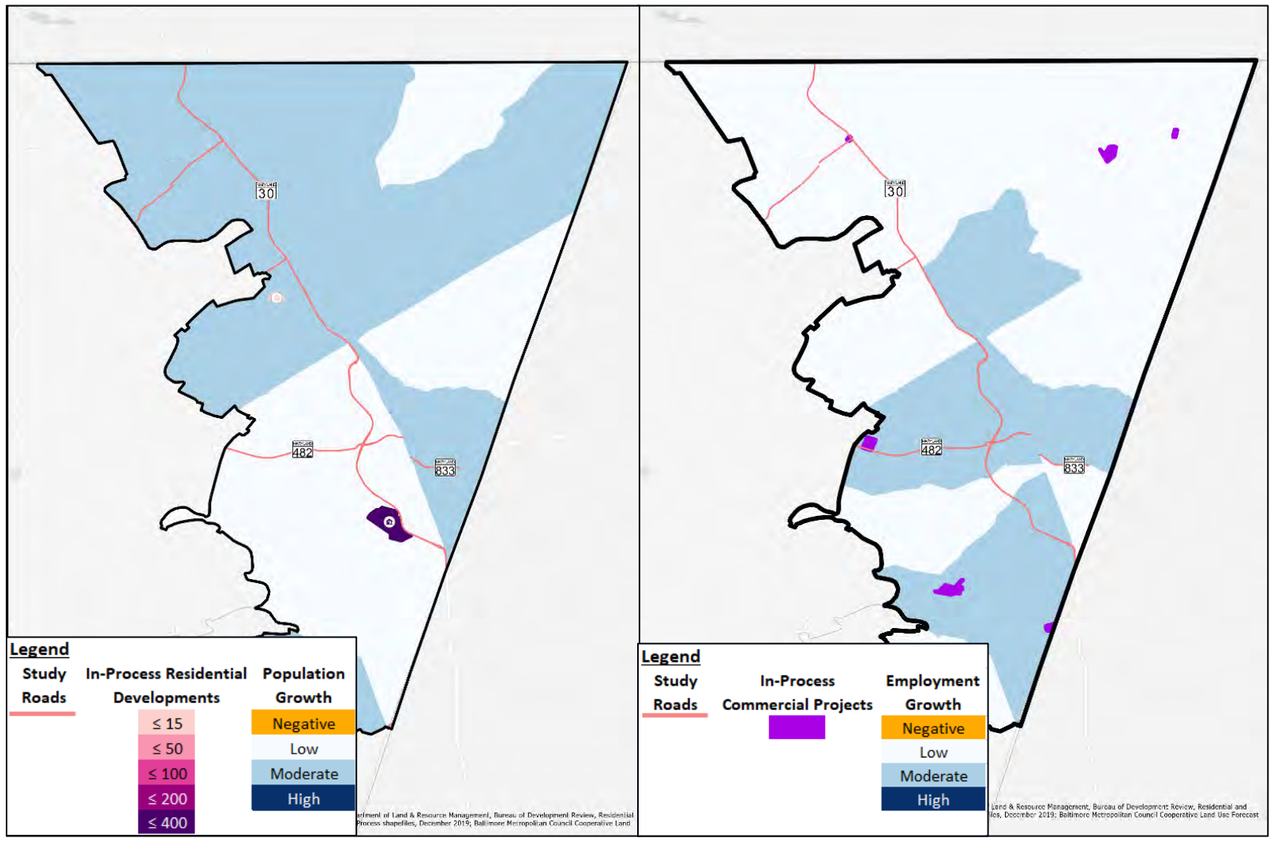


Figure 5.26 (left) Hampstead/Manchester Area In- Process Residential Developments and Population Growth 2020-40. Figure 5.27 (right) Hampstead/Manchester Area In-Process Commercial Developments and Employment Growth 2020-40.

Commuter Flows

Note: Numbers do not add to 100% due to rounding and because very small flows (<1%) are not shown.

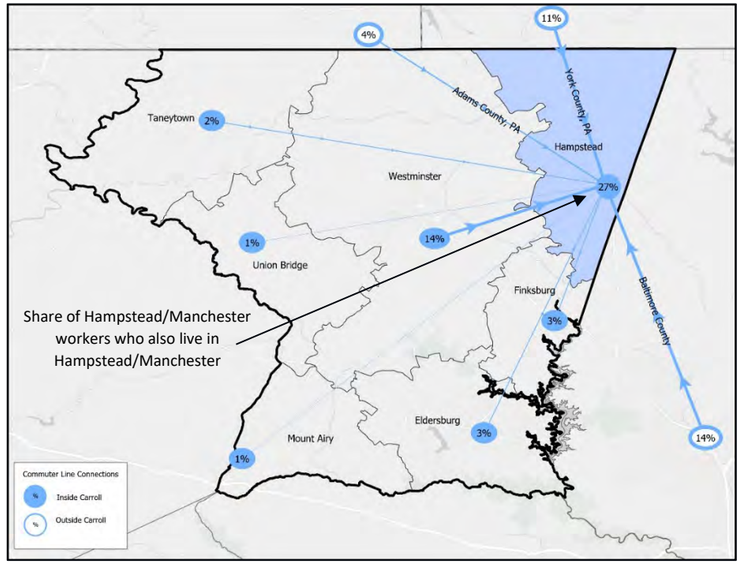


Figure 5.28 Commuting to Hampstead/Manchester, % of Hampstead/Manchester Workers by Place of Residence

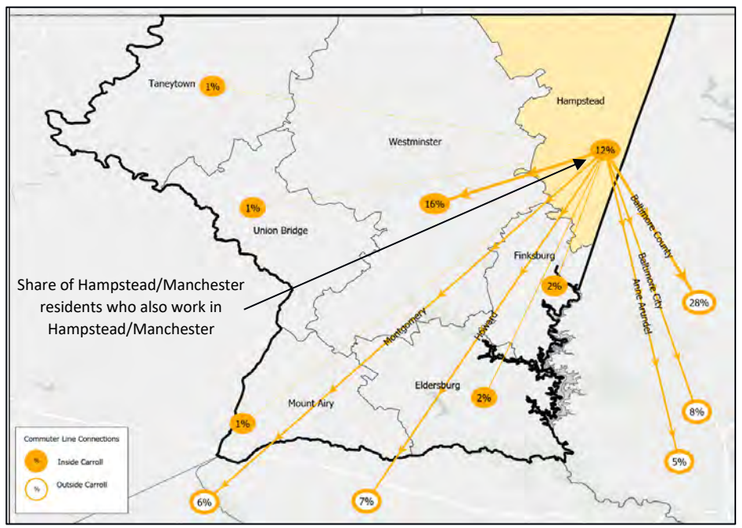


Figure 5.29. Commuting from Hampstead/Manchester, % of Hampstead/Manchester Residents Working in Each Subarea/Jurisdiction by Place

Local Goals and Policies

Since 1962, a relocation of MD 30 to the outskirts of Hampstead and Manchester has appeared on Carroll County's master plan of roadways, but it was not until 2010 that the 4.2- mile Hampstead component was opened on an alignment west of the town. The project cost $83 million and largely mitigated congestion through downtown Hampstead, which is returning to its Main Street "feel" with its recently completed streetscape project.

For a variety of planning and policy reasons, the Manchester portion of the bypass has not proceeded. While it is a longstanding priority for the Town of Manchester and included in the 2014 County Master Plan as amended 2019, the Manchester Bypass is not included in BMC's Long-Range Transportation Plan nor in the County's most recent priority letter. Even if it were, it is questionable how well the project would fare in the Chapter 30 Transportation Project Scoring Model. As such, a $406 million-Manchester Bypass could likely not pass through right-of-way acquisition, design, permitting and construction within the 20-year time horizon considered by this analysis.

Of key concern is that despite selection of the eastern alignment in 1991 to "identify and enable protection of the corridor from development," no right-of-way has been transferred to the County, and some development has occurred that appears to conflict with the alignment. As the Manchester Comprehensive Plan states, "only those local communities who actively plan for and protect the pathways needed for future roadways reduce the risk and cost of having to live without them … Local jurisdictions that do not protect planned road corridors undermine the credibility of their own official plans, create unnecessary difficulty for those land owners whose property is involved, and jeopardize the realization of an essential public transportation improvement."

Moreover, as nearly all traffic on MD 30 north of Manchester is travelling to and from Pennsylvania, the bypass plan calls for a County and state expenditure of $406 million that would primarily facilitate travel for out-of-state commuters.

In the absence of action to advance the Manchester Bypass, the Town Comprehensive Plan calls for "Carroll County and MDOT [to] take the lead in completing a comprehensive study to…address downtown traffic congestion on MD 30." As traffic volumes along MD 30 from Pennsylvania continue to grow, the County should consider whether to make an expensive improvement that will induce more traffic into the subarea from the north and release Hanover Pike roadway capacity for local trips or make comparatively inexpensive strategic connections and intersection improvements within the Town and its environs to directly increase mobility for local residents without further facilitating through travel from north of the Mason-Dixon line.

Existing Traffic Conditions

MD 30 through Manchester experiences increased travel times southbound in the AM peak hour and northbound in the PM peak hour. In the AM peak hour, speeds are lowest on the segment between MD 86 and MD 27, averaging 19 miles per hour and occasionally dropping below 10 miles per hour in the southbound direction. In the PM peak hour, speeds are similarly low northbound on the segment between Cape Horn Road and MD 27.

Figure 5.30 Manchester Existing Traffic Conditions

Existing Traffic Conditions Cont.

Despite the slow travel speeds along MD 30 in Manchester, intersection delay along MD 30 is low; average AM southbound delays were about 11 seconds at MD 27, 12 seconds at Westminster Street/York Street, and 7 seconds at Maple Grove Road, and average PM northbound delays were about 7 seconds at Maple Grove Road, 15 seconds at Westminster Street/York Street, and 12 seconds at MD 27.

In contrast, the Westminster St and York Street approaches to MD 30 both operate at LOS D during the AM and PM peak hours, with average delays exceeding 50 seconds. The MD 27 approach to MD 30 operates at LOS E in the AM peak hour and F in the PM peak hour, with average delays exceeding 60 seconds in the AM peak hour and 300 seconds in the PM peak hour, and the Sheetz approach to MD 30 operates at LOS F in both peak hours, with average delays exceeding 80 seconds.

Finally, the intersection of Westminster Street with MD 27 experiences minimal mainline delay—less than 0.5 seconds during the AM peak hour and less than 2 seconds during the PM peak hour—but around 20 seconds of delay (LOS C) in the Westminster Street southbound approach and 30 seconds of delay (LOS D) in the Westminster Street northbound approach during the AM and PM peak hours.

2040 Traffic Conditions with No Improvements

Regional travel forecasts estimate that 981 new households could be built in the subarea over the next twenty years, most of which would occur in Manchester; of the forecasted 1,032 new jobs, most are projected to occur in the Hampstead part of the subarea. In addition, York County population projections estimate a population increase of more than 7,000 (or about 17.5%) in the PA 94 corridor between MD 30 at the Mason Dixon Line and Hanover. These two factors mean that traffic conditions along MD 30 in the Hampstead/Manchester area are projected to moderately worsen without any transportation improvements.

Figure 5.31 Manchester 2040 No-Build Traffic Conditions

Planning Approaches

A bypass of Manchester would accomplish two of the most important objectives and recommendations in the 2018 Manchester Comprehensive Plan: reducing traffic congestion along MD 30 and improving economic development of the downtown commercial area by making it a desirable place to spend time rather than a thoroughfare that primarily functions as an arterial route for commuters to and from points north. This approach has the benefit of directly addressing the problem of commuter traffic by removing it from the downtown area, but does have potential drawbacks including cost and environmental constraints, possible increased development pressure near the bypass's proposed access points, and a reduction in pass-by business for Main Street establishments.

While the Manchester Bypass would be designed to remove commuter traffic from Hanover Pike, an alternate approach is to focus effort and investments on improving quality of life for residents by focusing on strategic local connections that provide alternate routes between their communities and local destinations. This would minimize residents' need to traverse the most congested intersections along MD 30, including MD 27 and York Street.

Recommended Approach

Considering the significant cost of the bypass, environmental constraints, and the lack of dedicated right of way associated with the Manchester bypass, it is unlikely that it could be constructed within the 20-year time horizon of this analysis. Even if the above issues could be resolved, it is questionable whether such investment is in the best interest of the County as the bypass would simply make it easier to develop properties further north (outside of the Manchester DGA or in Pennsylvania).

Therefore, the recommended approach is improvements that prioritize the mobility needs of Manchester residents rather than through commuters, and support the Town's goal to improve vehicular, bicycle, and pedestrian travel within its borders.

Building out the local road network effectively requires a delicate balance of improving access for local residents without encouraging through commuters to "cut through" residential streets in avoidance of congestion along Main Street. The best way to do this is to pair enhancements along MD 30 with local access improvements to reduce the likelihood through motorists will divert off MD 30. In the case of Manchester, adding a second southbound turn lane at MD 27 and restriping Main Street to provide left turn bays at Westminster Street/York Street and New Street/Beaver Street will provide additional accommodation for through motorists.

Table 5.11 Most Promising Potential Improvements for the Hampstead/Manchester Area

#	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1	**Provide a signalized left-turn lane from MD 30 to Westminster Street** **Cost: $100K or Less**	To be constructed in conjunction with traffic calming along Westminster Street and at the Westminster Street/Park Avenue intersection. In the northbound direction, this will provide more reliable access to residential communities on the west side of town, institutions such as the US Post Office and St. Bartholomews Church, as well as Maiden Lane, which functions as a service roadway for businesses and residences on the west side of MD 30. In the southbound direction, this will provide more reliable access to Long Lane, Manchester Elementary School, multiple churches, Town offices, and parks.	N	N/A	N	N
2	**Widen intersection of MD 27 at MD 30** **Cost: $1M to $2.5M**	From MD 27 to MD 30, providing a separate right turn lane, a shared through-left, and a left turn lane, and widen MD 30 north of MD 27 to provide a second northbound lane for a short distance will improve access into the center of Manchester for motorists on MD 27 by separating them from northbound travelers.	Y	N/A	N	N
3	**Extend Southwestern Avenue to MD 30** to create a four-way intersection or roundabout with Maple Grove Road **Cost; $5M to $10M**	This improvement would provide a new signalized access to residential communities in the southwestern quadrant of Manchester, reducing demand for left turns at Westminster Street, and would also enhance access to Maple Grove Road, potentially reducing Manchester Valley High School traffic impacts on MD 30.	Y	1	N	N
4	Slightly **widen the northbound approach to MD 30 at New Street to provide a dedicated left turn lane;** consider closing High Street or prohibiting left turns to/from High Street. **Cost: $100K or Less**	This will facilitate access to New Street, High Street, Wertz Road, Maiden Lane, Hideout Drive, and Michael Drive. Impacts to through traffic would be mitigated by restricting left turns at High Street during daytime hours.	N	N/A	N	N
5	**Convert the intersection of MD 27 at Westminster Street to a roundabout.** **Cost: $1M to $2.5M**	In combination with a new signalized left-turn onto Westminster Street from northbound MD 30, this will enhance access to the residential communities north of MD 27 and west of MD 30, allowing them to bypass the MD 30 and MD 27 intersection.	N	N/A	N	N

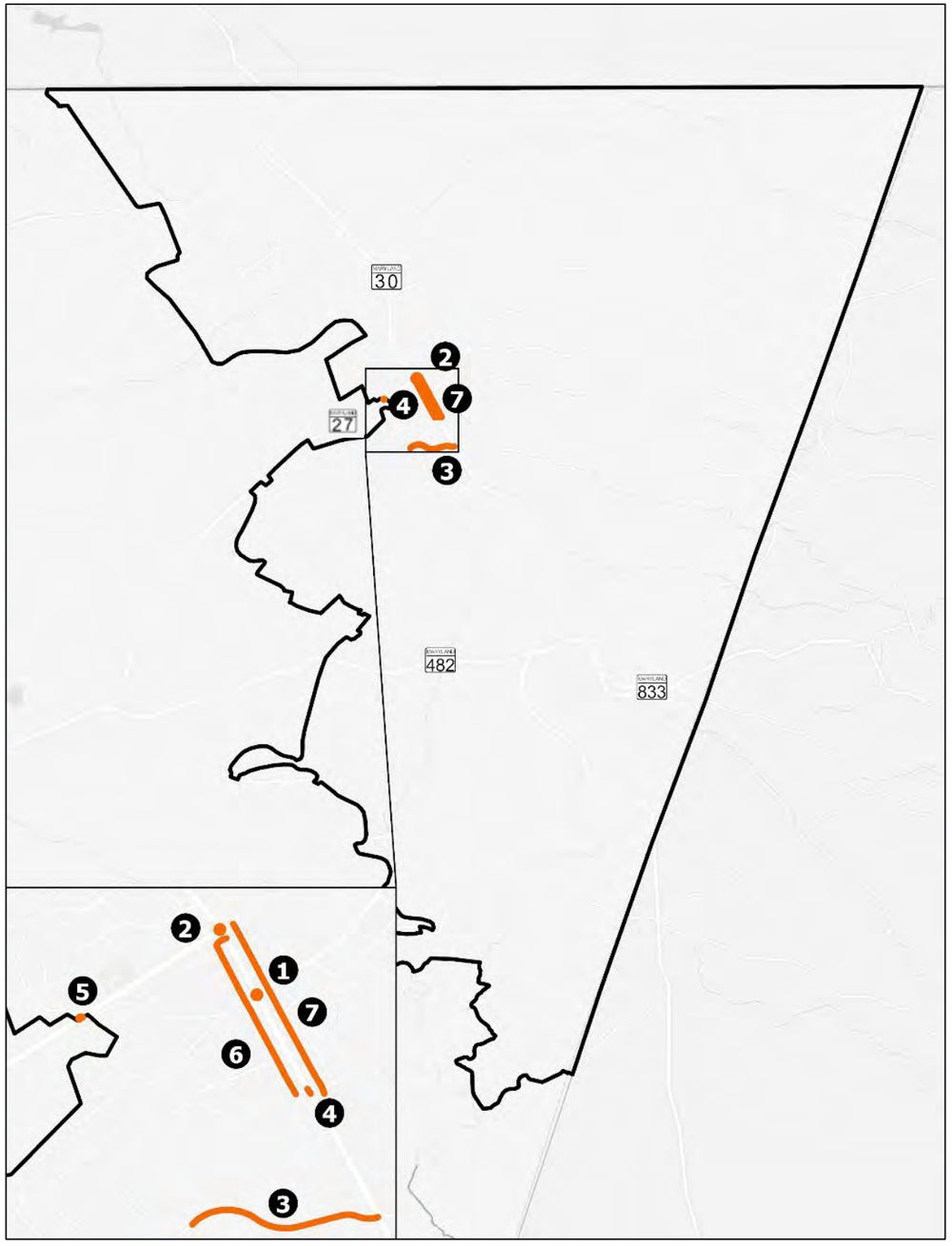


Figure 5.32 Most Promising Potential Improvement in the Hampstead/Manchester Area

6-7	**Upgrade Maiden and Long Lanes,** which run parallel to MD 30 **Cost: TBD**	Providing better access (including parking) to businesses and residences on Manchester's Main Street will support recommendations 2 and 4 and facilitate the use of Maiden Lane and Long Lane rather than MD 30 for local trips.	Y	N/A	N	N

Benefits and Impacts

Together, this analysis' proposals for Manchester will better connect the roadway network parallel to MD 30, reducing residents' need to travel through MD 30's most congested intersections and lessening the time it takes to visit local destinations. Removing these local trips from MD 30 will also have benefits for through motorists, who will encounter less local traffic while traveling through Manchester.

Although this set of proposals is specifically targeted to address local transportation needs, if constructed it would also improve travel for commuters from north of Manchester and facilitate better travel between Manchester and Westminster.

Figure 5.33 Manchester 2040 Traffic Conditions with Most Promising Potential Improvements

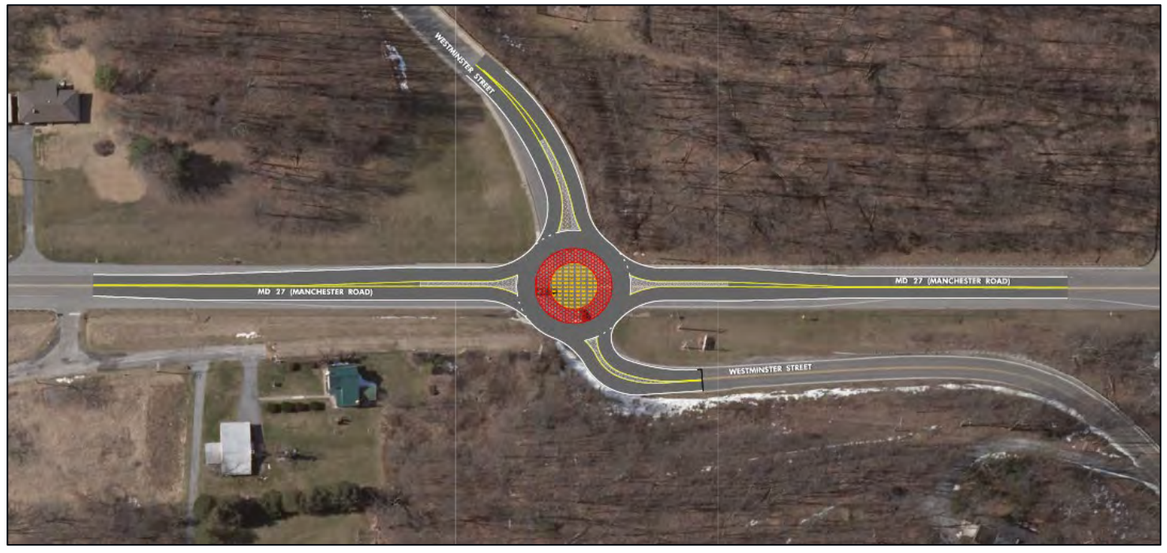


Figure 5.34 MD 27/Westminster Street Roundabout Concept

Mount Airy

Road Network

The Mount Airy sub-area, which includes the Town of Mount Airy, is located in southwestern Carroll County, bordered by Frederick County to the west, Montgomery County to the south, and Howard County to the south and east. This subarea is home to Carroll County's only Interstate highway, a 1.6-mile segment of I-70. The MD 27 interchange with I-70 provides access from the subarea west to Frederick and east to Ellicott City and the rest of the Baltimore metropolitan area. MD 27 itself is a principal arterial from I-70 north to the boundary of the Mount Airy municipality and is a minor arterial elsewhere. North of Mount Airy, MD 27 continues to Westminster and Manchester, while to the south it provides access to Damascus, Germantown, and the I-270 corridor in Montgomery County. Finally, MD 26 intersects MD 27 in the northern part of the subarea and provides access east to Eldersburg and west into Frederick County.

Mount Airy's growth and development has been linked to access to job centers in all directions. Today, nearly two-thirds of Mount Airy residents who commute work outside of Carroll County. The construction of I-70 south of Mount Airy in the 1950s and the relocation of Ridge Road to its present alignment east of Downtown in the 1970s improved access in these directions but also concentrated traffic onto those arterials, with the result that traffic volumes are highest on MD 27 approaching I-70 and travel between I- 70 and all of the Mount Airy area depends on how well those corridors operate.

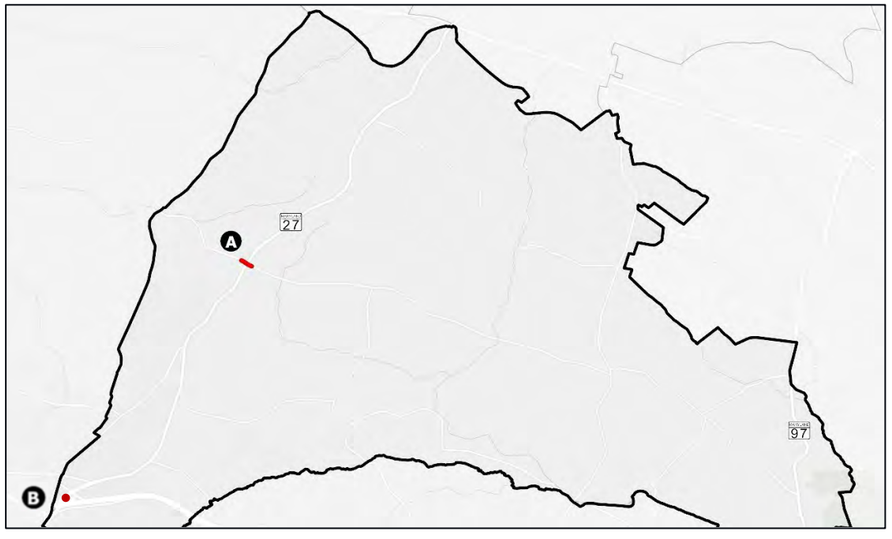


Figure 5.35 Recent and Committed Projects in the Mount Airy Area

Table 5.12 Recent and Committed Projects in the Mount Airy Area

Location	Project	Status	Construction Cost
A	**MD 27 – Roadway Realignment** of MD 27 (Ridge Road) intersection, Gillis Falls Road and Harrisville Road	Completed Winter 2020	$2,179,000 Source: CTP
B	Restrict left turns from southbound **Ridgeside Drive onto South Main Street**	Completed	

Land Use and Demographics

The Mount Airy subarea has the second highest projected growth rate of the six subareas of Carroll County (Table 5.13).

Population and housing growth are expected in the northern parts of the Mount Airy DGA, with the majority along MD 27, and additional growth in the northeastern quadrant of the subarea. Employment growth is likely to concentrate in Downtown Mount Airy and on the corridors leading to downtown, as outlined in the 2013 Mount Airy Master Plan.

Some of the downtown growth is predicated on continued buildout of the new Twin Arch Business Park and accompanying communities, located in the eastern part of the Mount Airy DGA. Also significant to employment growth in this area are the Harrison and Leishear properties, containing approximately 160 acres of future Office Park Employment zoning bordering MD 27 and Watersville Road in the town's municipal growth area. While there are other residential and commercial developments throughout the subarea, none are expected to have significant impact on overall population or employment.

Table 5.13 Mount Airy Area Growth 2020-40

Type	Growth	Percent
Population	1,395	8.2%
Workers	(185)	-2.0%
Employment	871	12.2%

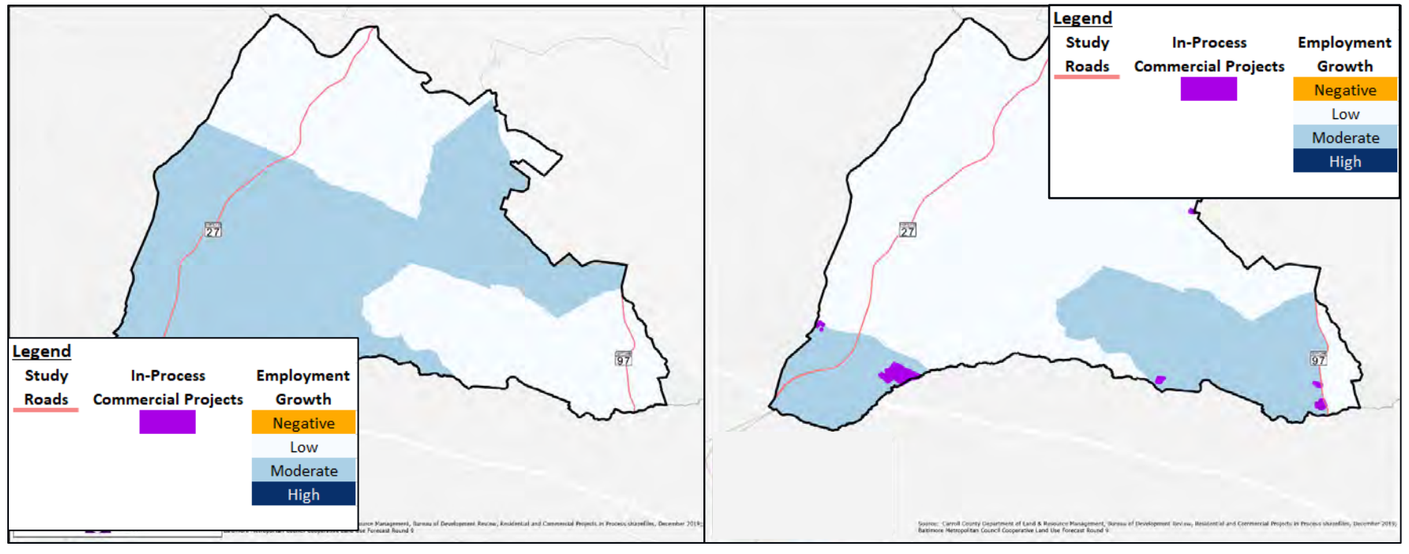


Figure 5.36 (left) Mount Airy Area In- Process Residential Developments and Population Growth 2020-40. Figure 5.37 (right) Mount Airy Area In-Process Commercial Developments and Employment Growth 2020-40.

Commuter Flows

Note: Numbers do not add to 100% due to rounding and because very small flows (<1%) are not shown.

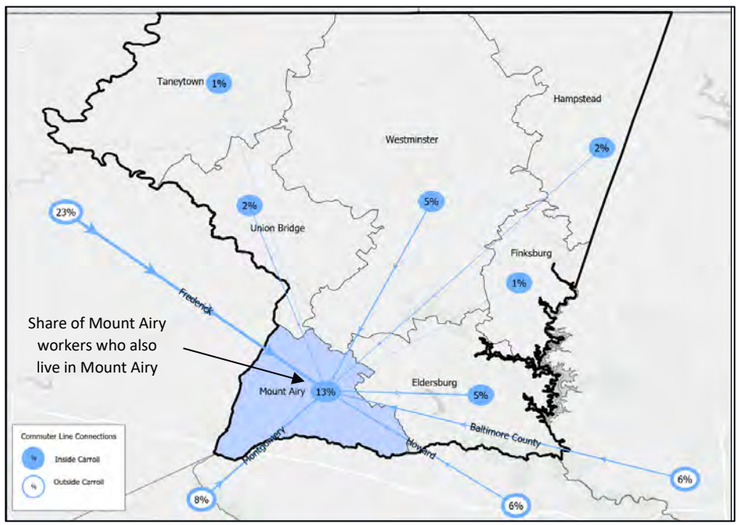


Figure 5.38 Commuting to Mount Airy, % of Mount Airy Workers by Place of Residence

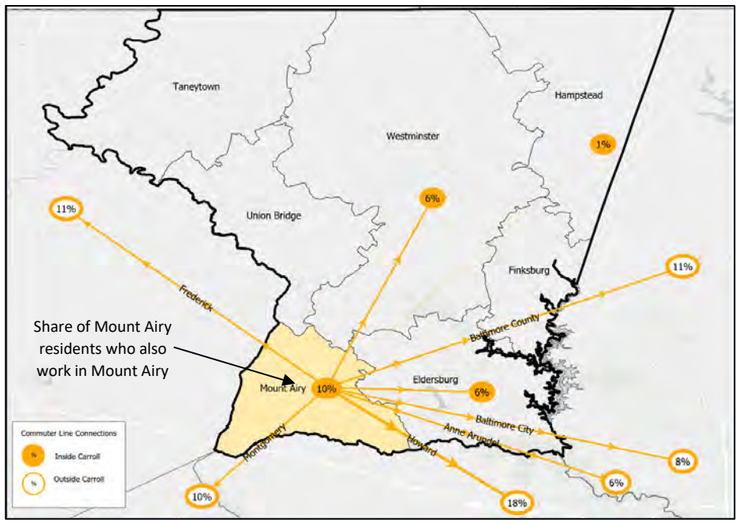


Figure 5.39 Commuting from Mount Airy, % of Mount Airy Residents Working in Each Subarea/Jurisdiction

Local Goals and Policies

Mount Airy's comprehensive plan seeks to "address existing and future congestion levels and create opportunities for increased connectivity." Main Street provides an important connection through Downtown and to homes on the west side of Mount Airy. It carries significant peak hour traffic and experiences delay, especially south of Ridgeville Boulevard, but has not received any recent significant improvements to improve traffic operations.

To address future congestion and provide for increased connectivity, the Town's comprehensive plan identifies several key roadway connections intended to manage demand for north-south travel on Main Street and Ridge Road, including proposed extensions of Rising Ridge Road north to Buffalo Road, Century Drive north to Watersville Road, and opening to through traffic the southern segment of Rising Ridge Road between Ridgeville Boulevard and South Main Street.

The Rising Ridge Road extension to Buffalo Road and the Century Drive extension to Watersville road have been envisioned as funded by future development, while the extension of Rising Ridge Road south to Main Street has been constructed for over ten years but remains closed with a concrete curb to prevent through travel along the southern segment of Rising Ridge Road.

Finally, completion of Center Street through from Main Street to MD 27 to ease access to downtown Mount Airy without creating additional pressure on South Main Street has been intended since the 1990s and has been variously proposed as a signalized intersection and as an overpass with two roundabouts for access to MD 27, but the Beck Property (across which the new connection would be made) remains undeveloped and thus the new roadway has not yet been constructed.

To address existing congestion along MD 27, incremental improvements have been made over past ten years, including an extension of the four lane section from Ridge Avenue to Park Avenue/Twin Arch Road in conjunction with intersection improvements at the park-and-ride lot, Twin Arch Road, and Center Street (2011), a new northbound right turn lane at Center Street (2014), and realignment of the Gillis Falls Road/Harrisville Road intersection including the addition of left turn and deceleration lanes (2019-20). These improvements have helped to address capacity constraints and operational challenges along MD 27, but the road has continued to experience congestion and delay during the AM and PM peak hours.

Existing Traffic Conditions

Moderate congestion and intersection delay occurs along MD 27 through Mount Airy in the AM and PM peak hours; all signalized intersections except for along MD 27 operate at LOS C or better during both peak hours except for the Park Ave/Twin Arch Road intersection, which operates at LOS D during the PM peak hour. Travel speeds of 35-44 miles per hour in the morning and 30-34 miles per hour in the evening along MD 27 are typical. However, all of the side street approaches from Ridgeville Boulevard north along the corridor operate at LOS D or worse during at least one peak hour.

Congestion also occurs at the intersection of Ridgeville Boulevard and Main Street; that intersection operates at LOS D during the AM peak hour—largely driven by delay in the eastbound direction—and LOS C during the PM peak hour. Peak hour travel speeds along South Main Street tend to be 20-24 miles per hour in the northbound direction and 25-29 miles per hour in the southbound direction.

Figure 5.40 Mount Airy Existing Traffic Conditions

2040 Traffic Conditions with No Improvements

Without improvements, by 2040 traffic conditions along MD 27 are anticipated to remain acceptable; northbound and southbound approaches will all continue to operate at LOS C or better except for the southbound approach at West Watersville Road, which is anticipated to operate at LOS D during the AM peak hour. However, side-street approaches will continue to operate poorly; except at the South Main Street/I-70 ramp intersection, all eastbound and westbound approaches to MD 27 intersections through Mount Airy will operate at LOS D or worse during at least one peak hour. The eastbound and westbound approaches at Park Ave/Twin Arch Road will continue to operate at LOS F during the PM peak hour, and the eastbound approach at North Main Street/Leishear Road will continue to operate at LOS F during both peak hours.

These conditions are appropriate for MD 27's bypass function; maintaining low delay for northbound and southbound motorists encourages them to use MD 27 for through travel, while the higher delays on the eastbound and westbound approaches discourage motorists from using MD 27 for local trips if an alternative is available, keeping capacity available for through travelers.

At Main Street/Ridgeville Boulevard, conditions will degrade to LOS E during both the morning and evening. During both peak hours, delays motorists will encounter more than two minutes of delay in the eastbound direction. The LOS for that approach will be F and the V/C ratio for that approach will exceed 1.2 during both the AM and PM peaks. All other approaches will operate at LOS C or better during the AM peak hour and LOS D or better during the PM peak hour.

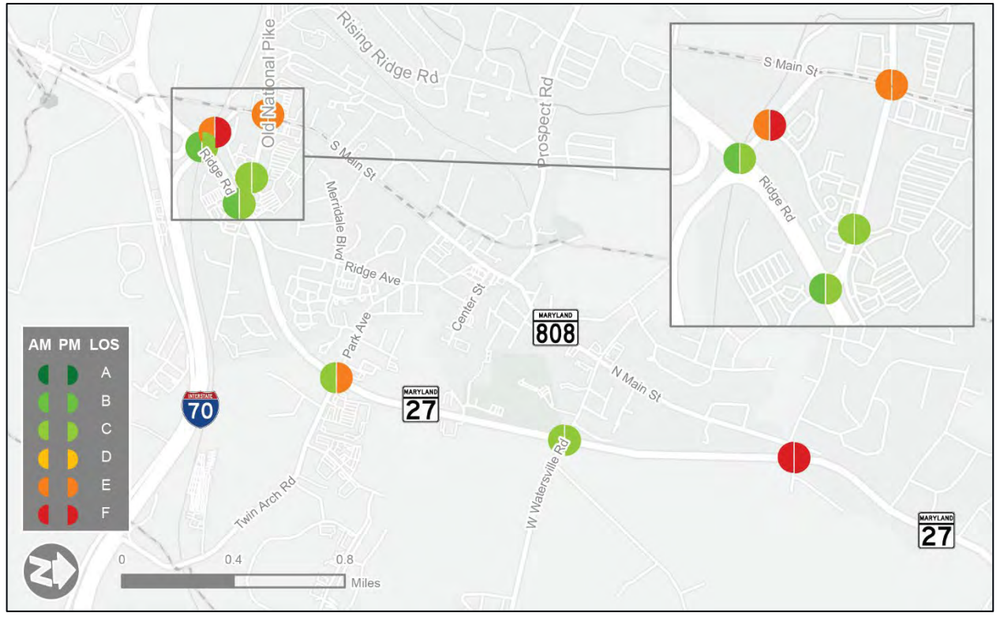


Figure 5.41 Mount Airy 2040 No-Build Traffic Conditions

Planning Approaches

Broadly speaking, the two local approaches Mount Airy can take to address the impacts of Ridge Road congestion on residents' travel needs are improving MD 27 intersections to make it more attractive for local trips or improving parallel routes to local destinations so that MD 27 remains reserved for trips bypassing the center of Mount Airy. Advantages of the former strategy are that it most directly addresses conditions at the most congested intersections, environmental and right-of-way constraints are likely to be lower, and that it provides direct travel benefits for motorists from points north such as Westminster and New Windsor. In comparison, advantages of the latter strategy are that it directly improves residents' access to local destinations while reducing their need to travel on Ridge Road, and that it would not induce additional trips onto MD 27.

Alternatively, the County could pursue a strategy that encourages motorists from north of Mount Airy to access I-70 via MD 94 (Woodbine Road) instead of MD 27. Completed improvements at MD 27 and Gillis Falls Road/Harrisville Road provide easier and more reliable access to Gillis Falls Road, which connects to Woodbine Road about 3 miles north of I-70. Leveraging these improvements with strategic geometric improvements along Gills Falls Road and Woodbine Road could induce some motorists to avoid the Mount Airy area altogether.

Recommended Approach

Improvements proposed in Mt. Airy should support throughput on MD 27, avoid encouraging use of MD 27 for short trips, and **provide alternate routes for trips stemming from development on the east side of Mount Airy** so that those short trips will not occupy MD 27 capacity needed for the road to effectively perform its bypass function. In addition, the County should **explore how minor improvements along MD 94 could ease some of the through traffic along MD 94.**

Benefits and Impacts

Within the immediate Mount Airy area, these improvements would improve local travel east and west of MD27. The Century Drive extension will improve short-trip access east of Ridge Road, while the proposed roundabout would make for more reliable travel between businesses along Ridgeside Drive and local residences.

In addition to facilitating local access, completion of these improvements will help improve mobility along MD 27. Because Ridge Road is a principal arterial and one of Carroll County's access points to the interstate highway network, improving mobility along MD 27 would alleviate travel to points west—such as Frederick—via I-70, as well as provide better access to Montgomery County via MD 27. These travel time improvements would significantly benefit current commuters, but could also potentially increase development pressure, especially in the southeast quadrant of the County.

Table 5.14 Most Promising Potential Improvements for the Mount Airy Area

#	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1-2	Construct the **Century Drive extension** north to West Watersville Road **Cost: $1M to $2.5M**	This will allow residents of the hundreds of homes along West Watersville Road to access the Twin Arch Shopping Center and Business Park without needing to use Ridge Road, releasing capacity along Ridge Road for medium-distance trips.	Y	0	N	N
3	Construct the **Center Street extension** between Main Street and MD 27 **Cost: $10M to $25M**	This will enhance the local street grid and allow for better access onto MD 27 from the Main Street area, reducing demand for through travel along Main Street and Park Avenue.	Y	2	N	Y
4	**South Main Street Roundabout.** Construct a one- lane roundabout with a northbound slip lane at the bend in South Main Street **Cost: $1M to $2.5M**	In conjunction with the turn restriction at Ridgeside Drive, this will reduce weaving along South Main Street, meter traffic approaching the Ridgeville Boulevard intersection, and provide for easier access to Main Street and Ridgeville Boulevard from Rising Ridge Road and South Main Street south of the proposed roundabout.	N	N/A	N	N
5	**Extend Center Street** east of MD 27 to Century Drive Extended **Cost: $10M to $25M**	This will provide access between the Main Street area and the Twin Arch Business Park	Y	1	N	Y
N/A	Explore **minor improvements along MD 94** to facilitate trips bound for north of Mt. Airy **Cost: TBD**	This study does not recommend a specific improvement in this area. However, leveraging the current improvement project at Gillis Falls Road/Harrisville Road with improvements along Gillis Falls Road and Woodbine Road could encourage motorists intending to travel eastbound on I-70 from points north.	N/A	N/A	N/A	N/A

Figure 5.42 Most Promising Potential Improvements in the Mount Airy Area

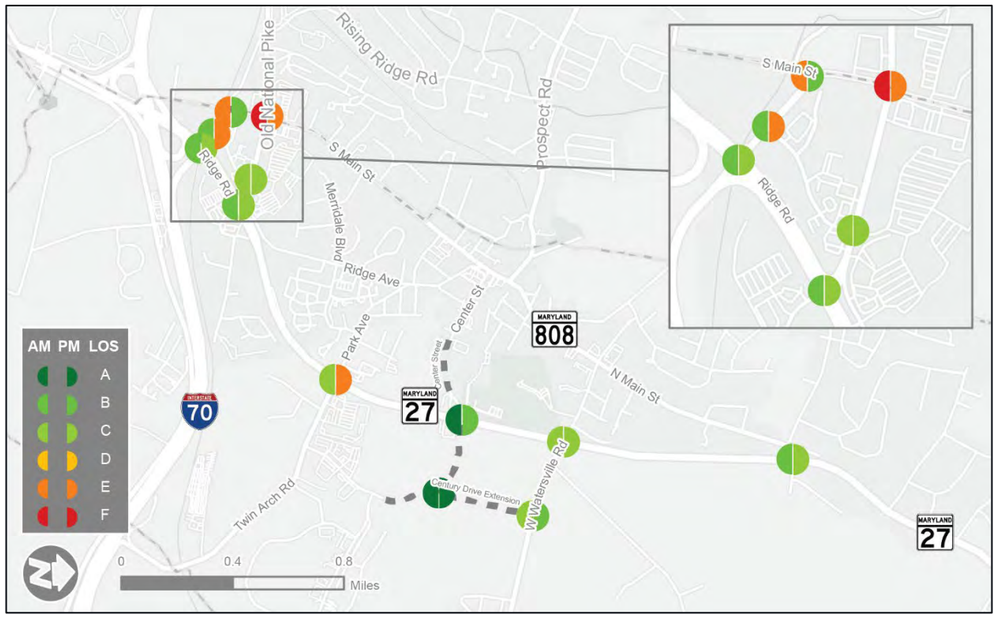


Figure 5.43 Mount Airy 2040 Build Traffic Conditions with Most Promising Potential Improvements

Taneytown

Road Network

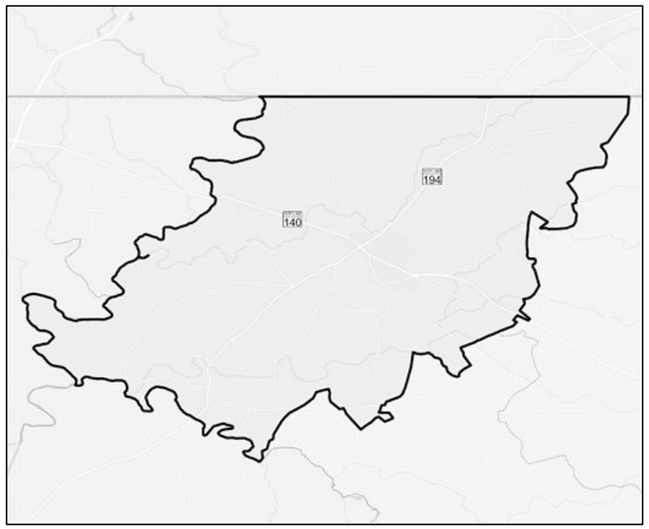


Figure 5.44 Recent and Committed Projects in the Taneytown Area

Taneytown comprises the far northwestern corner of Carroll County, centered on the intersection of MD 140 and MD 194. MD 140 is a principal arterial for its full length and provides access southeast to Westminster and west to Emmitsburg. MD 194 is a minor arterial except between Crouse Mill Road and Commerce Street through Taneytown's historic downtown, where it is upgraded to a major arterial. The roadway provides access southwest into Frederick County and northeast into Pennsylvania, where it continues as PA 194 and provides access to Littlestown and Hanover.

Land Use and Demographics

While Taneytown is projected to experience Carroll County's highest growth rate, overall growth within the subarea is minimal in a regional transportation planning context (Table 5.15). Taneytown is expected to retain its existing land use characterized by small businesses and single-family homes with agricultural and industrial uses.

Population is the most significant category of growth for Taneytown, driven in part by a new large residential development northeast of the intersection of MD 194 and MD 140 that contains 315 lots. This area is expected to see the largest increase in population, households, and workers within the region. The southeast quadrant of the intersection is expected to see the most significant employment growth, as Downtown Taneytown revitalizes, with over 200 new cross-sector jobs. Some increases in industrial jobs are predicted within the town and growth area, as there is currently a significant amount of undeveloped industrially designated land within the subarea. Otherwise, the Taneytown Subarea will remain primarily agricultural.

Table 5.15 Taneytown Area Growth 2020-40

Type	Growth	Percent
Population	1,318	10.6%
Workers	(4)	-0.1%
Employment	486	12.2%

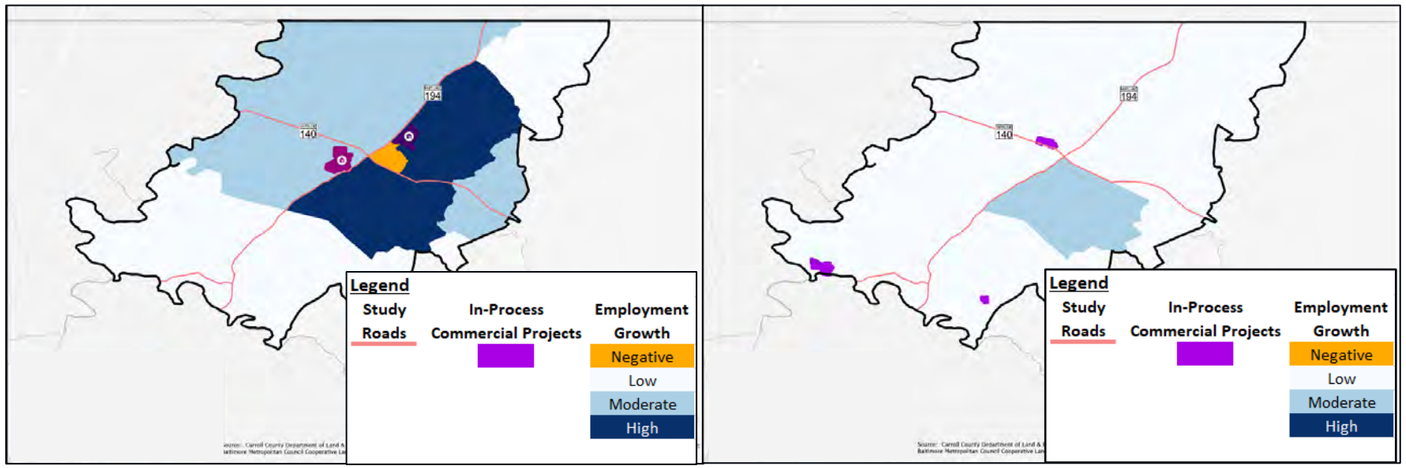


Figure 5.45 (left) Taneytown Area In- Process Residential Developments and Population Growth 2020-40. Figure 5.46 (right) Taneytown Area In-Process Commercial Developments and Employment Growth 2020-40.

Commuter Flows

Note: Numbers do not add to 100% due to rounding and because very small flows (<1%) are not shown.

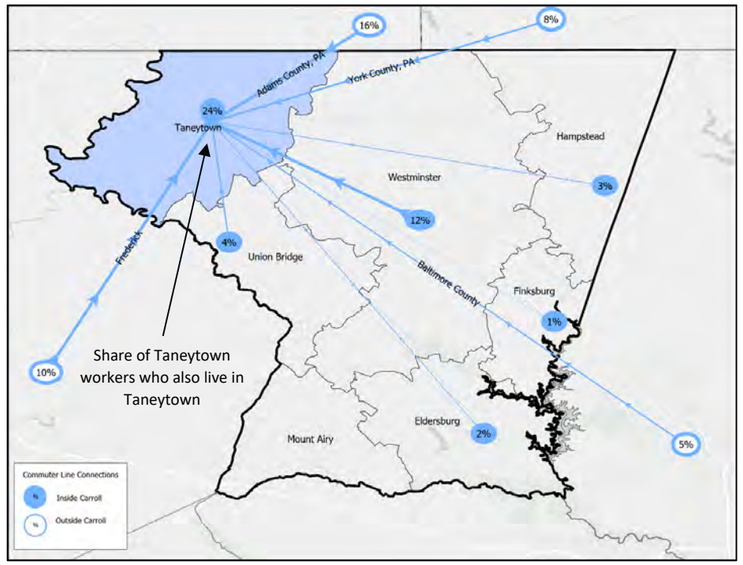


Figure 5.47 Commuting to Taneytown, % of Taneytown Workers by Place of Residence

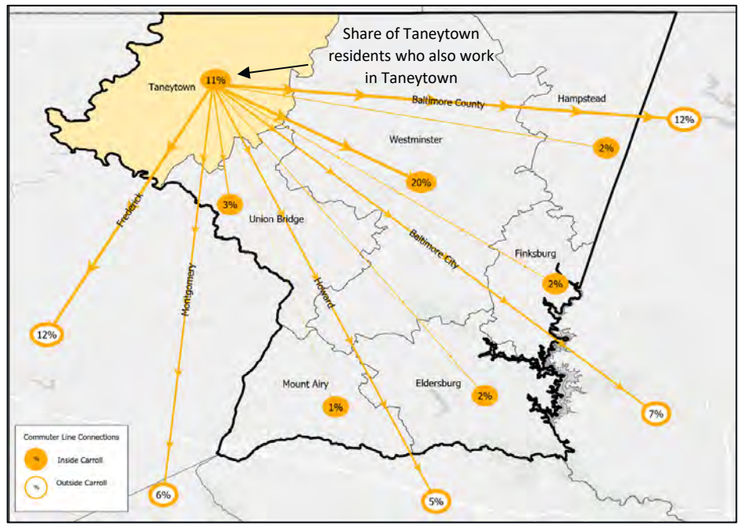


Figure 5.48 Commuting from Taneytown, % of Taneytown Residents Work in Each Subarea/Jurisdiction

Local Goals and Policies

Taneytown's adopted comprehensive plan articulates several transportation goals, some of which are local in nature, such as encouraging pedestrian access to local commercial businesses and employment centers from residential neighborhoods; others have broader implications for the County and state transportation network, such as encouraging the separation of local residential vehicular traffic from all other traffic, including major highway access to industrial areas. The latter goal aligns most clearly to the purpose and need of this study which is to identify the most promising potential improvements to relieve congestion, improve safety and expand economic development opportunities. Taneytown specifically desires to grow its industrial base. Therefore, its comprehensive plan growth area proposes adding 470 acres for industrial uses to the 315 currently within the Town for a total of nearly 800 industrial acres. This constitutes over a quarter of the Town's land area, although only a very small fraction of this can reasonably be expected to develop over the next 20 years.

Existing Traffic Conditions

As a result of low population density and dispersed travel patterns, traffic congestion through Taneytown is modest. MD 140 through Taneytown experiences moderate traffic congestion during the PM peak hour, especially at its intersections with Grand Drive/Chevro Drive and MD 194 (Frederick Street/York Street). These intersections operate at LOS B during the AM peak hour and LOS C during the PM peak hour. The other signalized intersections in Taneytown—MD 140 at Baumgardner Avenue and at Trevanion Road— consistently operate at LOS A.

AM peak hour traffic speeds along MD 140 are typically 25-29 miles per in both directions during the AM peak hour and 20-24 miles per hour in both directions during the PM peak hour. Along northbound MD 194, traffic speeds drop to 30-34 miles per hour during the AM peak hour and 25-29 miles per hour during the PM peak hour.

Figure 5.49 Taneytown Existing Traffic Conditions

2040 Traffic Conditions with No Improvements

Over the next 20 years, the MD 140 at Grand Drive/Chevro Drive and MD 140 at Trevanion Road intersections are anticipated to become slightly more delayed, with each expected to experience two to three additional seconds of delay per vehicle during the AM peak hour and an additional eight to twenty-two seconds of delay per vehicle during the PM peak hour.

Additional industrial development south of Taneytown—as called for by the Taneytown Community Comprehensive Plan—will contribute to additional freight traffic through downtown Taneytown. Calculations show that the growth area shown in the Taneytown Community Comprehensive Plan could accommodate up to 12.3 million square feet of light manufacturing industrial use and generate up to approximately 60,000 weekday trips.

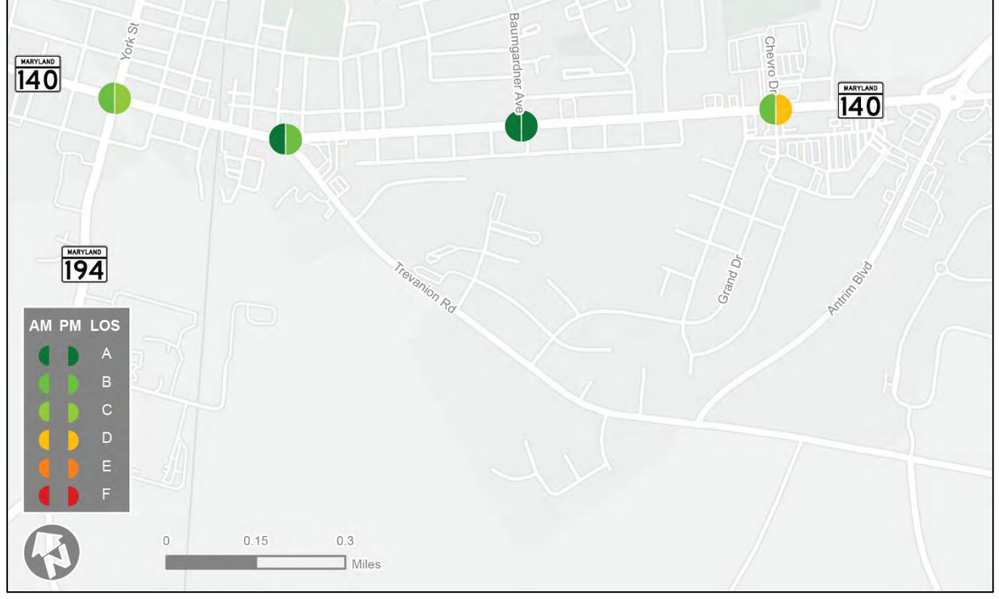


Figure 5.50 Taneytown 2040 No-Build Traffic Conditions

Planning Approaches

One long-planned improvement is the Taneytown Greenway, also known as the Antrim Boulevard Extension. The roadway—which would bypass Taneytown from Trevanion Road to west of Flowserve— supports Taneytown's chief goals: it would remove truck traffic from Baltimore Street by providing access to existing and planned industrial areas south of town, and it would revitalize Taneytown's historic downtown by reducing overall vehicle throughput, noise, and air pollution. The roadway alignment was originally identified in Carroll County's 1962 Major Street Plan, and a segment between MD 140 and Trevanion Road was built in the early 1970s.

Further planning work was completed in 2000 and preliminary design completed in 2007. While the Greenway has consistently been in the County Master Plan and City of Taneytown Comprehensive Plan, it has not appeared in the County's priority letter since 2013, and it has not been in the last two editions of BMC's long range transportation plan (Maximize2040 and Maximize2045). The roadway has never received funding for final design and construction, and there is no indication that funding will be available in the near future. In addition, the County has acquired only one parcel of those that would be required to construct the greenway.

Planning Approaches Cont.

Worthington Boulevard is a planned roadway west of Taneytown anticipated to provide benefits similar to the Antrim Boulevard extension. Its east end would be at MD 194 via a reconfigured Fringer Road and its south end would be at the Taneytown Greenway. Like the Greenway, it has not appeared in any recent County priority letters or regional plans, so it is unlikely to receive funding in the near future. In addition, the roadway would require a crossing of Piney Creek in a wetlands area, so the environmental impacts would require careful consideration and mitigation, and the County has not acquired any of the right-of-way that would be needed for the project.

The remaining planned roadways in Taneytown are related to anticipated development; some (such as the Crimson Avenue extension) have come to fruition; others have not yet been realized. While planning appropriate alignments for development-related roadways is a worthy goal, it is not the priority of the Transportation Plan.

Recommended Approach

The City's identified goals of removing truck traffic from Baltimore Street and reducing vehicle impacts in the downtown area should be the focus of the County's efforts in Taneytown.

Recognizing that the full Taneytown Greenway and Worthington Boulevard are unlikely to be constructed in the short or medium-term, these goals could be furthered in the short term by making strategic improvements at key intersections in Downtown Taneytown and in the medium term by **connecting Allendale Lane to an extended Antrim Boulevard.**

Future construction of the Antrim Boulevard Extension and Worthington Boulevard should be linked to residential or industrial development of the parcels they would serve, and developers should be required to construct roadway segments in accordance with the alignments identified in the Taneytown Community Comprehensive Plan.

Table 5.16 Most Promising Potential Improvements for the Taneytown Area

#	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1, 3-4	**Extend Allendale Lane and Antrim Boulevard Cost: $10M to $25M**	This approximately 5,000 foot long roadway would be a substantially lower cost improvement than constructing the full Taneytown Greenway, and would avoid the floodplain impacts of roadway construction west of MD 194 but would still allow trucks from the east intending to access industrial areas south of Taneytown to avoid the downtown area and the left turn from northbound MD 140 onto westbound MD 194. The Antrim Boulevard extension would make use of one parcel already acquired by Carroll County for that purpose.	Y	0	N	N
2	Extend the **left-turn bay from northbound MD 140** onto westbound MD 194 **Cost: $100K or Less**	This would make it easier for vehicles to bypass trucks waiting to turn left onto MD 194, reducing congestion and delay.	N	N/A	N	N

Figure 5.51 Most Promising Potential Improvements in the Taneytown Area

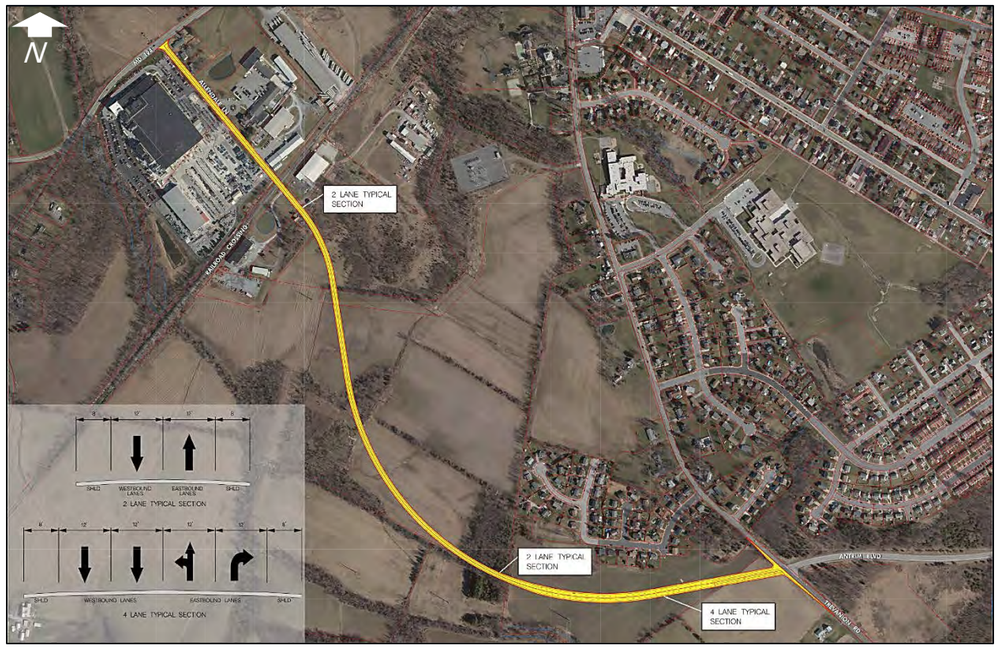


Figure 5.52 Antrim Boulevard/Allendale Lane Extension Concept

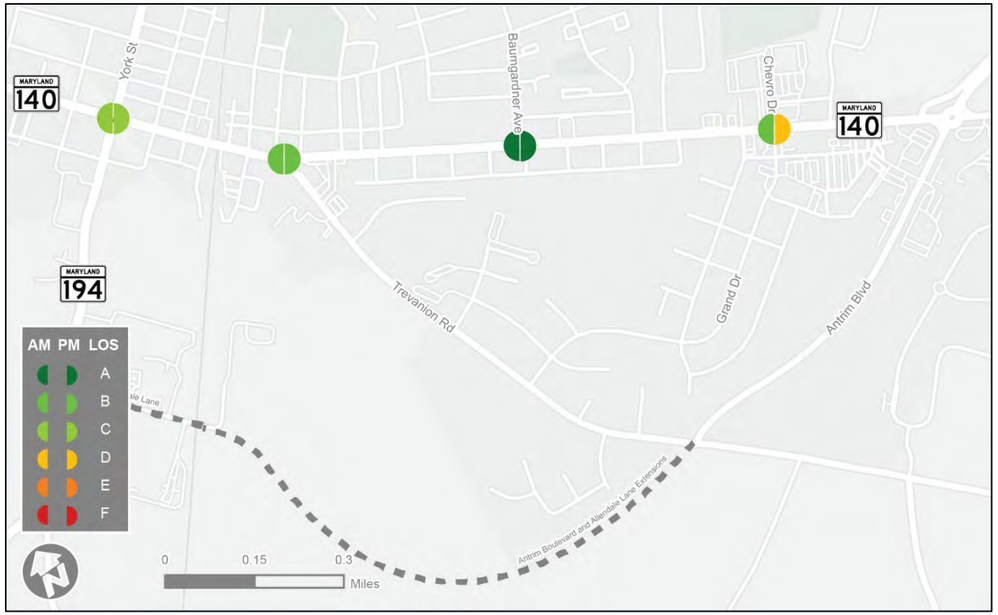


Figure 5.53 Taneytown 2040 Traffic Conditions with Most Promising Potential Improvements

Benefits and Impacts

Completing these improvements would reduce the number of trucks traveling through Taneytown's historic downtown, lessening their noise, vibration, and air pollution impacts. In addition, industrial vehicles would have less need to turn at the MD 140/MD 194 intersection, and when they did need to make that turn, more space would be provided for them to do so. Reducing the number of vehicles traveling through the MD 140/MD 194 intersection by providing a partial bypass and lessening the frequency of slow truck turns will mitigate delays at the center of Taneytown and contribute to a more quiet, comfortable streetscape for Downtown visitors.

Taneytown anticipates significant industrial growth that can become a major job center within Carroll County. This growth will be dependent on improved access that can be provided by the Antrim Boulevard/Allendale Lane extension, and has the promise to diversify Carroll County's industrial base and create jobs in the western part of the County.

Westminster

Road Network

Westminster is the heart of Carroll County, located at the confluence of MD 27, MD 31, MD 32, MD 97, and MD 140. MD 32 is classified as a minor arterial through the subarea and MD 140 is classified as a principal arterial for its full length; Westminster's other state roadways are classified as principal arterials in the developed parts of the subarea and minor arterials elsewhere. MD 27 provides access southwest to Mount Airy and northwest to Manchester and Hampstead. MD 31 provides access west to New Windsor and MD 32 provides access south to Eldersburg and Sykesville. MD 97 provides access south to Howard and Montgomery counties and north to Littlestown and Gettysburg, Pennsylvania. Finally, MD 140 provides access southeast to Finksburg, Reisterstown, and the rest of the Baltimore metropolitan area and access northwest to Taneytown.

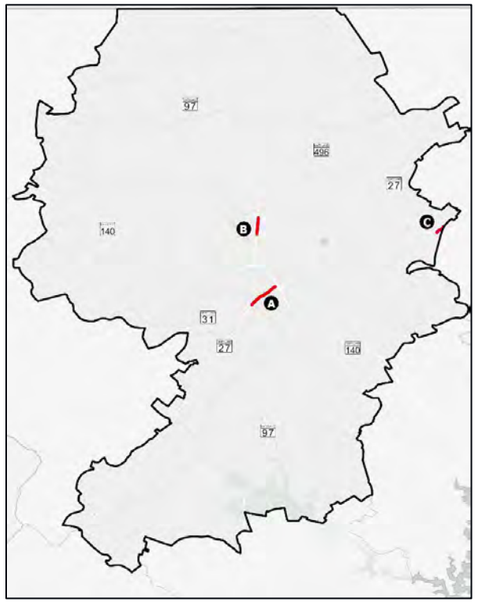


Figure 5.54 Recent and Committed Projects in the Westminster Area

Table 5.17 Recent and Committed Projects in the Westminster Area

Location	Project	Status	Construction Cost
A	**MD 27 – Sidewalk** enhancements along Railroad Avenue; Tuc Road to Hollow Rock Avenue	Completed 2019	$2,900,000 *Source: CTP*
B	**MD 97 – Intersection Capacity Improvements** Intersection geometric enhancements along MD 97 south of Airport Drive to Pleasant Valley Road	Completed 2019	$3,285,000 *Source: CTP*
C	**MD 482 – Roadway Realignment** of North Gorsuch Road at MD 482 (Hampstead Mexico Road)	Completed 2018	$1,952,000 *Source: CTP*

Land Use and Demographics

As the County seat, Westminster is the most significant commercial and industrial activity center for Carroll County, with Carroll County Regional Airport, Random House, Carroll Hospital Center, Carroll Community College, and McDaniel College all located in the area. The Westminster Subarea is expected to experience nearly half of all countywide growth over the next twenty years with most of the growth forecasted at the confluence of five major state roads which intersect near downtown Westminster.

As shown in Table 5.18, the largest area of population growth is predicted in the southeast quadrant at the junction of MD 97 South and MD 140. Job growth is expected to be most significant along MD 140 east of MD 27, which is a commercial corridor with existing space for lease. There was some recent employment growth at the terminus of MD 32, where an assisted living facility associated with Carroll Hospital was constructed. Some additional commercial and industrial employment growth can be expected just outside of downtown, due to steady commercial growth along major state roads and planned additions and improvements for the Carroll County Regional Airport and Tech Park.

Table 5.18 Westminster Area Growth 2020-40

Type	Growth	Percent
Population	4,571	7.8%
Workers	(953)	-3.1%
Employment	4,596	12.1%

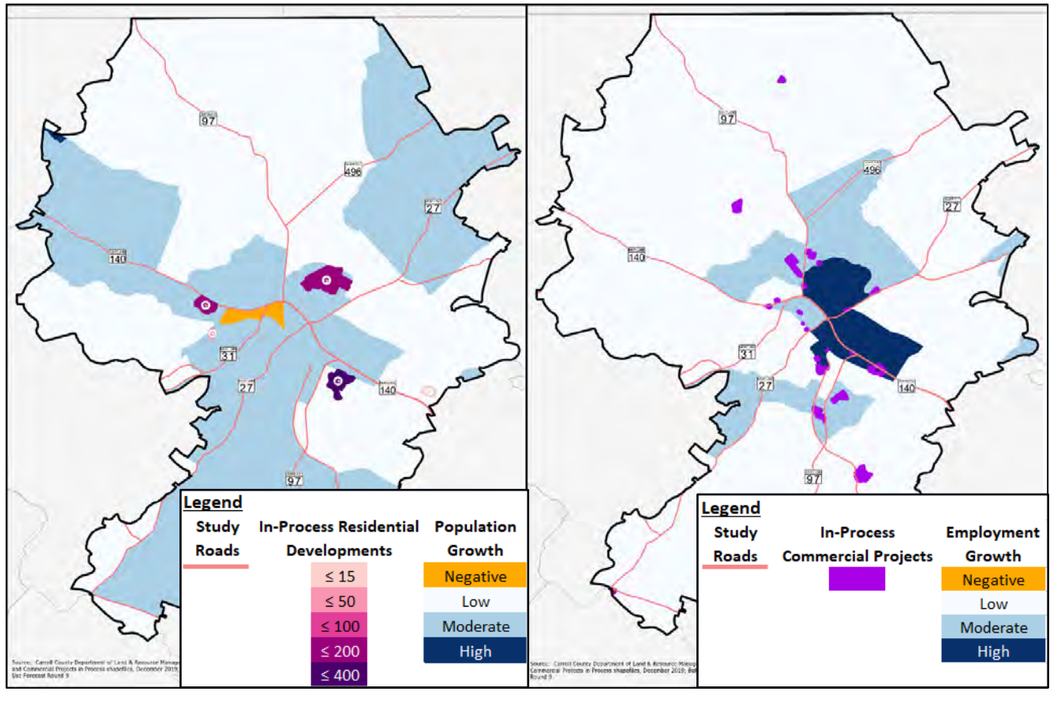


Figure 5.55 (left) Westminster Area In- Process Residential Developments and Population Growth 2020-40. Figure 5.56 (right) Westminster Area In-Process Commercial Developments and Employment Growth 2020-40.

Commuter Flows

Note: Numbers do not add to 100% due to rounding and because very small flows (<1%) are not shown.

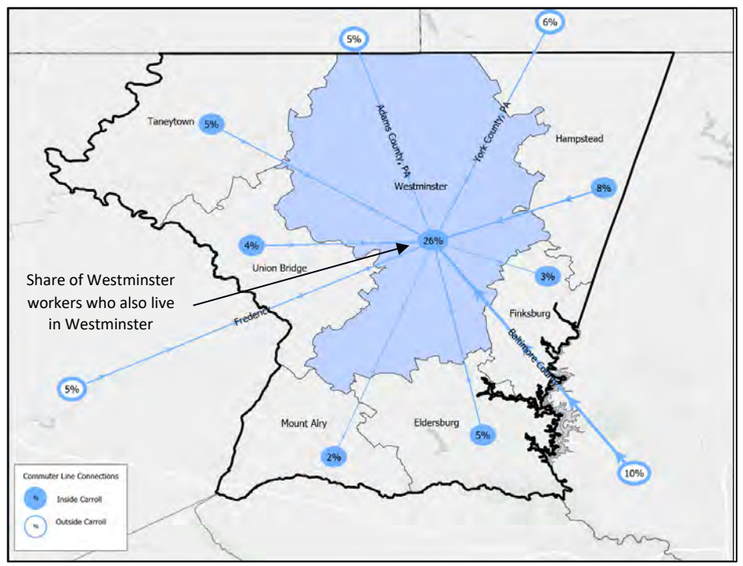


Figure 5.57 Commuting to Westminster, % of Westminster Workers by Place of Residence

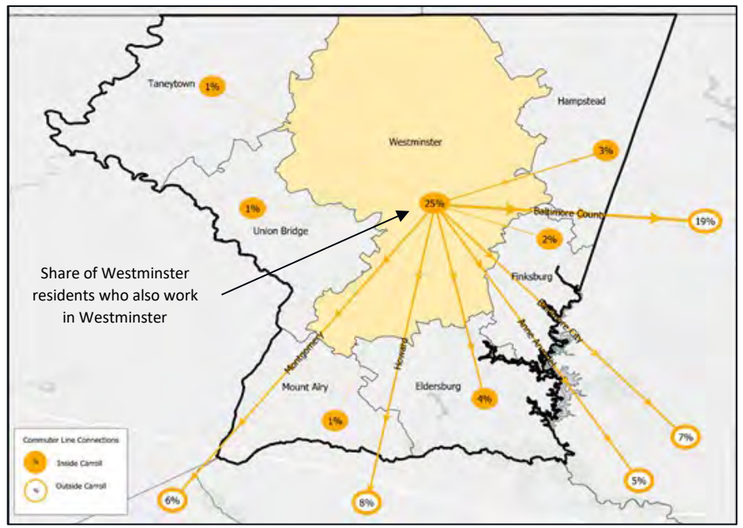


Figure 5.58 Commuting from Westminster, % of Westminster Residents Working in Each Subarea/Jurisdition

Local Goals and Policies

Westminster is by far the largest and busiest locale in Carroll County as the County seat and owing to its location at the intersection of arterial roadways that provide access to all of the region's major job centers, (MD 140 to Baltimore, MD 97 to Howard and Montgomery Counties, and MD 27, 31, and 140 towards Frederick) as well as its nearly 40,000 local jobs.

From the 1962 Master Plan of Road Improvements to the early 2000s, an arterial bypass of Westminster was the key transportation goal for Carroll County. MD 140's present alignment was a bypass of the City of Westminster's historic downtown completed in 1952. The 1962 plan envisioned a further bypass, anticipated to be an expressway that would enter the County between Hampstead and Upperco, well to the north of MD 140, pass north of Westminster, then closely parallel Taneytown Pike before turning southwest south of Taneytown.

In the late 1980s and 1990s, through consideration of a number of northern and southern alternatives for a more limited bypass, the route was further pared back to a rerouting of MD 140 running between Hughes Shop Road and Reese Road.

In the 1990s, the County and City partnered to create a local road network with the potential to serve short trips and provide access to businesses north of Baltimore Boulevard while reducing demand on intersections along MD 140. The construction of Center Street, Market Street, and the Malcolm Drive extension north of MD 140 in the 1990s also spurred increased commercial development, especially on the north side of MD 140.

The County's current approach to transportation planning in Westminster is thus two-pronged: (1) major intersection improvements along MD 140 to increase total capacity between Market Street and Sullivan Road, and (2) strengthening the local "grid network" to provide alternative means of access to residential, commercial and industrial areas north and south of MD 140. These proposals could together cost nearly $300 million and rely on uncertain state funding, development, and environmental assumptions.

The County's current Planned Roads and Improvements map envisions expanding this network by extending Malcolm Drive north of its intersection with Market Street to link to a future extension of Bennett Cerf Drive. The north end of this proposed network would intersect MD 97 at Meadow Branch Road, just south of Carroll County Regional Airport to provide a local alternative to Westminster's most congested roadway corridor. The Carroll County Master Plan estimates these new roadways will have a combined cost of $17 million.

> Since 2001, the County's master plan of roadways has not included the Westminster Bypass. In its place are a series of recommendations developed from 2004 to 2006 for a corridor improvement project along MD 140 from Market Street to Sullivan Road that would include multiple continuous flow intersections (CFIs) and a single point urban interchange (SPUI) at Malcolm Drive and MD 140. These proposals have a combined estimated cost of $271 million but have not progressed in any further concept or detailed design nor are funds allocated through the statewide Consolidated Transportation Plan (CTP) to do so in the next five years.

Existing Traffic Conditions

Absent a bypass north of Westminster and a local road network connecting to MD 97 near the airport, MD 140/97 between Market Street and Sullivan Road must serve both eastbound/westbound MD 140 traffic northbound/southbound MD 97 motorists in one corridor—the most congested corridor in Carroll County.

From east to west, the intersections of MD 140 with Market Street, Malcolm Drive, Center Street, and Englar Road all operate at LOS D or worse during at least one peak hour. During the AM peak hour, the Market Street intersection has the longest average delay at around 73 seconds (LOS E), but that intersection operates at LOS C during the PM peak hour. During the AM peak hour, the Malcolm Drive intersection operates at LOS C, but it has the longest average delay during the PM peak hour at around 56 seconds (LOS E). During both peak hours, the Center Street intersection has the highest volume-to-capacity (V/C) ratio (0.76 during the AM peak hour and 0.91 during the PM peak hour).

Travel speeds along MD 140 through Westminster are variable but some segments experience typical AM peak hour speeds of 30-34 miles per hour and typical PM peak hour speeds of 25-29 miles per hour. Slower speeds are typical through Westminster's historic downtown, where travel on Main Street can drop below 15 miles per hour during the PM peak hour.

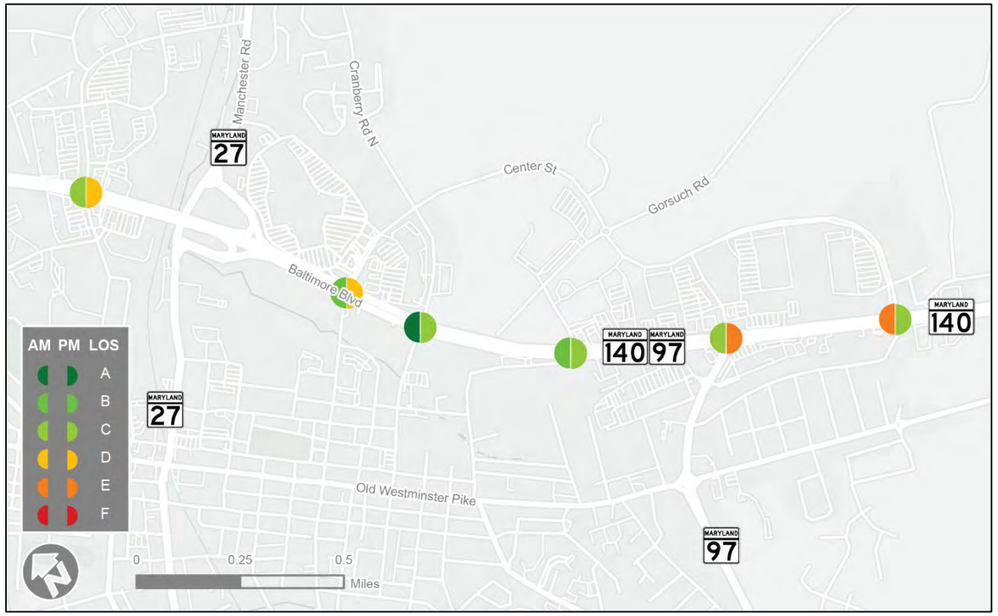


Figure 5.59 Westminster Existing Traffic Conditions

2040 Traffic Conditions with No Improvements

With anticipated growth and no improvements, traffic congestion will continue to degrade in Westminster. By 2045, all the study intersections along MD 140 will operate at LOS E or worse during at least one peak hour. The Market Street intersection's AM peak hour average delay will extend to 127 seconds (LOS F), while Center Street's PM peak hour average delay will extend to 121 seconds (LOS F) to eclipse the Malcom Drive intersection as the most delayed in the evening.

The Malcolm Drive, Gorsuch Road, Ralph Street/Cranberry Road, Center Street, and Englar Road intersections will all have PM peak hour V/C ratios above 1. At Malcolm Drive, average northbound evening left turn delay will have lengthened from about 82 seconds to over 140 seconds. At Market Street, delay for eastbound through traffic—currently at LOS E with 98 seconds of delay—will more than double to 199 seconds.

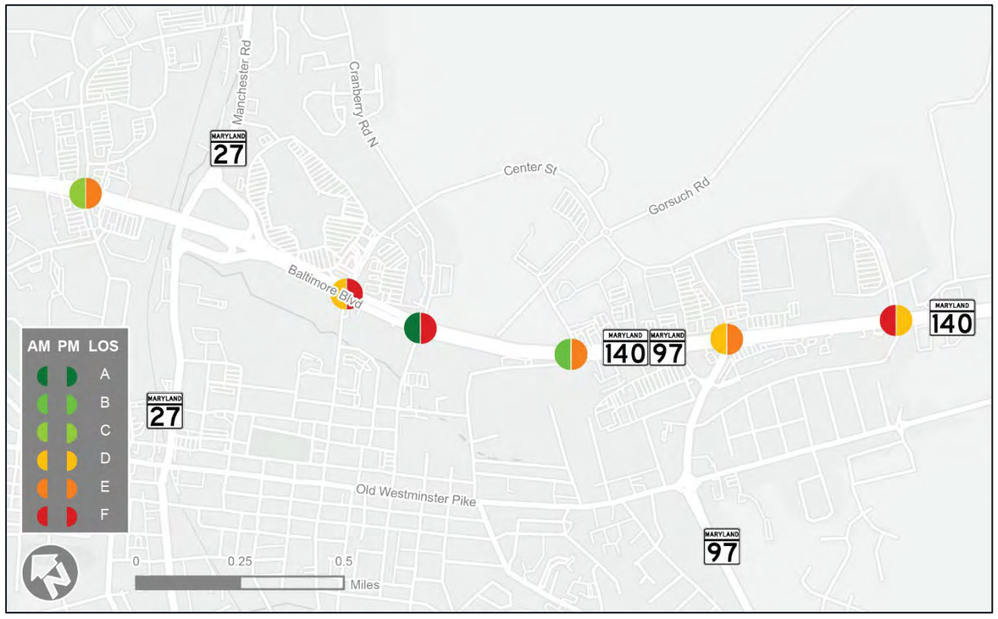


Figure 5.60 Westminster 2040 No-Build Traffic Conditions

Planning Approaches

MD 140 through Westminster is not only the County's most congested corridor but also its most active commercial corridor. Therefore, an effective approach to mitigating congestion along MD 140 through Westminster must consider not only how much it would reduce travel times and intersection delay for those traveling through the City on MD 140 or MD 97, but how improvements could help motorists access local businesses. Within that framework, this analysis explored and evaluated at a high-level the cost/benefit, environmental and property impacts, and planning consistency of three "big picture" alternatives for MD 140 through Westminster.

The most conventional way to address a congested corridor is to add capacity, and this was the approach taken by the mid-2000s planning study's selected alternative of continuous flow intersections (CFIs) and a single-point urban interchange (SPUI) at Malcolm Drive. These improvements would lead to significant travel time savings but at a high cost—both in terms of dollars and businesses impacted. For $271 million and eleven potential business displacements, the study's proposals would improve operations at the six study area intersections while maintaining all movements except for left turns and cross street movements at Gorsuch Road. As compared to no-build 2045 forecast conditions, construction of the SPUI would lead to about 15 average seconds less of peak hour delay along MD 140 approaches from Market Street to Englar Road, and less than one second of average delay reduction along the side street approaches. At the most congested intersection, Malcolm Drive, the SPUI would improve operations over their current state, reducing average delay to about 31 seconds in the AM peak hour and 46 seconds in the PM peak hour, but if constructed in isolation would cost upwards of $40 million, potentially impact three businesses, and not yield any meaningful improvements at adjacent intersections.

Planning Approaches Cont.

As an alternative to adding capacity along a roadway corridor, reducing demand for travel along a corridor can sometimes yield similar travel time savings at a lower cost and with less impacts to adjacent businesses, but the off-site improvements needed to reduce corridor demand can come with their own property and environmental impacts. In the case of Westminster, this approach has been thoroughly explored in the past through extensive study of a bypass and a variety of routes north and south of Westminster have been evaluated. This analysis also conceptually evaluated a more limited southern connector that would link MD 27 and MD 31 south of the City.

Finally, an approach that better matches existing roadway space with local traffic demand can help roadways and intersections operate as efficiently as possible. This strategy avoids most of the environmental and property impacts of major construction projects but can often reduce intersection delays throughout the corridor and yield significant travel time savings for through travelers. Therefore, this analysis tested a scenario using an alternative intersection design known as "quadrant roadways" that limited left turns off MD 140 at Malcolm Drive and Cranberry Road/Ralph Street.

This scenario would prohibit westbound left turns from MD 140 at Malcolm Drive and westbound left turns from MD 140 at Ralph Street. In these cases, the roadway network provided by MD 27, Center Street, Market Street, and Old Westminster Pike—which will be fully connected to MD 140 with the completion of the current Market Street extension—provides multiple routes that can accommodate motorists who currently make these turns directly off MD 140. In addition, this scenario incorporated one proposal from the 2006 planning study: conversion of the Gorsuch Road intersection to right-in/right-out access only.

Recommended Approach

Limited state funding and possibly undesirable community impacts make major intersection and interchange improvements unlikely in the near future. Similarly, the costs and impacts of a full bypass of Westminster and of a more limited Southern Connector have been determined to outweigh the benefit they may provide; a southern connector may provide an alternative for some trips headed further west (towards Taneytown) or north (towards Pennsylvania) but would come at a significant environmental cost to farmland and wildlife areas.

In contrast, operational improvements promise to achieve moderately high benefit for their (low) cost. Therefore, this analysis recommends pursuing a quadrant roadways approach. This set of lower cost improvements can be made primarily within the existing pavement and right-of-way—which significantly reduces project cost and complexity—but can still yield an impactful lessening of congestion and delay in Westminster.

#	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1	Create a **new through lane in each direction by prohibiting left turns off MD 140** at Malcolm Drive and Ralph Street/Cranberry Road and reallocate roadway space **Cost: $100K or Less**	Left turns at these intersections can be accommodated by Market Street and Center Street, respectively. This will allow for more signal cycle time to be assigned to the dominant movements (through on MD 140 and left from Malcolm Drive onto MD 140), as well as provide more physical capacity for through traffic, increasing throughput and reducing queue lengths, without needing to widen the roadway or acquire right-of-way.	N	N/A	N	N
2	**Convert the Gorsuch Road intersection with MD 140 to right-in/right-out only** **Cost: $100K to $250K**	This will allow removal of the traffic signal at Gorsuch Road and MD 140, and removal of the left turn lanes will allow continuation of the space reallocation and median removal from Malcolm Drive past Gorsuch and Ralph Street/Cranberry Road to provide an additional through lane from just west of Market Street to Center Street.	N	N/A	N	N

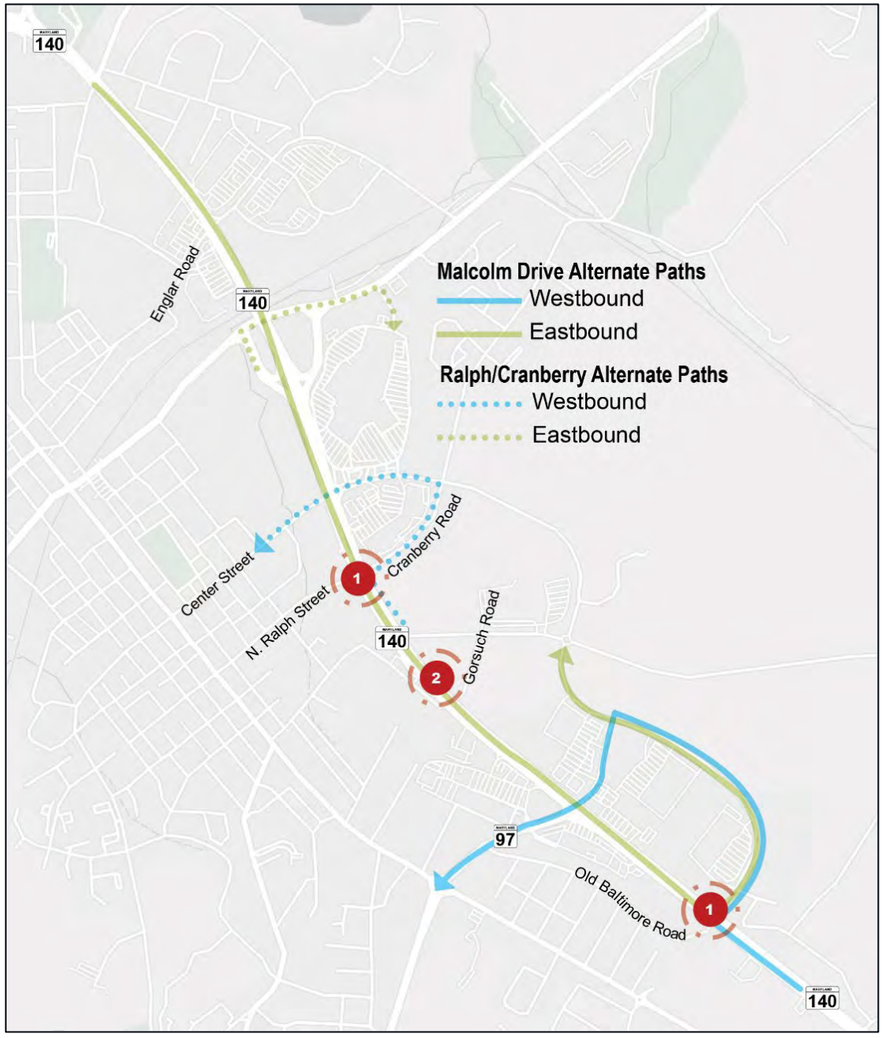


Figure 5.61 Quadrant Roadways Approach to MD 140 in Westminster

Benefits and Impacts

Instituting left turn prohibitions at Malcolm Drive and Ralph Street/Cranberry Road, converting Gorsuch Road to right-in/right-out, and allocating the space reclaimed from left turn lanes to new through lanes would maintain today's congestion levels for approaches along MD 140 and major side streets even while traffic volumes increase by approximately fifteen to twenty five percent over the next 20 years. As compared to operations under 2045 no-build conditions, the approaches along MD 140 would average about 40 seconds of peak hour delay saved with the left turn restriction, while approaches along side streets would average about 30 seconds of additional delay.

Conditions would be moderately better at Malcolm Drive and Center Street (LOS D rather than today's LOS E during the PM peak at Malcolm Drive and LOS A rather than B at Center Street during the AM peak). Conditions would very moderately degrade at Market Street (LOS D rather than C during the PM peak) as compared to existing conditions. Only at Ralph Street/Cranberry Road would conditions significantly worsen as compared to existing conditions; AM peak hour LOS would drop from A to E, and PM peak hour LOS would drop from C to F.

These improvements would be low in cost, requiring minimal construction to adjust the roadway median and reconfigure the turn lanes as through lanes, and would not have any environmental impacts. However, this scenario would route more traffic onto the County and City roads that intersect and parallel MD 140, potentially increasing the County's and City's long-term maintenance burden.

Reducing congestion along MD 140 would have benefits far beyond the immediate corridor area. Most directly, it would ease travel between northern Carroll County and points south along MD 140, MD 32, and MD 97 by reducing delay through Westminster for motorists traveling these routes. This would reduce travel times for commuters but may also contribute to increased development pressure from Westminster north.

These improvements would also provide easier access from other areas of the County to the businesses concentrated in the corridor. Although two left turn movements that provide business access would be prohibited, the intersections where left turns would be prohibited in this scenario were selected to minimize impacts to business access and the travel time savings along Baltimore Boulevard would likely outweigh any additional delay incurred by turning prohibitions for most travelers.

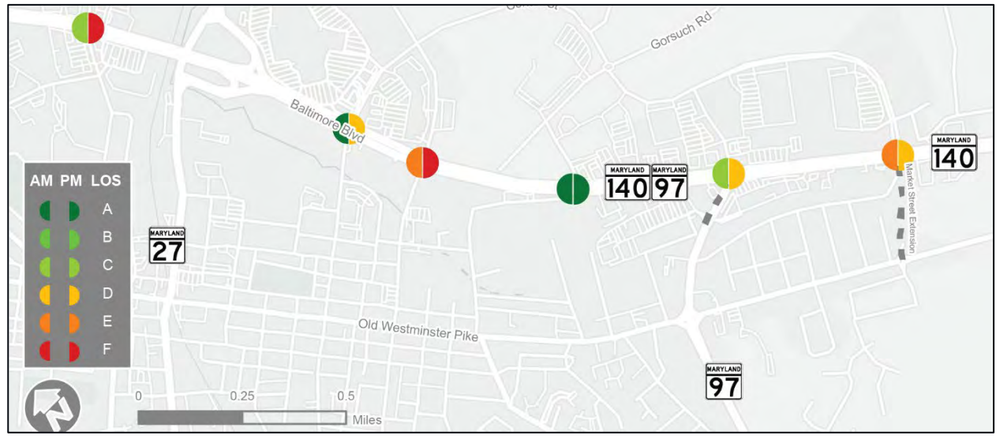


Figure 5.62 Westminster 2040 Traffic Conditions with Most Promising Potential Improvements

Additional Recommendations

Although not part of the corridor- and community-level planning otherwise described in this report, a number of issues have arisen in developing this plan which may be worthy of further study or advocacy by the County.

Interstate 70 Speed and Reliability

For a resident of Eldersburg living near Piney Run Park and commuting to work in downtown Baltimore, only seven miles of the 30-mile trip are made within Carroll County; nearly all of the remainder of the trip is on interstate roadways (I-70 – 10 miles; I-695 – 6 miles; and I-95/395 – 6 miles). MDOT SHA is currently widening the southwest part of the Beltway through Woodlawn and Catonsville to four lanes in each direction with completion anticipated in 2022; next, MDOT SHA will rebuild the approaches and ramps which connect I-70 and the I-695 in a $100 million project that is part of the Governor's Traffic Relief Plan for Baltimore. Left unaddressed is the section of I-70 between the Carroll County line and the Patapsco River where congestion and reliability rated moderate to severe in MDOT's 2019 Mobility Report. In 2018, MDOT SHA conducted a study to identify transportation systems, management, and operations (TSMO) improvements for the area – especially in the vicinity of the I-70/US 29 interchange. No further action has been programmed to improve congestion and reliability on this middle segment of the journey from Carroll County to Baltimore, although the region's constrained long-range transportation plan does call for the widening of I-70 from MD 32 to US 29 and I-70/US 29 interchange.

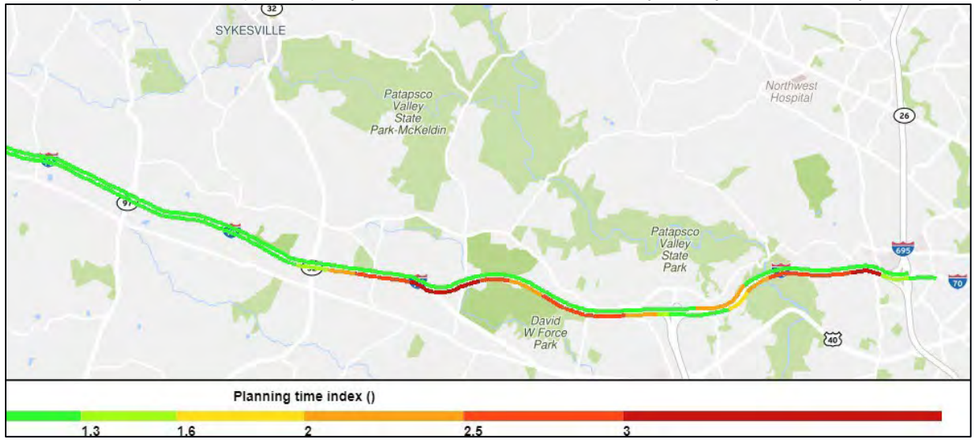


Figure 5.63 The AM Peak Hour Planning Time Index indicates significant congestion and delay on I-70 between MD 32 and I-695.

Adequate Public Facilities

As currently structured, Carroll County's development review and approval process tends to result in infrastructure improvements that are of specific and immediate benefit to the pending development such as creation of turn lanes, acceleration and deceleration lanes, traffic signals, etc. These are termed "access improvements" as they provide for safe and efficient access to a development; however, access improvements do not necessarily mitigate the additional vehicles on a roadway network which in some cases lead to a failing level of service. In rare cases, developers may contribute to a larger project that is pending full design and construction funding by the County or MDOT SHA. The developer's contribution is prorated to the development's impact on the proposed transportation facility based on negotiation between the developer and the County. A system that is based on negotiated agreements can be inefficient and inequitable as similar developments even within a particular area may not be required to make a "fair share" contribution to necessary improvements.

Other jurisdictions employ a traffic impact fee system as part of their adequate public facilities approval process. Under such a system, all development projects pay a per unit fee (trip, square foot, acre, etc.) that can be used to fund improvements to the overall transportation network regardless of whether the specific development tips a specific intersection to a failing level of service. By law, the revenue from an impact fee must be dedicated to substantially benefit the assessed properties; a county cannot collect an impact fee in one geographic area and spend the funds in another area. As part of the capital improvement planning process, governments then allocate accumulated impact fees to support specific projects in reasonably proximity.

Right-of-Way Preservation

Whether needed for a major bypass or to connect two nearby subdivisions, the process of acquiring land for a roadway is time consuming and expensive. While the government can exercise its power of eminent domain to acquire land for a roadway at the time a project is advancing towards construction, doing so is often contentious and considered to be heavy-handed. It is far more preferable for a government to designate lands which will be needed for public rights-of-way through their comprehensive plan, zoning or subdivision ordinances, or other mapping processes which can be relied upon for long-term indication of a potential improvement. In general, state-owned roadways are of sufficiently wide right-of-way to accommodate improvements described in this plan. It is much less the case that right-of-way preservation is being sufficiently planned for roadways which are to be County- or municipally owned.

For example, the Taneytown Greenway (Antrim Boulevard extension) has been included in County roadway plans since 1962. To date, only one parcel comprising about 15 percent of the planned roadway length has been acquired by the County and thus preserved from development. The remainder of the planned alignment is within the City of Taneytown's municipal growth area and crosses land with designations including Industrial, General Business, and Suburban Residential. Should the development anticipated by the City's comprehensive plan occur without easements or right of way agreements in place, the County must rely on negotiation during the development process to ensure that right of way for planned municipal or County roadways remains available.

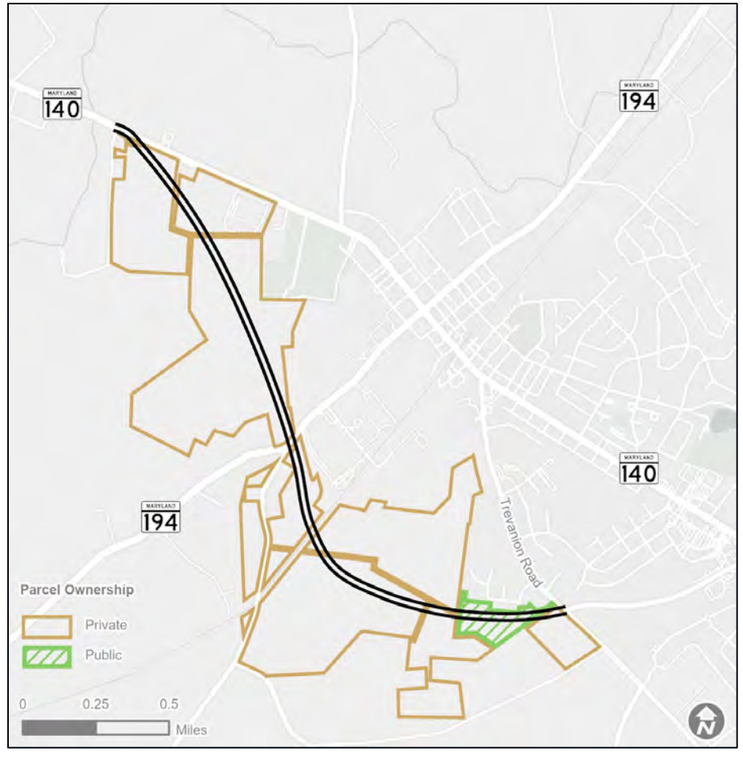


Figure 5.64 Current Parcel Ownership Status of Planned Antrim Boulevard

Chapter 6 Planned Roadway Projects

Goal Pursue policies and strategies that facilitate the realization of Planned Roadway Projects to improve transportation safety, connectivity, and accessibility and to further the efficient flow of traffic for the ultimate development of the County's transportation network.

An inventory of Planned Roadway Projects, including Maryland State Highway Projects, Planned Major Streets and Planned Neighborhood Connections has been listed in Carroll County Master and Comprehensive Plans since 1964. These planned roadways serve as a guide for necessary transportation improvements and connections as the County develops.

The following tables and maps include all Planned Roadway Projects in Carroll County. These improvements are Maryland State Highway Projects, Planned Major Streets, and Planned Neighborhood Connections. All the listed projects have originated in a state or local planning document or are the result of a recognized capacity or safety improvement. The alignments shown are generally for planning purposes; the exact alignments are to be determined at the time of design. Projects such as resurfacing, minor intersection improvements, traffic, signing, lighting, and signalization and bridge rehabilitation and enhancement projects are not included on the list.

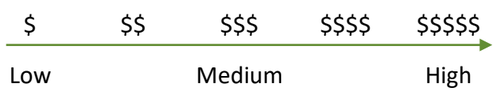
The Maryland State Highway Projects are listed in the 2020 Highway Needs Inventory (HNI), see Table 6.1. This document is a technical reference and planning document which identifies highway improvements to serve existing and projected population and economic activity in the state, as well as address safety and structural problems that warrant major construction or reconstruction. The projects identified in this document represent only an acknowledgment of need based on technical analysis. The HNI is not a construction program, and inclusion of a project does not represent a commitment to implementation. The HNI is not financially constrained nor is it based on revenue forecasts. The HNI may be considered as a compilation of projected major highway deficiencies.

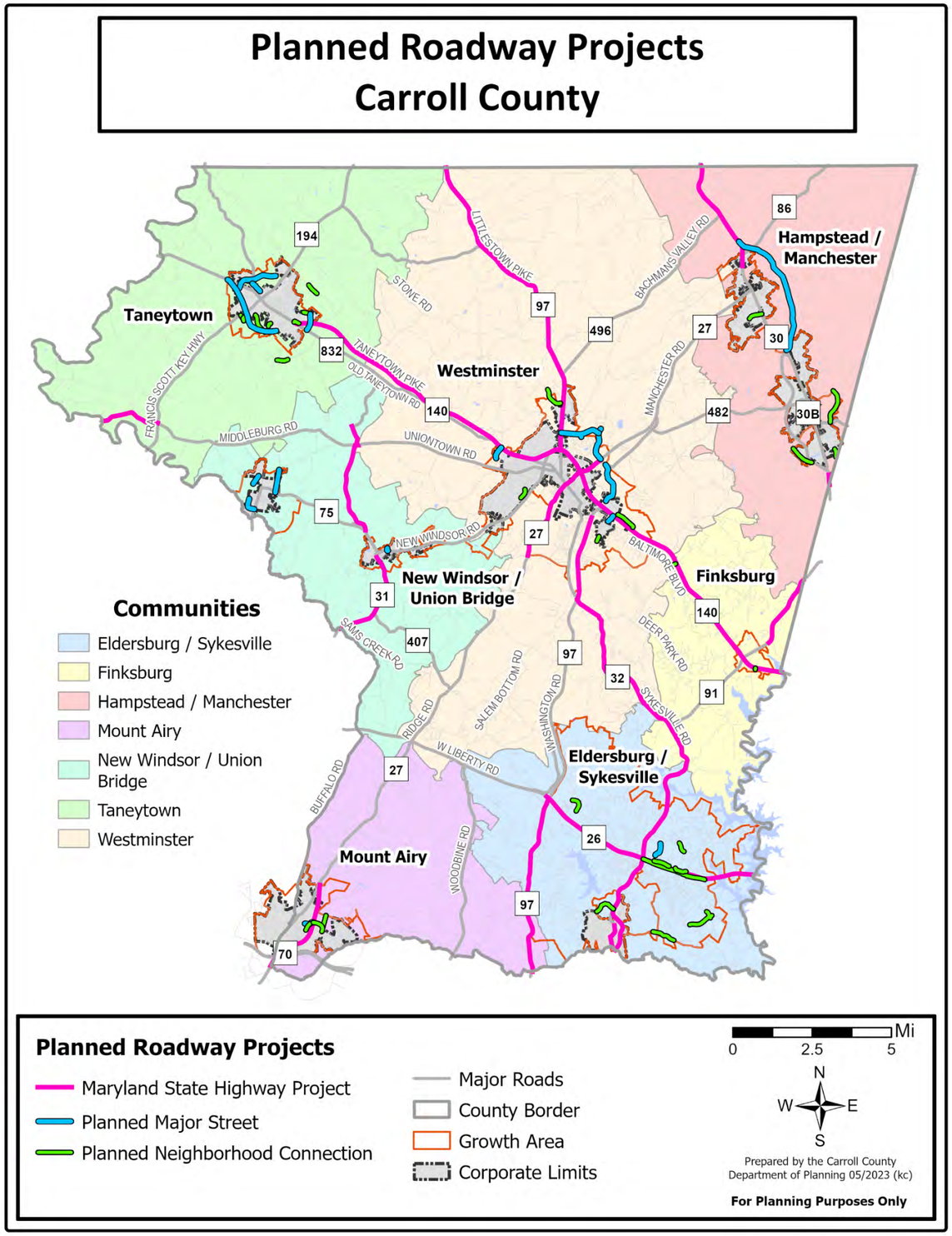
Projects listed as Planned Major Streets and Neighborhood Connections are necessary to further the efficient flow of traffic and overall connectivity in a specific area, or neighborhood, in the County. When County funded, these roadways are first included in the County's six-year Community Investment Plan. Where applicable they may be expected to be funded through a combination of County, municipality, and developer of a specific impacted property.

Cost estimates for Maryland State Highway Projects are based on the HNI. These costs were prepared in 2018 and were based on current costs.

Cost estimates for Planned Major Streets and Planned Neighborhood Connections are based on:

- $1.9 million per linear mile for a two-lane roadway
- Estimate does not include right-of-way, engineering, or inflation
- The following symbols reflect cost estimates:





Map 6.1: Planned Major Roadway Projects Carroll County

The following studies, plans, and planning terms are abbreviated in the reminder of Chapter 6 as follows:

2010 Hampstead Community Comprehensive Plan	HCCP
2013 Finksburg Corridor Plan	FCP
2014 Carroll County Master Plan as amended 2019	CCMP
2018 Freedom Community Comprehensive Plan	FCCP
2018 Manchester Comprehensive Plan	MCP
2018 MDOT MD 32 Planning and Environmental Linkages Study	PEL Study
2020 MDOT MD 26 Corridor Study	Corridor Study
Carroll County Community Investment Program	CIP
Maryland Agriculture Land Preservation Foundation	MALPF
Maryland Department of Transportation, State Highway Administration	MDOT SHA
Maryland State Consolidated Transportation Program	CTP
Right-of-way	ROW

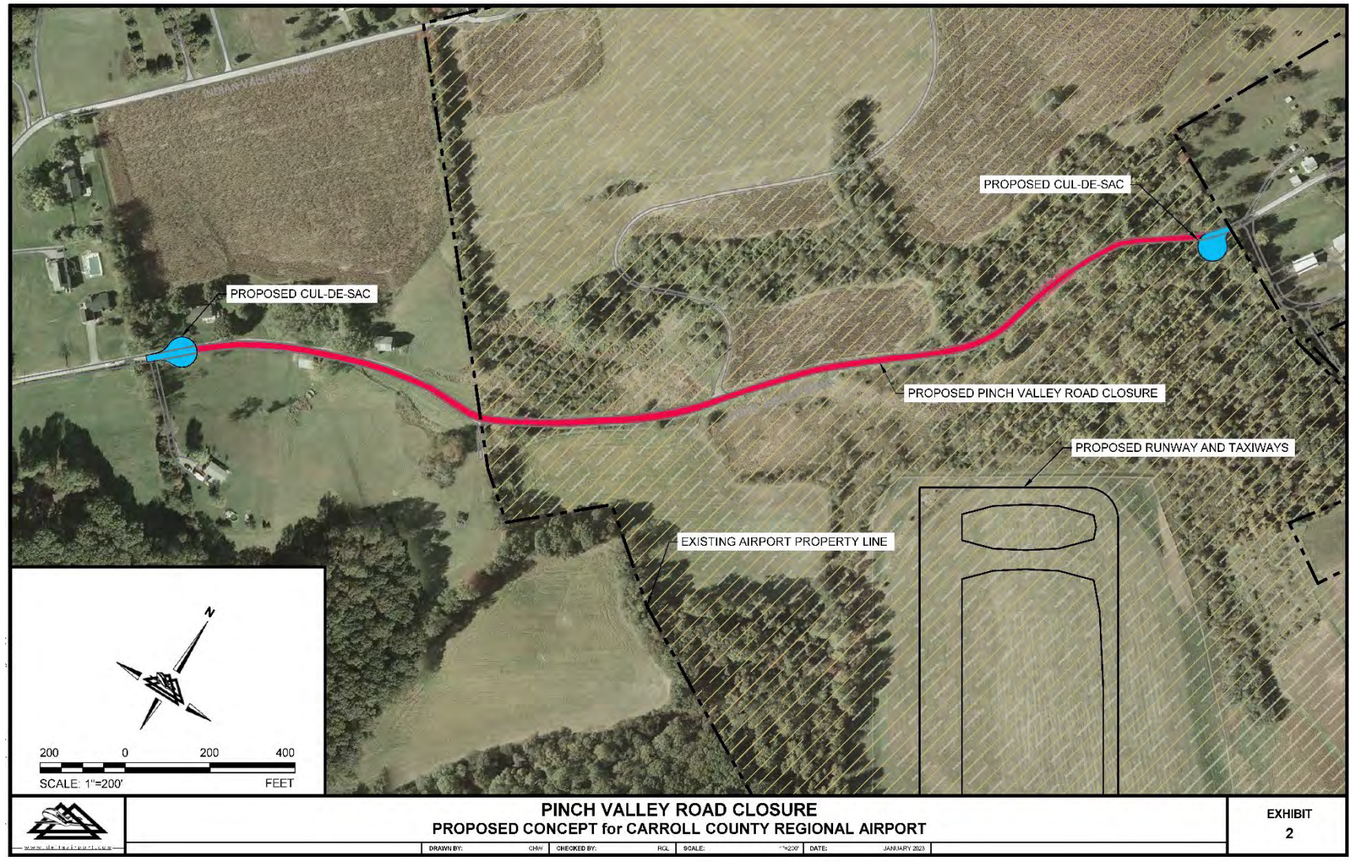
Future Road Closures

Nicodemus Road

Located southwest of the City of Westminster, Nicodemus Road connects Medford, Brick Church, and Bowersox Roads. The area is naturally prone to sinkhole development and accelerated sinkhole development has been observed along Nicodemus Road near the active quarries. The approved expansion of Medford Quarry towards Nicodemus Road may one day result in additional accelerated sinkhole formation that may pose a risk to public transportation. Within an approximate 10-year period, the viability of maintaining and keeping open the sinkhole-prone portion of Nicodemus Road, which generally occurs between the intersection with Brick Church Road and the 1400 block of Nicodemus Road, will need to be evaluated. One option potentially open for consideration is the closing of that sinkhole-prone portion of the roadway, with creation of cul-de-sacs at either end of the Wakefield Marble. Additional options, including establishment of other transportation corridors, could be considered.

Pinch Valley Road

Located northwest of the City of Westminster, a portion of Pinch Valley Road will be closed to move forward with the Airport Safety Enhancement Projects. This is an approximately 2,700-foot section, beginning approximately 350 feet north of the intersection with Indian Valley Trail and continuing to a point approximately 1,200 feet south of the intersection with Pleasant Valley Road. The Board of County Commissioners approved the closure on March 23, 2023. The closure is estimated to occur between 2026 -2028.



Map 6.2: Pinch Valley Road Closure

Table 6.1 Maryland State Highway Projects

Project	Estimated Cost	Plan Source	Other Studies/Plans	Status Since Last Plan Amendment	Feasibility/Other
MD 26 (Liberty Road)					
MD 32 to MD 97	$51,900,000	MDOT SHA (HNI)		Unchanged	
MD 32 to Liberty Reservoir	$67,790,000	MDOT SHA (HNI)	2020 Corridor Study, FY2024 CTP Priority Letter	Unchanged	Identified breakout projects in 2020 Corridor Study increase feasibility
MD 27 (Ridge Road)					
Ridgeville Boulevard to MD 808	$36,500,000	MDOT SHA (HNI)	FY2024 CTP Priority Letter	Unchanged	
Kate Wagner Road to Bond Street	$27,900,000	MDOT SHA (HNI)		Unchanged	
Bond Street to MD 140	$127,600,000	MDOT SHA (HNI)		Unchanged	
MD 140 to 852G	$12,700,000	MDOT SHA (HNI)		Boundaries reduced in 2014 HNI update – County requested	
MD 30 (Hanover Pike)					
Baltimore County line to Wolf Hill Drive	$4,400,000	MDOT SHA (HNI)		Unchanged	
North of Manchester to PA line	$57,900,000	MDOT SHA (HNI)		Unchanged	
MD 31 (New Windsor Road)					
Frederick County line to New Windsor town limits	$41,800,000	MDOT SHA (HNI)		Unchanged	
New Windsor Main Street (Streetscape)	$4,400,000	MDOT SHA (HNI)	FY2024 CTP Priority Letter	Unchanged	
MD 32 (Sykesville Road)					
Howard County line to MD 26	$48,500,000	MDOT SHA (HNI)	2018 PEL Study, FY2024 CTP Priority Letter	Design is funded for geometric improvements from Main St. to 2nd Avenue	Identified breakout projects in 2018 PEL Study increase feasibility
MD 26 to Pine Knob Road	$22,500,000	MDOT SHA (HNI)		Unchanged	
Pine Knob Road to MD 97	$138,500,000	MDOT SHA (HNI)		Unchanged	
MD 77 (Middleburg Road)					
Frederick County line to MD 194	$20,900,000	MDOT SHA (HNI)		Unchanged	
MD 84 (Clear Ridge Road)					
MD 75 to Baust Church Road	$50,600,000	MDOT SHA (HNI)		Unchanged	
MD 91 (Emory Road)					
North of MD 140 to Baltimore County line	$25,500,000	MDOT SHA (HNI)		Unchanged	
MD 97 (Old Washington Road)					
Howard County line to .02 miles south of MD 26	$70,400,000	MDOT SHA (HNI)		Unchanged	
MD 97 (New Washington Road / Malcolm Drive)					
MD 32 to Old Westminster Pike	$142,600,000	MDOT SHA (HNI)		Unchanged	
MD 97 (Littlestown Pike)					
MD 140 to Pleasant Valley Road	$261,800,000	MDOT SHA (HNI)	FY2024 CTP Priority Letter	A portion of this project is complete	Feasibility Study for remainder of project underway
Pleasant Valley Road to PA line	$115,500,000	MDOT SHA (HNI)		Unchanged	
MD 140 (Baltimore Boulevard)					
Baltimore County line to west of MD 91	$132,000,000	MDOT SHA (HNI)	FY2024 CTP Priority Letter	Design is funded for MD 91/MD 140 “jughandle”	
West of MD 91 to Market Street	$87,100,000	MDOT SHA (HNI)		Unchanged	
Market Street to Sullivan Road	$218,612,000	MDOT SHA (HNI)		Unchanged	
Sullivan Road to Meadow Branch Road	$54,000,000	MDOT SHA (HNI)		Unchanged	
Meadow Branch Road to MD 832 at Taneytown limits	$108,900,000	MDOT SHA (HNI)		Unchanged	
MD 851 (Main Street)	$13,500,000	MDOT SHA (HNI)	FY2024 CTP Priority Letter	Unchanged	

Table 6.2 Maryland State Highway Projects Removed

Project	Plan Source	Amendment/Reason for Removal
MD 30 (Business) Hampstead Main Street Streetscape	State Project	Completed
MD 77 (Middleburg Road) MD 194 to MD 75	State Project	Infeasible

Table 6.3 Planned Major Streets, County & Municipal

Project	Estimated Cost	Plan Source	Length (Linear Feet)	Status Since Last Plan Amendment	Feasibility/Other
1. Bennett Cerf Drive Extended	$$$	Westminster	5,559	Unchanged	Alignment may change with constraints on property
2. Bennett Cerf Drive – Meadow Branch	$$$	Westminster	7,511	Unchanged	
3. Center Street Extended	$	Mount Airy	1,467	Unchanged	
4. Connector Road	$	Union Bridge	1,590	Unchanged	Connection only if MD 77 is built
5. George Street Extended	$	Union Bridge	2,566	Unchanged	
6. Georgetown Boulevard Extended	$	Freedom	2,355	Reduced in 2018 FCCP	Included in FY24 CIP, High Priority in 2018 FCCP
7. Key Crossing Road	$$	Taneytown	2,820	Unchanged	
8. Malcolm Drive Extended	$$$$$	Westminster	7,136	Unchanged	
9. Market Street Extended	$	Westminster	1,215	Unchanged	In design Phase
10. Maryland 30 Relocated (Manchester Bypass)	$$$$$	Manchester	22,757	Unchanged	
11. Mount Pleasant Boulevard	$$	Union Bridge	3,844	Unchanged	
12. Robert's Mill Road Extended	$	Taneytown	1,811	Unchanged	
13. Rockland Road Extended	$	Westminster	2,107	Unchanged	
14. Springdale Avenue Relocated	$	New Windsor	549	Unchanged	Roundabout possibly not feasible
15. Taneytown Greenway (Antrim Blvd Ext)	$$$$$	Taneytown	13,190	Unchanged	
16. Worthington Boulevard	$$$	Taneytown	7,612	Unchanged	

Table 6.4 Planned Major Streets, County & Municipal Removed

Project	Amendment/Reason for Removal
1. Gorsuch Road N.	Completed
2. Old Westminster Pike improvements	Not a Planned Major Street; upgrade of existing road

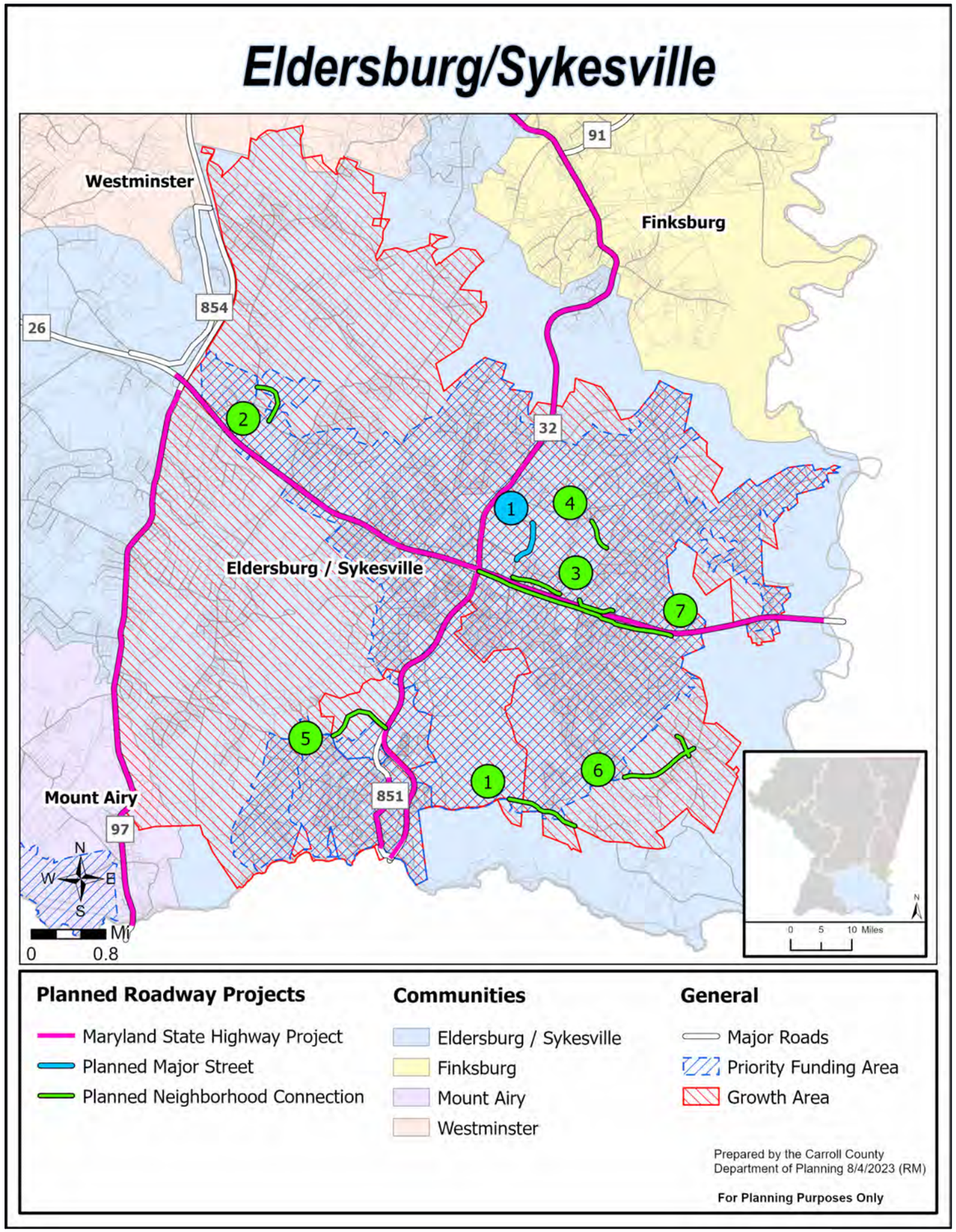
Table 6.5 Planned Neighborhood Connections, County & Municipal

Project	Estimated Cost	Plan Source	Length (Linear Feet)	Status Since Last Plan Amendment	Feasibility/Other
1. Aileron Court Extended	$	Westminster	257	Unchanged	
2. Allendale Lane Extended	$$	Taneytown	3,298	Unchanged	
3. Arrington Road Realigned	$$	Freedom	3,886	Unchanged	
4. Beck Drive Extended	$	Mount Airy	1,290	Unchanged	
5. Bethel Road Realigned	$	County	739	Unchanged	
6. Boxwood Drive Extended North	$$$	Hampstead	6,430	Unchanged	
7. Boxwood Drive Extended South	$	Hampstead	1,406	Unchanged	
8. Century Drive Extended	$$	Mount Airy	4,216	Unchanged	
9. Century Road	$	Freedom	2,698	New with adoption of 2018 FCCP	
10. Chandler Drive Extended	$	Westminster	898	In-process	Roadway through Stonegate subdivision is complete

11. Crossbridge Drive Extended	$	Westminster	1,687	Unchanged	
12. Crouse Mill Road Realigned	$	Taneytown	697	Unchanged	
13. Dede Road Extended	$	Finksburg	262	Unchanged	
14. Dickenson Road Extended (various segments)	$$	Freedom	4,751	Unchanged	High Priority in 2018 FCCP
15. Diehl Road Relocated	$	Taneytown	1,965	Unchanged	MALPF easement
16. Doss Garland Drive Extended	$$	Hampstead	3,987	Unchanged	New alignment consistent with new 2010 HCCP
17. Feeser Road Relocated	$	Taneytown	1,854	Unchanged	MALPF easement
18. Leidy Road Extended	$$	Westminster	3,387	Unchanged	Will need new alignment
19. Monroe Avenue Extended	$	Freedom	1,700	Unchanged	Included in FY24 CIP, High Priority in 2018 FCCP
20. Obrecht Road Extended	$$	Freedom	3,741	Unchanged	Intersection with MD 32 should be re-examined
21. Pleasant Valley Road Realigned	$$	Westminster	3,590	Unchanged	Alignment may need to be re-examined
22. Prothero Road Extended	$$	Freedom	5,434	Unchanged	Alignment likely to change
23. Ridenour Way Extended (various segments)	$$$$	Freedom	10,870	Unchanged	Alignment may need to be re-examined, included in FY24 CIP, High Priority in 2018 FCCP
24. Sells Mill Road Relocated	$	Taneytown	1,005	Unchanged	
25. Shower Road Connection	$	Taneytown	814	Unchanged	
26. Southwestern Avenue Extended	$	Manchester	2,346	Extension to Cape Horn Removed from 2018 MCP	Alignment to MD 30 shifted to the south in line with 2018 MCP
27. Starboard Drive Extended	$	Taneytown	697	Unchanged	
28. Stumptown Road Relocated	$	Taneytown	1,335	Unchanged	

Table 6.6 Planned Neighborhood Connections, County & Municipal Removed

Project	Amendment/Reason for Removal
1. Arnold Road Realignment/Improvements	Completed
2. Arthur Peck Drive	Completed
3. Commercial Access Road	Removed by request of Taneytown
4. Crimson Avenue Extended	Completed
5. Deer Park Road Realignment	ROW not available
6. Englar Road round-about	Not a Planned Neighborhood Connection
7. Genevieve Drive Extended	Completed
8. Gamber Bypass North (Amanda Ln Ext – Niner Rd Realignment)	No longer feasible
9. Gamber Bypass South (Strawberry Dr Ext)	No longer feasible
10. Hillendale Orchard Access Road	Access management issues
11. Hughes Road	No longer feasible
12. Krider's Church Road Realignment	Completed
13. Locust Street Extended	Removed in 2018 MCP
14. Mall Ring Road Ramp	No longer needed
15. Meadow Branch Road Realignment	Removed, in design
16. Niner Road Relocated	No longer feasible
17. Old Gamber Road / Bloom Road	Removed in 2013 FCP
18. Panther Drive	Removed by request of Hampstead
19. Ralph Street Extended	No longer needed
20. Swiper Road Extended	Removed in 2018 MCP
21. Upper Forde Lane	Removed, proposed as pedestrian trail
22. Walnut Park Internal Circulation Road	No longer feasible



Map 6.3: Eldersburg/Sykesville Community Boundary

1 Georgetown Boulevard Extended

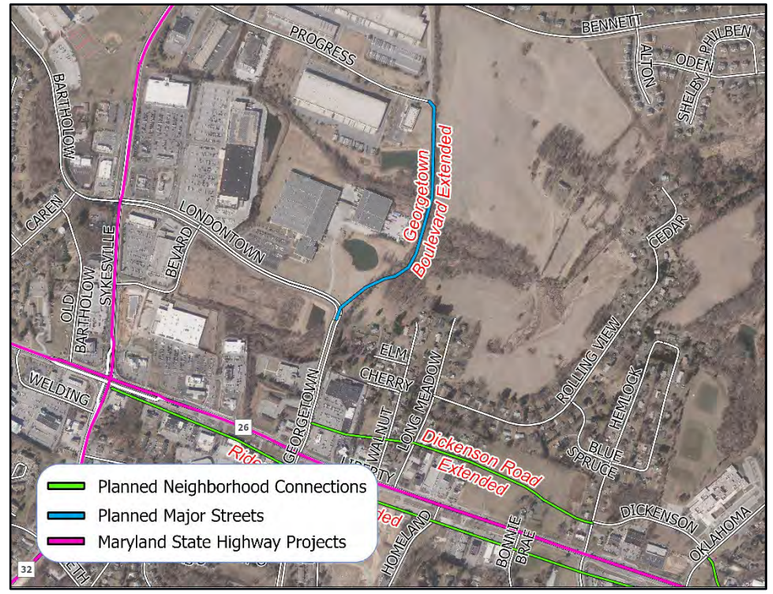
Extension of Georgetown Boulevard to Progress Way

Functional Classification: Minor Collector Urban

Length: 2,355 Feet

Right-of-Way Status: Portion of ROW secured; remainder to be developer dedicated

Purpose: The project will provide redundancy in the transportation network, improving access, connectivity, and circulation in the center of the Freedom area in an area proposed for industrial and residential development. Funding is included in the FY24 CIP to extend Georgetown Boulevard to Progress Way.



1 Arrington Road/Raincliffe Road Realigned

Realignment of Arrington Road/Raincliffe Road

Functional Classification: Minor Collector Urban

Length: 3,886 Feet

Right-of-Way Status: Portion of ROW secured; portion will be developer dedicated

Purpose: Reconstructing this segment of Arrington/Raincliffe will eliminate sharp curves in the road, improving the geometry of the roadway for both through traffic and local roads. A portion of the road will be constructed by the developer of Freedom's Grant.

2 Century Road

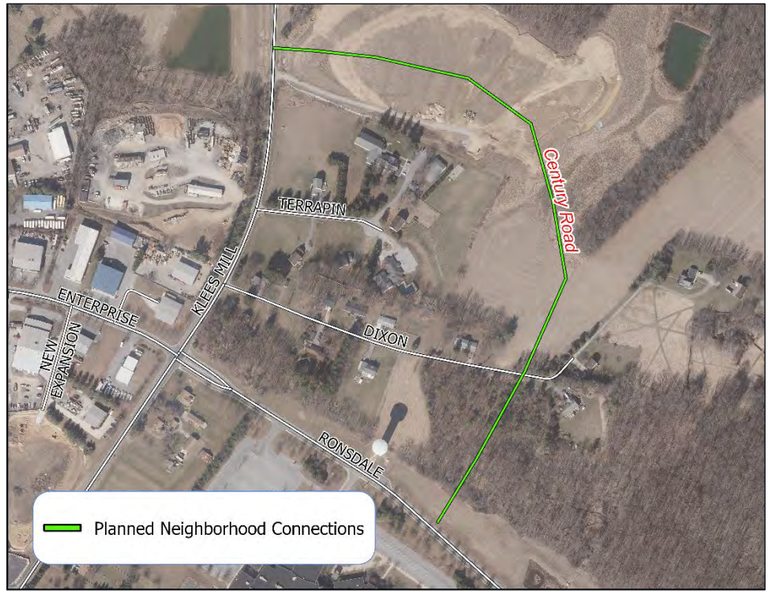
New road connecting Ronsdale Road to Klees Mill Road

Functional Classification: Local Roadway Urban

Length: 2,698 Feet

Right-of-Way Status: ROW secured; will be developer dedicated

Purpose: This new road was added in the 2018 FCCP. It provides a necessary connection through the newly designated employment campus area and creates an opportunity for local traffic to avoid the MD 26 and MD 32 corridors.



3 Dickenson Road Extended

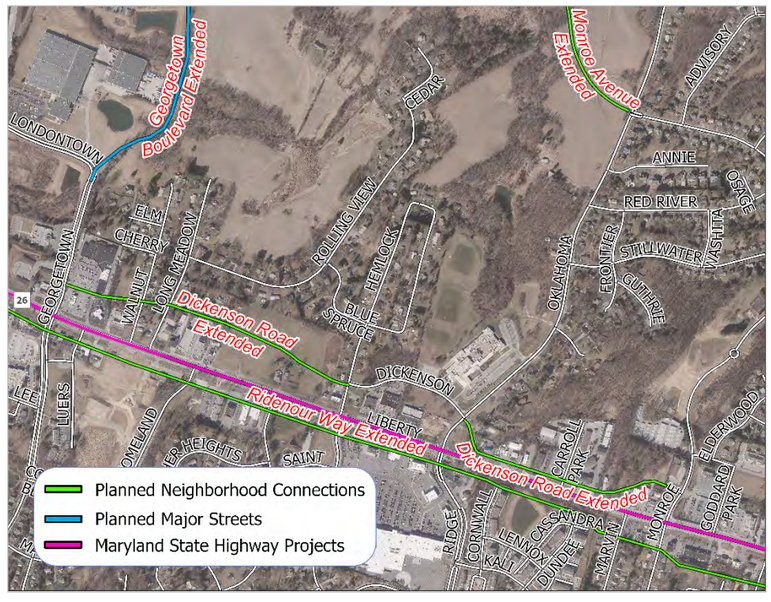
Construction of parallel road north of Liberty Road from Monroe Avenue to Georgetown Boulevard

Functional Classification: Local Roadway Urban

Length: 4,751 Feet

Right-of-Way Status: Portion of ROW secured; portion will be developer dedicated

Purpose: Dickenson Road, which is partially built, is a planned access road running parallel to MD 26. It will serve as a service road that will create redundancy in the roadway network, providing an alternate route for local vehicular traffic. In its entirety, it will provide access to area businesses while eliminating several points of ingress and egress directly off MD 26.



4 Monroe Avenue Extended

Extension of Monroe Avenue to Oklahoma Road

Functional Classification: Minor Collector Urban

Length: 1,700 Feet

Right-of-Way Status: Portion of ROW secured; remainder will be developer dedicated

Purpose: This extension from the existing terminus to Oklahoma Road will provide redundancy in the network, improve access, connectivity, and circulation in the northeast portion of the Freedom community in an area of residential development.

5 Obrecht Road Extended

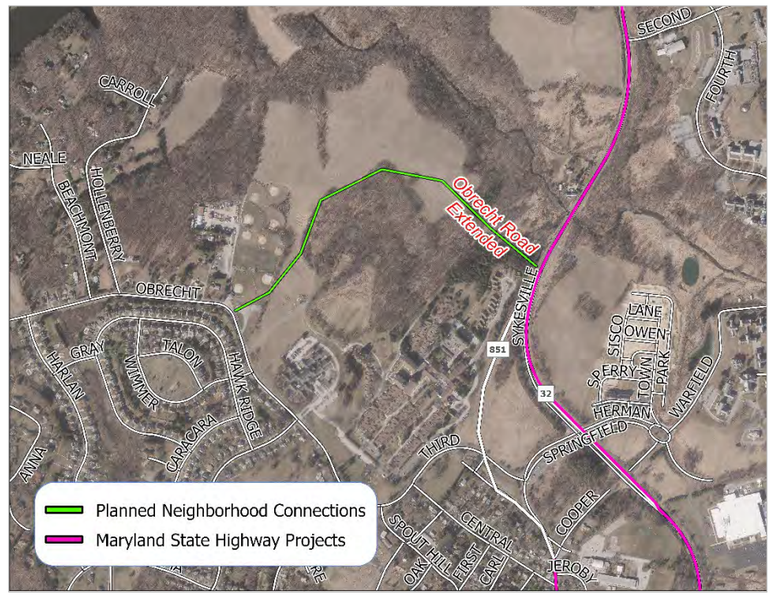
Extension of Obrecht Road to MD 32

Functional Classification: Major Collector Urban

Length: 3,741 Feet

Right-of-Way Status: No ROW secured

Purpose: This extension will connect Obrecht Road, a major collector in the Freedom Community that provides east/west traffic flow from MD 97 to Third Avenue in Sykesville, to MD 32. It will allow vehicular traffic to bypass the winding roads and intersections along Third Avenue and Springfield Avenue in the Town of Sykesville. The exact alignment will have to be evaluated.



6 Prothero Road Extended

Extension of Prothero Road and reconfiguration of intersection with Ridge Road

Functional Classification: Minor Collector/Major Collector Urban

Length: 5,434 Feet

Right-of-Way Status: Portion of ROW secured; remainder will be developer dedicated

Purpose: This extension will provide redundancy in the network, as well as to improve access, connectivity, and circulation in the southeast part of the Freedom Community in a residential area. A re- examination of the proposed alignment is recommended as development of the property progresses.

7 Ridenour Way Extended

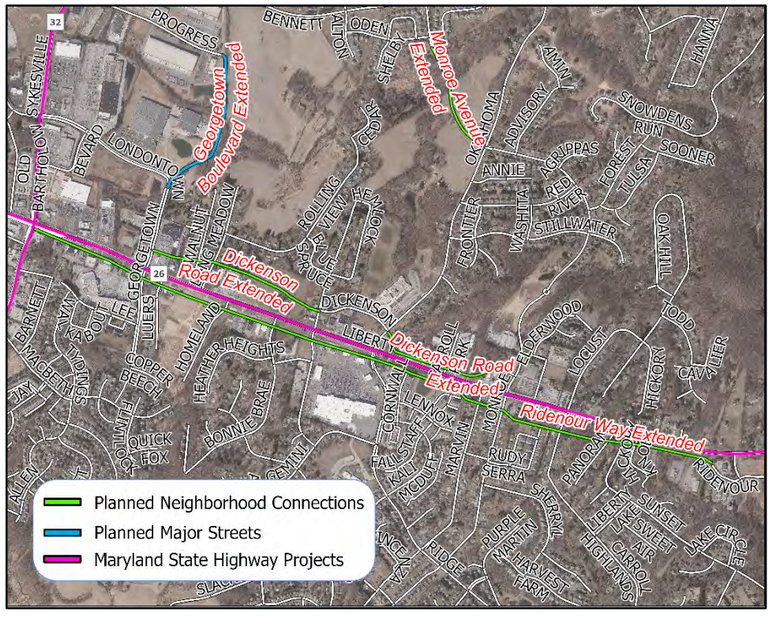
Ridenour Way (parallel road to the south of MD 26)

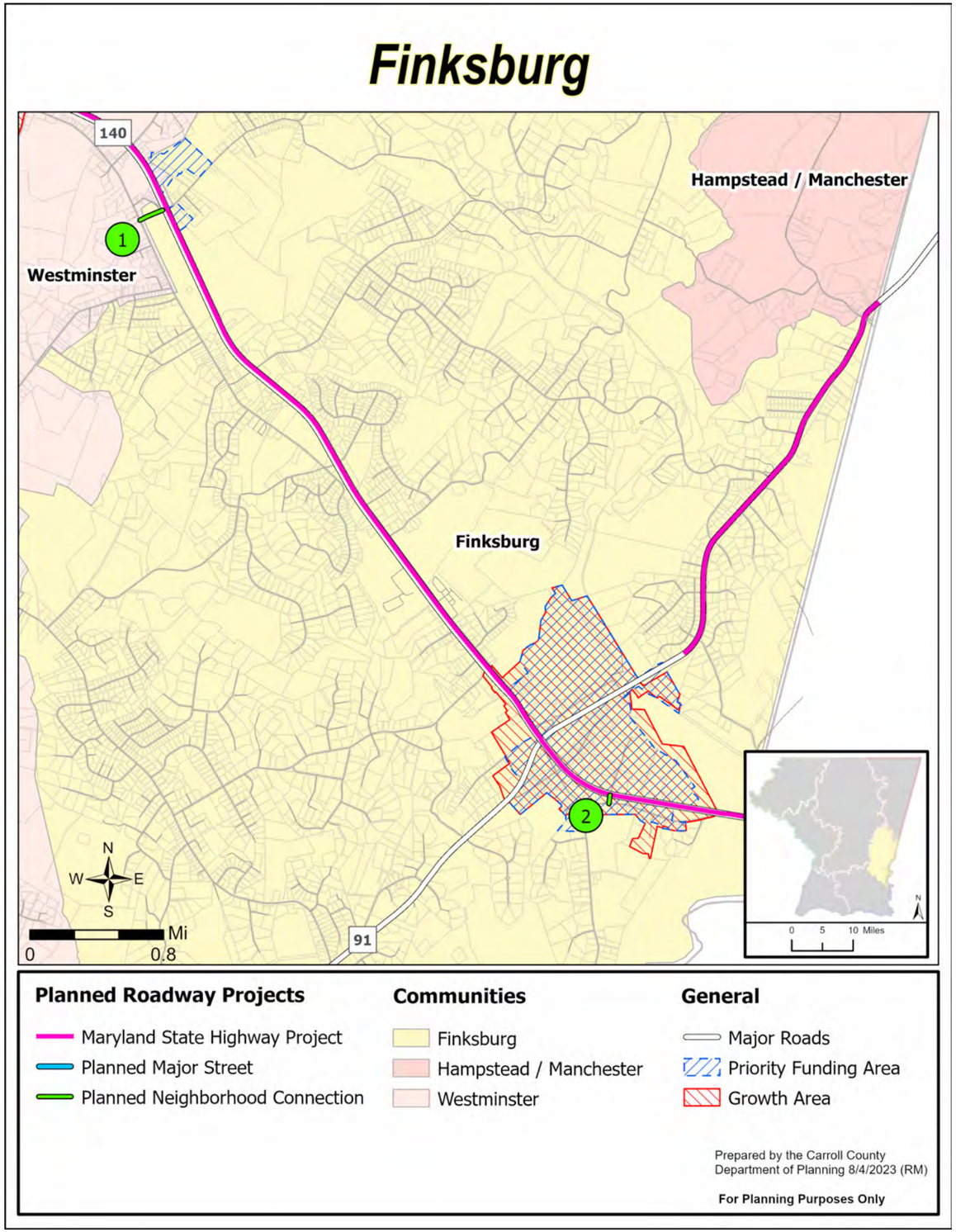
Functional Classification: Local Roadway Urban

Length: 10,870 Feet

Right-of-Way Status: Portion of ROW secured

Purpose: This planned service road will create redundancy in the network and provide access to area businesses. It will increase the safety and efficiency of MD 26 by reducing direct access points. It is intended to be part of an overall roadway network providing alternative routes for local vehicular traffic. Several portions of this road have been built by developers.





Map 6.4: Finksburg Community Boundary

1 Bethel Road Realigned

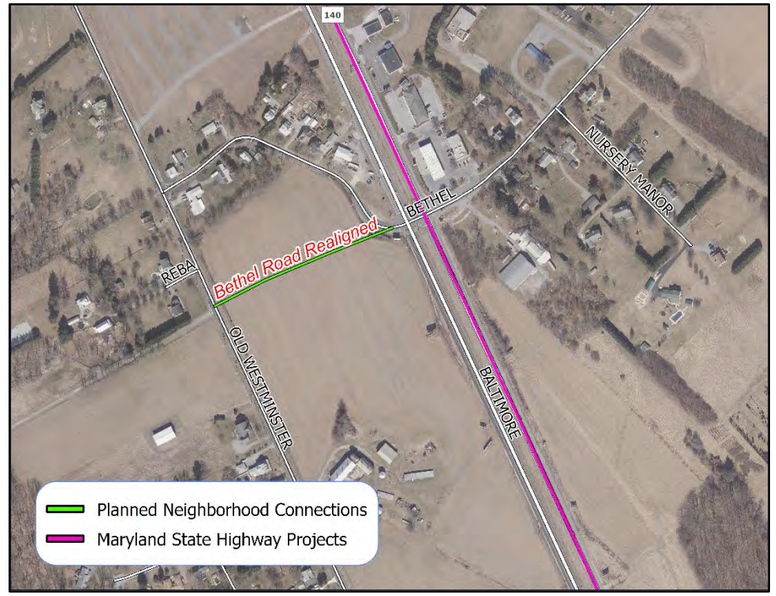
Realignment of Bethel Road

Functional Classification: Minor Collector Rural

Length: 739 Feet

Right-of-Way Status: No ROW secured

Purpose: This current segment of Bethel Road is substandard. Constructing new Bethel Road south of the current roadway will provide better geometry and a more direct route to the MD 140/Bethel Road intersection, in addition to straightening a sharp curve.



2 Dede Road Extended

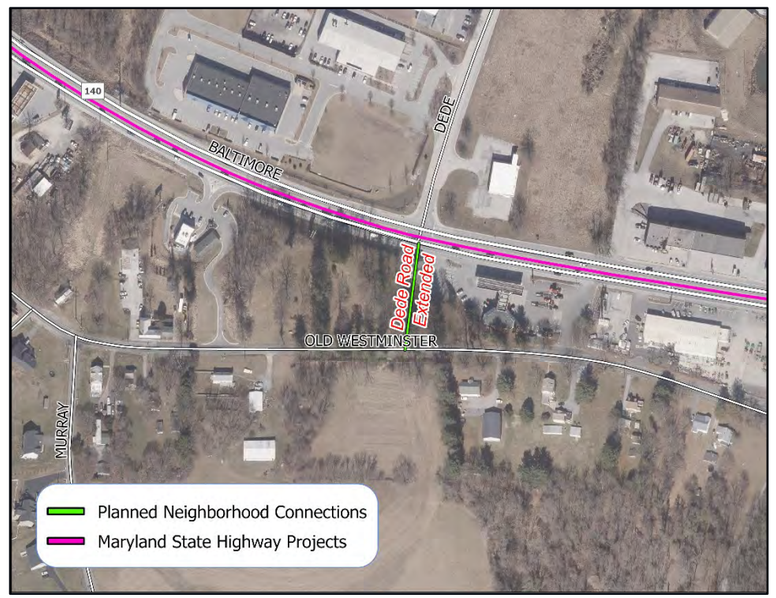
Extension of Dede Road from Old Westminster Pike to MD 140

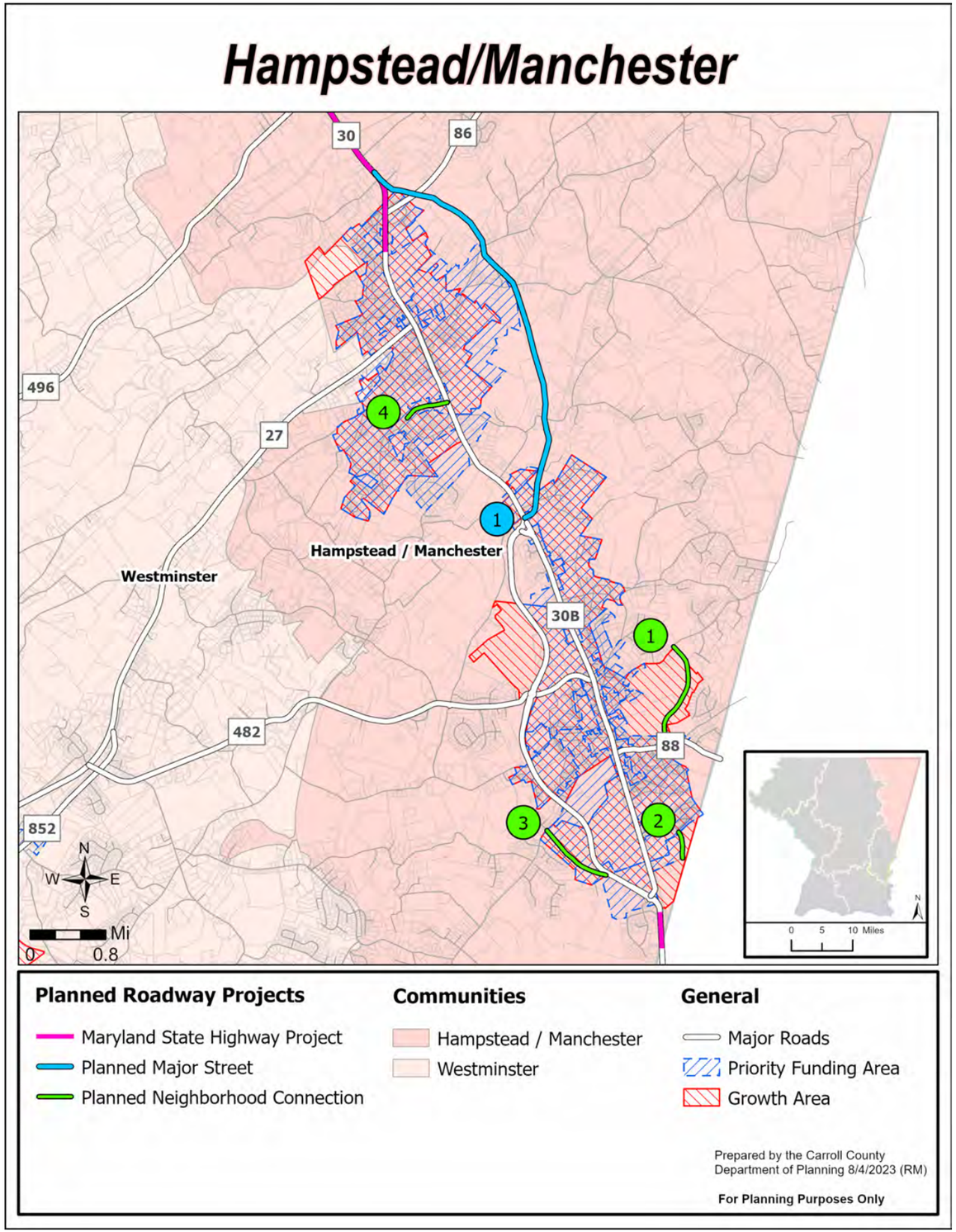
Functional Classification: Minor Collector Urban

Length: 262 Feet

Right-of-Way Status: No ROW secured

Purpose: This extension will connect MD 140 and Old Westminster Pike at the existing signalized intersection of Dede Road and MD 140. Currently, the only connections between these two roads in this area are unsignalized. This connection will improve roadway geometry, traffic circulation, and improve redundancy in the network. It will also provide access to the properties along the south side of MD 140.





Map 6.5: Hampstead/Manchester Community Boundary

1 MD 30 Relocated (Manchester Bypass)

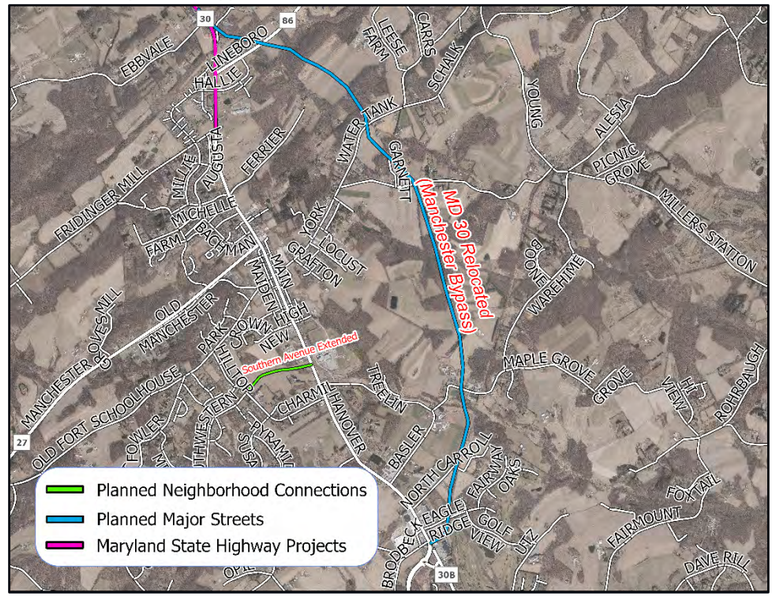
A bypass from the Hampstead Bypass to north of MD 86

Functional Classification:

Length: 4.3 miles

Right-of-Way Status: Principal Arterial

Purpose: The construction of a bypass around the Town of Manchester remains a priority in the Town's 2018 Master Plan. With the completion of Hampstead's MD 30 Bypass, traffic is re-routed to Manchester's Main Street, causing congestion through the Town's main business area. In addition, an increasing amount of traffic travelling south from Pennsylvania is exacerbating the problem.



1 Boxwood Drive Extended North

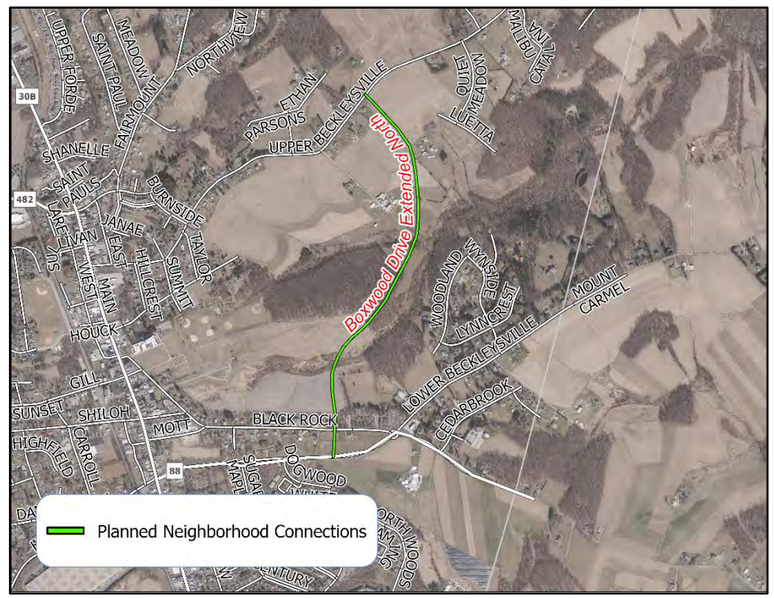
Extension from MD 88 north to Upper Beckleysville Road

Functional Classification: Local Roadway Urban

Length: 6,430 Feet

Right-of-Way Status: Portion of ROW secured; remainder will be developer dedicated

Purpose: Constructing this segment will provide a major north- south alternate route, redundancy in the road network, and improved access, connectivity, and circulation in the southeast portion of Hampstead in an area of future residential and public use development.



2 Boxwood Drive Extended South

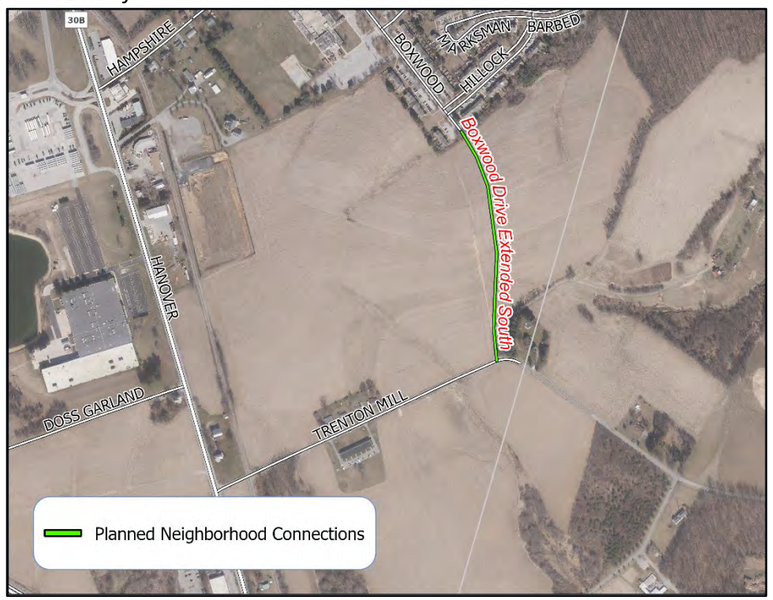
Extension of Boxwood Drive from Roberts Field to Trenton Mill Road

Functional Classification: Local Roadway Urban

Length: 1,406 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: A section exists from Hillock Lane north to Dogwood Drive. This road extension is part of a larger project to extend Boxwood Drive to Upper Beckleysville. It will provide a major north-south alternate route, redundancy in the road network, and improved access, connectivity and circulation in the southeast portion of Hampstead in an area of future residential and public use development.



3 Doss Garland Drive Extended

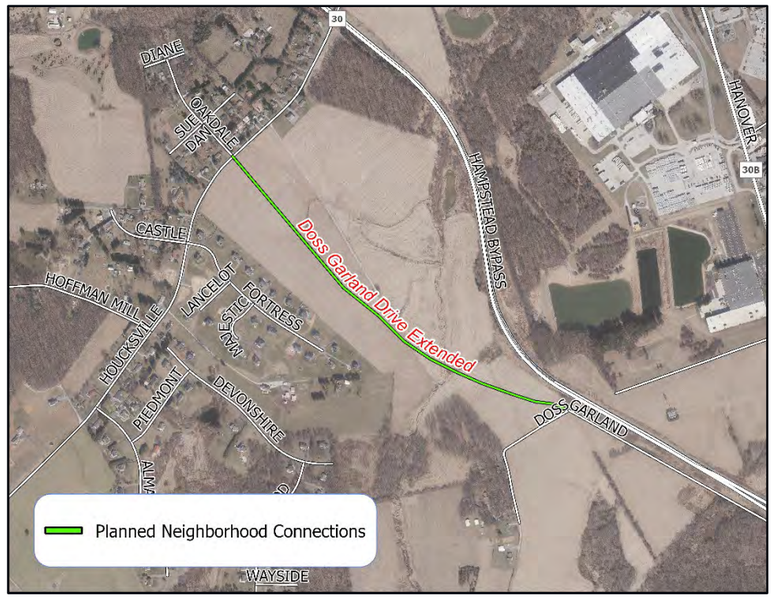
Extension of Doss Garland Drive to Houcksville Road

Functional Classification: Local Roadway Urban

Length: 3,987 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: This extension will provide direct access to a mostly undeveloped residentially designated area in the southwest area of Hampstead.



4 Southwestern Avenue Extended

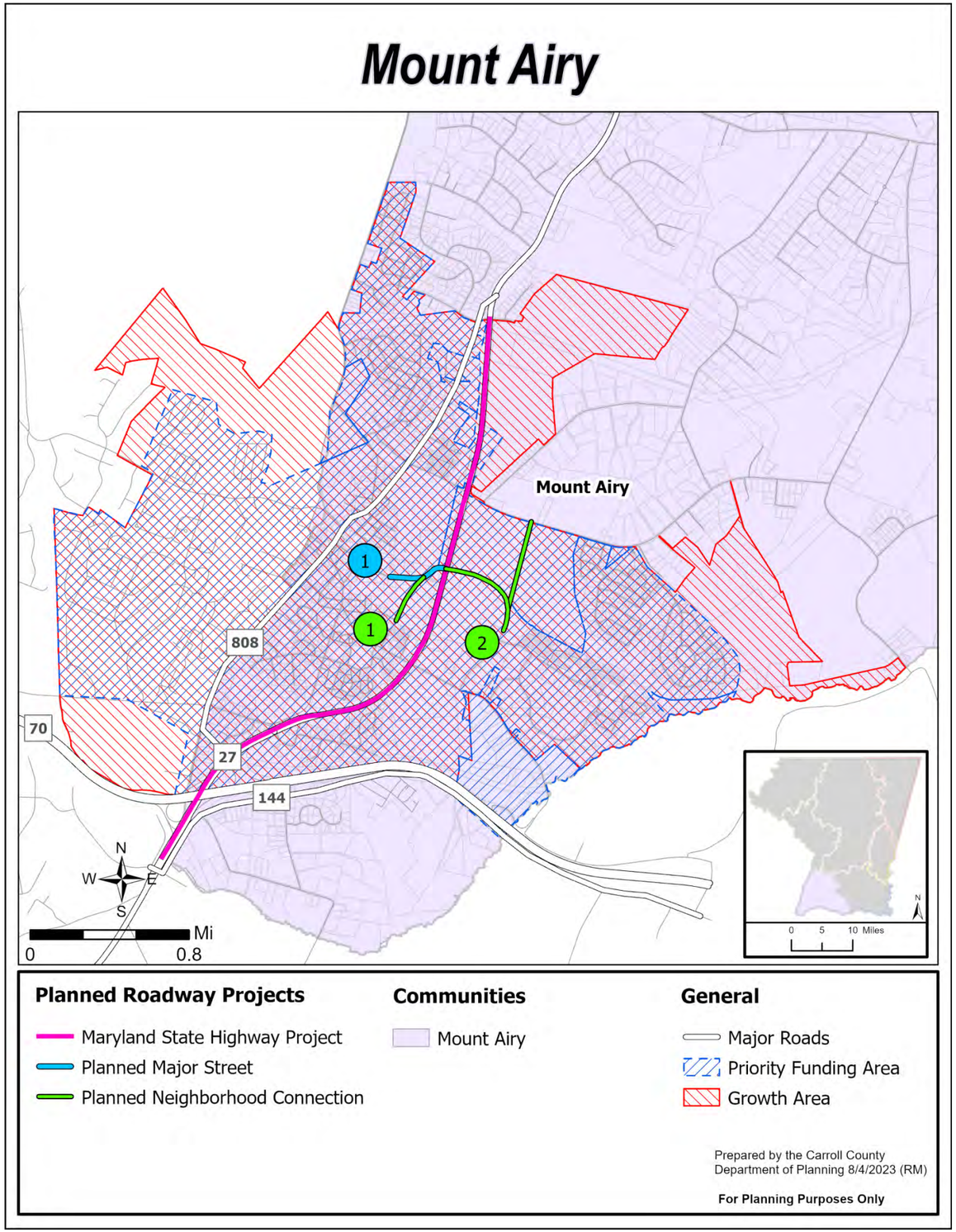
Extension of Southwestern Avenue to Hanover Pike

Functional Classification: Local Roadway Urban

Length: 2,346 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: Extending this roadway will provide an additional route for area residents, creating an access point at MD 30 for both current and future development in the area. It will connect numerous residential developments in the southern portion of the town, where the roadway network is currently highly fragmented. The alignment is subject to change.



Map 6.6: Mount Airy Community Boundary

1 Center Street Extended

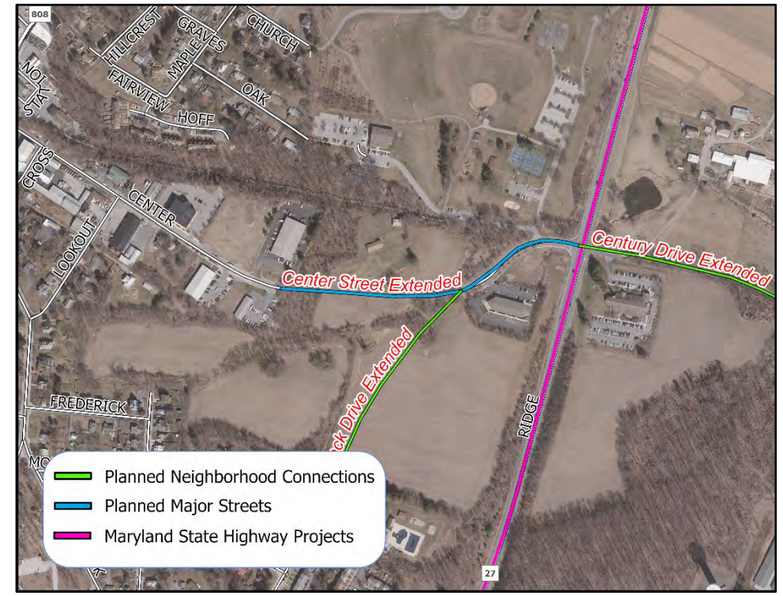
Extension of Center Street to Century Drive

Functional Classification: Local Roadway Urban

Length: 1,473 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: Completing Center Street will provide a major east/west connection within the Town of Mount Airy roadway system. It will improve access and connectivity in the northern portion of the town in an area of proposed residential and commercial development. This connection will provide access from the MD 27 corridor directly into the heart of the downtown area. Alignment is subject to change.



1 Beck Drive Extended

Extension of Beck Drive to Center Street

Functional Classification: Local Roadway Urban

Length: 1,290 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: Extending Beck Drive to connect with Center Street will complete the connection between two major collector streets within the town roadway system, improving access, connectivity, and circulation in the northern portion of the town in an area of future residential and commercial development.

2 Century Drive Extended

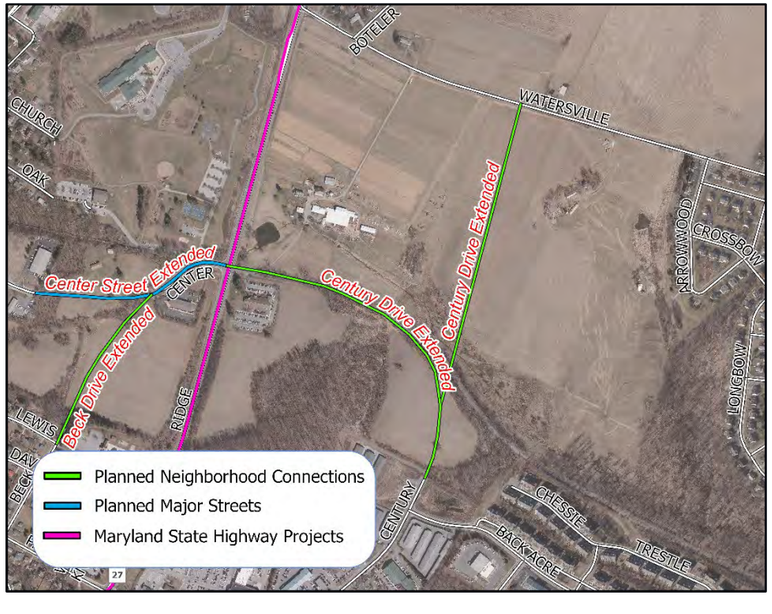
Extension of Century Drive to Watersville Road

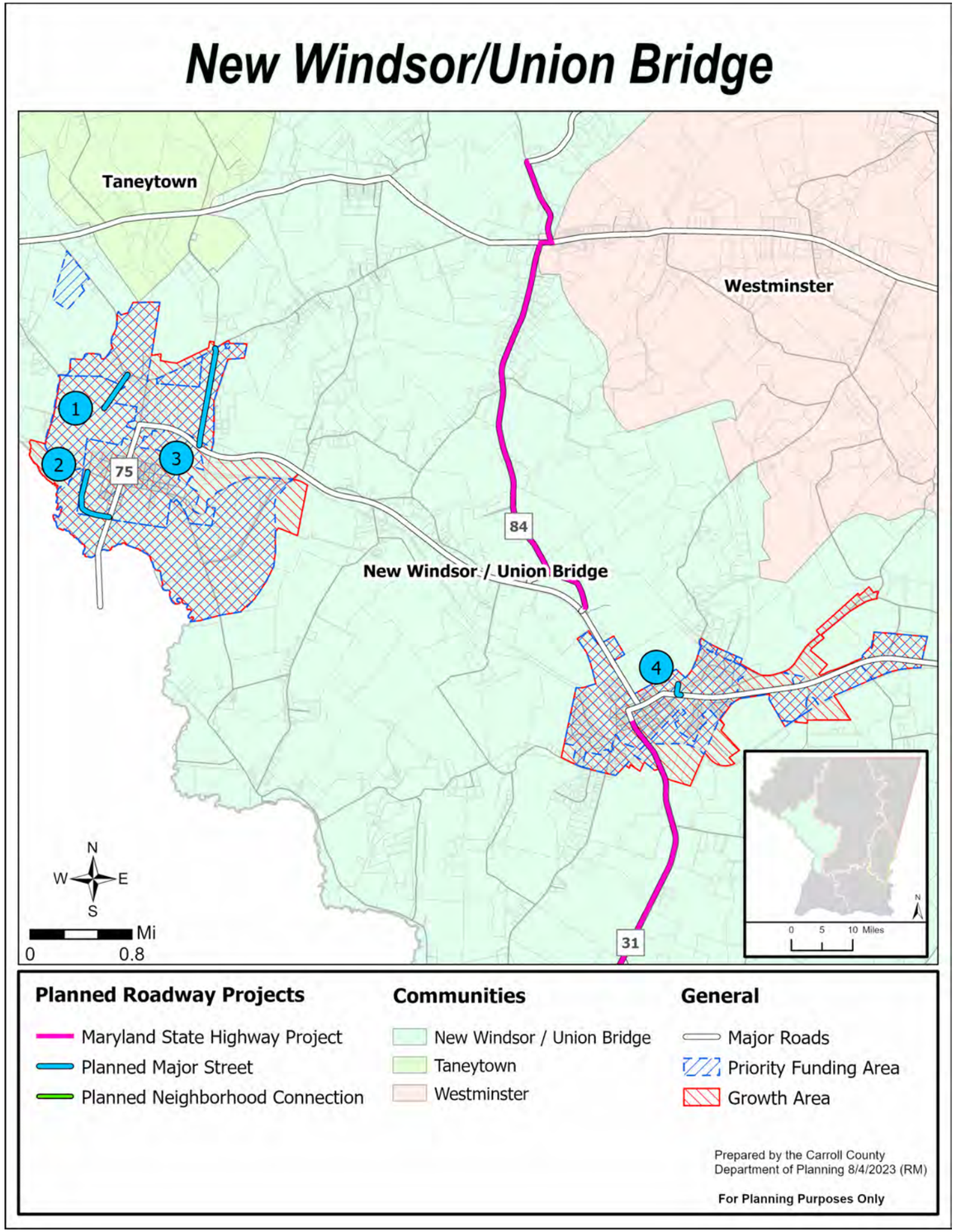
Functional Classification: Minor Collector Urban

Length: 4,216 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: This extension will connect the existing Century Drive with MD 27 and Center Street to the west and Watersville Road to the north. It will ultimately be part of additional access points between two major collector streets within the Town of Mount Airy roadway system, improving access and connectivity in the northern portion of the town.





Map 6.7: New Windsor/Union Bridge Community Boundary

1 Connector Road

Connector Road from Union Bridge Road to the proposed extension of MD 77

Functional Classification: Unclassified

Length: 1,678 Feet

Right-of-Way Status: Portion of ROW secured, remainder to be developer dedicated

Purpose: This roadway was intended to provide a direct connection between Union Bridge Road and the future MD 77. With the removal of MD 77 from the HNI, the Town's intention is to realign this roadway with the update to their Comp Plan. The realignment will tie-in Union Bridge Road to MD 75 to alleviate truck traffic on North Main Street.

2 George Street Extended

Extension from Locust Street to South Main Street (MD 75)

Functional Classification: Local Roadway Urban

Length: 2,566 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: This improvement will provide a connection between two area collector roadways in an area of future industrial development. It is intended to be part of an overall roadway network providing alternative routes for local vehicular traffic. The intent is also to redirect truck traffic. It is likely that this alignment will be re-evaluated.

3 Mount Pleasant Boulevard

Mount Pleasant Boulevard from Bark Hill Road to MD 75

Functional Classification: Unclassified

Length: 3,844 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: Connecting Mount Pleasant Boulevard in its entirety will provide a direct connection between Bark Hill Road and MD 75. This roadway is intended to be part of an overall roadway network providing alternative routes for local vehicular traffic.

4 Springdale Avenue Relocated

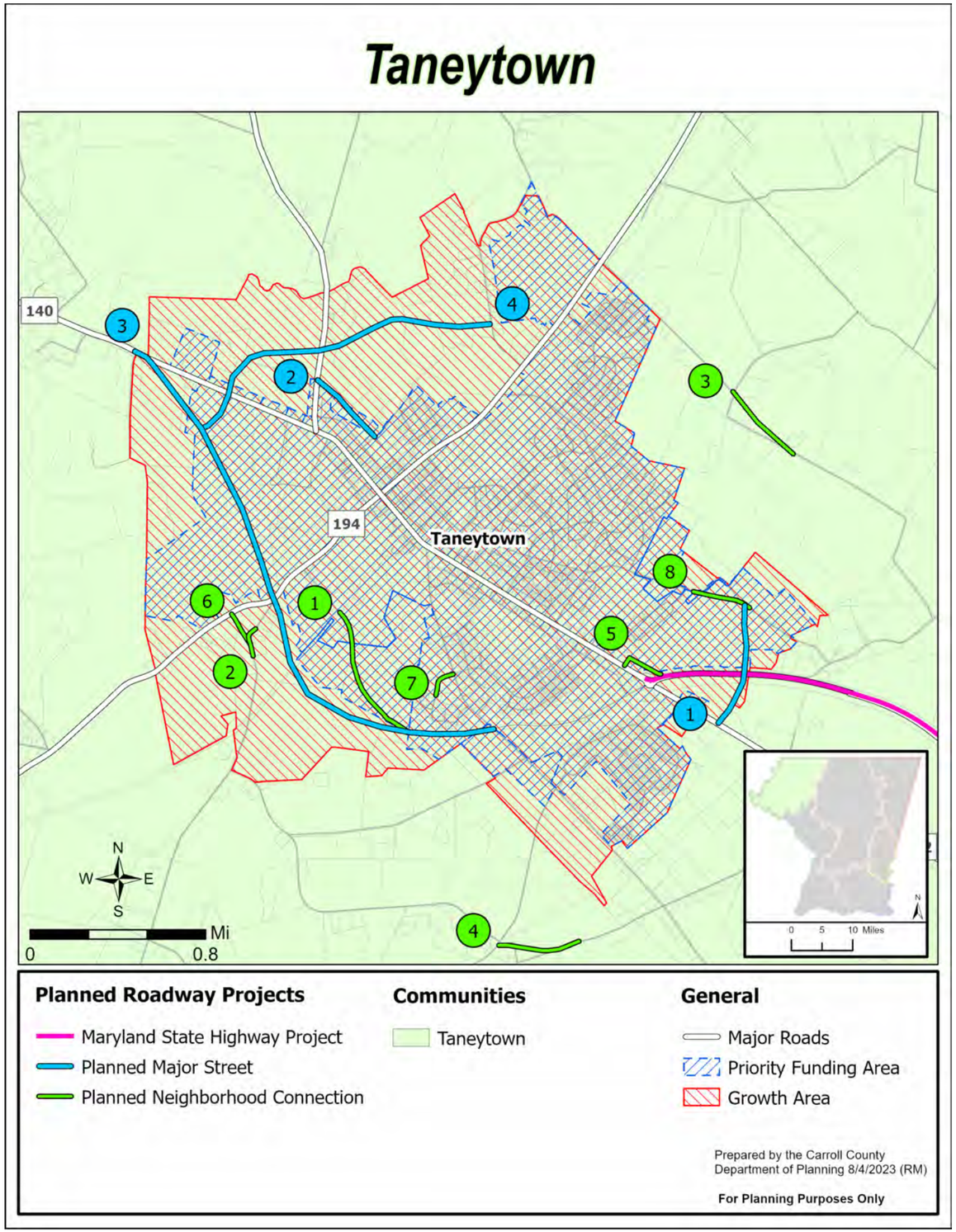
Realignment of Springdale Avenue with New Windsor Road

Functional Classification: Local Roadway Rural

Length: 549 Feet

Right-of-Way Status: No ROW secured

Purpose: This realignment will replace the current intersection of Springdale Avenue and MD 31. It will create improved geometry and better traffic flow at the primary gateway on the east side of town. The improvement will help with the safety of the overall roadway network.



Map 6.8: Taneytown Community Boundary

1 Key Crossing Road

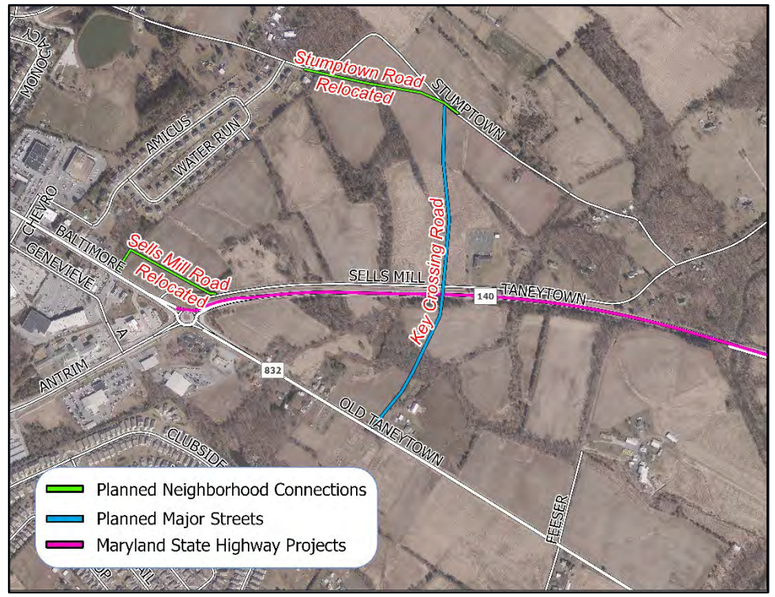
A new road from relocated Stumptown Road to Old Taneytown Road

Functional Classification: Unclassified

Length: 2,820 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: This road is associated with future development through which the alignment is proposed. It will provide connectivity to the development, as well as be part of an overall roadway network providing alternative routes for local vehicular traffic.



2 Robert's Mill Road Extended

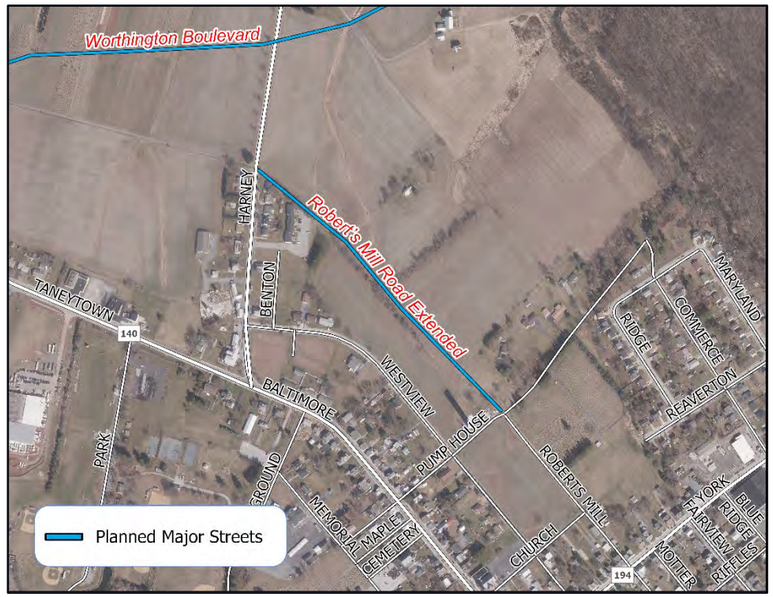
Extension of Roberts Mill Road to Harney Road

Functional Classification: Minor Collector Urban

Length: 1,811 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: The primary purpose of this extended road is to provide access to development of the adjacent property. It will additionally provide an alternative east/west connection between MD 194 and Harney Road parallel to Westview Drive.



3 Taneytown Greenway (Antrim Blvd Ext)

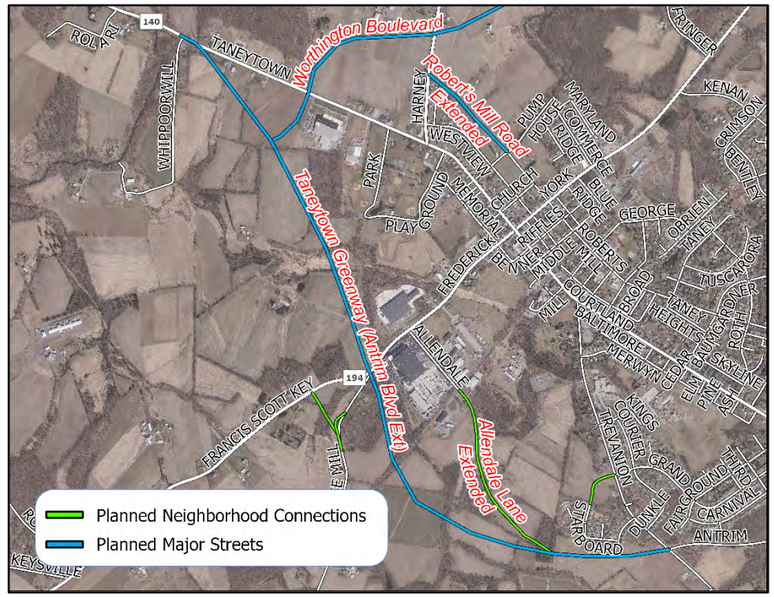
Extension of Taneytown Greenway (Antrim Boulevard) to MD 140

Functional Classification: Unclassified

Length: 13,190 Feet

Right-of-Way Status: Portion of ROW secured; will be partially developer dedicated

Purpose: This project will redirect a significant amount of truck traffic and through traffic away from the downtown area of Taneytown and the intersection of MD 140 and MD 194. It will also provide redundancy in the network, improving access and connectivity to a large amount of undeveloped industrial land



1 Allendale Lane Extended

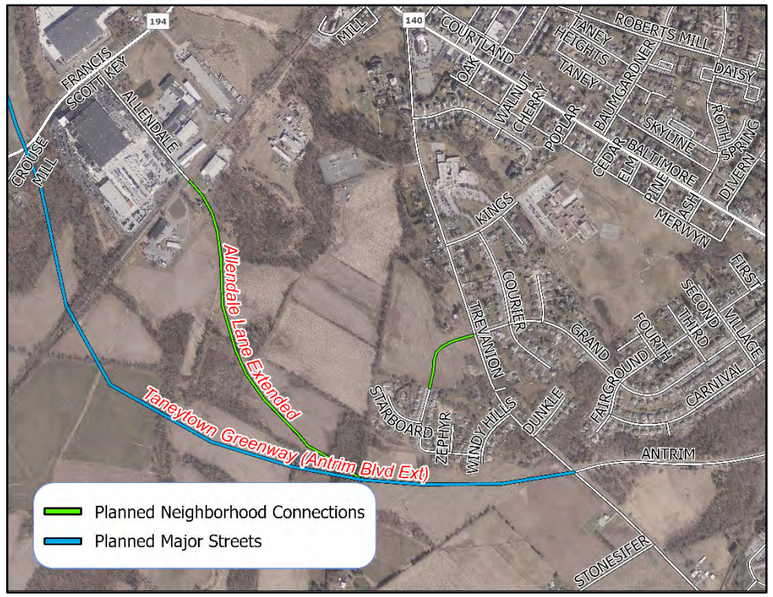
Extension of Allendale Lane to Future Taneytown Greenway

Functional Classification: Local Roadway Urban

Length: 3,298 Feet

Right-of-Way Status: No ROW secured

Purpose: The proposed Taneytown Greenway will make the connection between MD 140 and MD 194, improving the flow of traffic through the area. This extension will provide an additional connection, as well as providing access for development of the industrial property. The exact alignment has not been



4 Worthington Boulevard

Worthington Boulevard from Fringer Road to future Taneytown Greenway

Functional Classification: Collector

Length: 7,612 Feet

Right-of-Way Status: No ROW secured; will be partially developer dedicated

Purpose: Worthington Boulevard is proposed to be a collector road for future development on the northwest side of Taneytown. It is intended to be part of an overall roadway network providing alternate routes for local vehicular traffic.

2 Crouse Mill Road Realigned

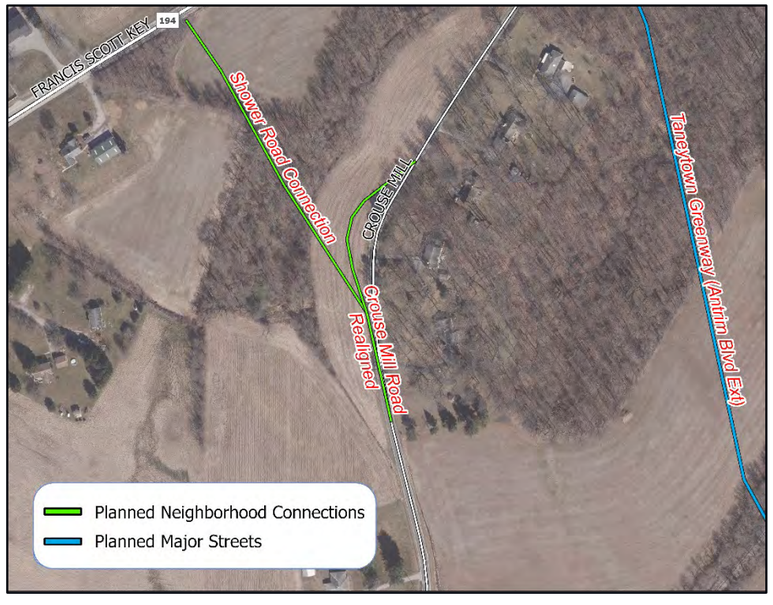
Realignment and termination of Crouse Mill Road

Functional Classification: Local Roadway Urban

Length: 697 Feet

Right-of-Way Status: No ROW secured

Purpose: This realignment will allow for the suitable intersection of Crouse Mill Road with the proposed Shower Road and will also include the termination of Crouse Mill at a cul-de-sac away from the bypass, MD 194 Intersection.



3 Diehl Road Relocated

Realignment of Diehl Road

Functional Classification: Local Roadway Urban

Length: 1,965 Feet

Right-of-Way Status: No ROW secured

Purpose: The existing road contains a sharp bend just south of the intersection with Angell Road. This realignment will create improved geometry at Angell Road and thereby better traffic flow. With continued development in the northeast portion of Taneytown, this improvement will help with the safety of the overall

4 Feeser Road Relocated

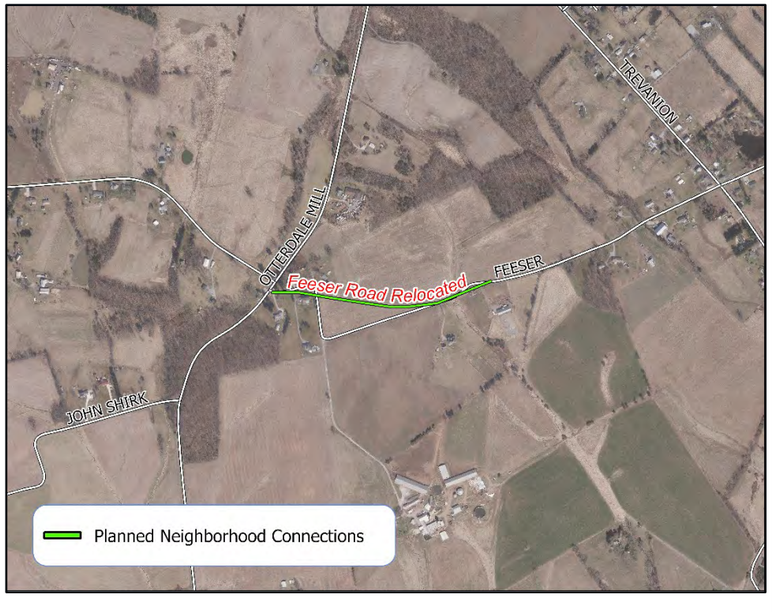
Realignment of Feeser Road

Functional Classification: Local Roadway Urban

Length: 1,854 Feet

Right-of-Way Status: No ROW secured

Purpose: Feeser Road goes through a series of sharp bends to the east of the intersection with Otterdale Mill Road. Reconstructing this segment of the road will create improved geometry for both through traffic and local residents.



5 Sells Mill Road Relocated

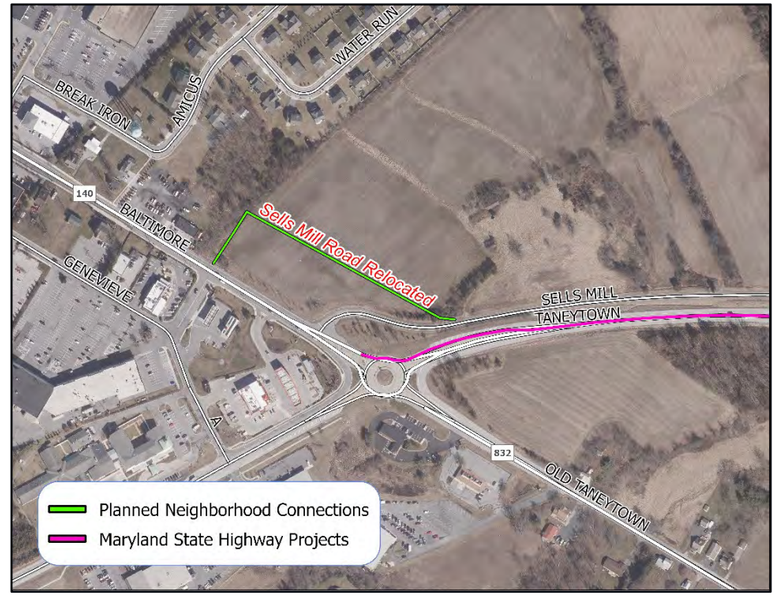
Realignment of Sells Mill Road

Functional Classification: Local Roadway Urban

Length: 1,005 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: This project will provide access for development of property adjacent to the roadway. It will eliminate the current Sells Mill Road intersection close to the roundabout and move it westward, providing a safer traffic situation.



6 Shower Road Connection

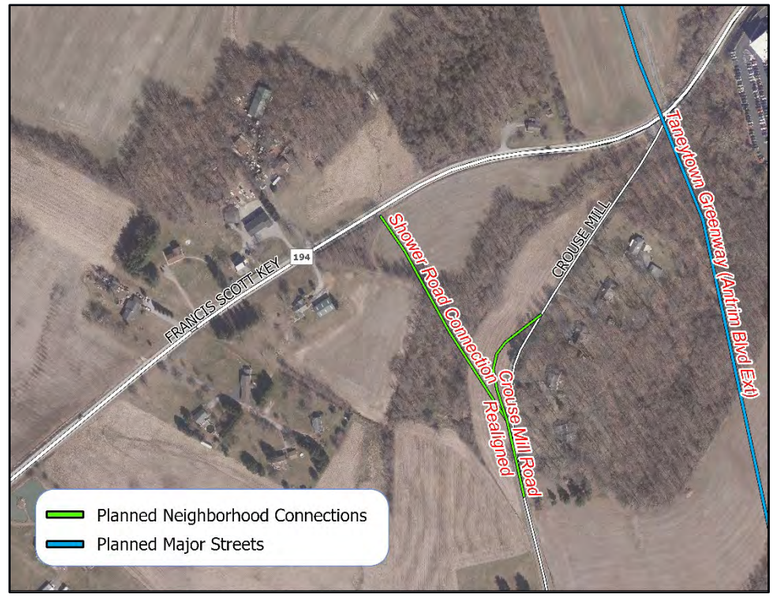
Connection of Shower Road from Crouse Mill Road to MD 194

Functional Classification: Unclassified

Length: 814 Feet

Right-of-Way Status: No ROW secured

Purpose: This project will provide access from Crouse Mill Road to MD 194 once the current intersection with MD 194 in the area of the Taneytown Greenway is removed. This intersection relocation is to be done in conjunction with construction of the Taneytown Greenway.



7 Starboard Drive Extended

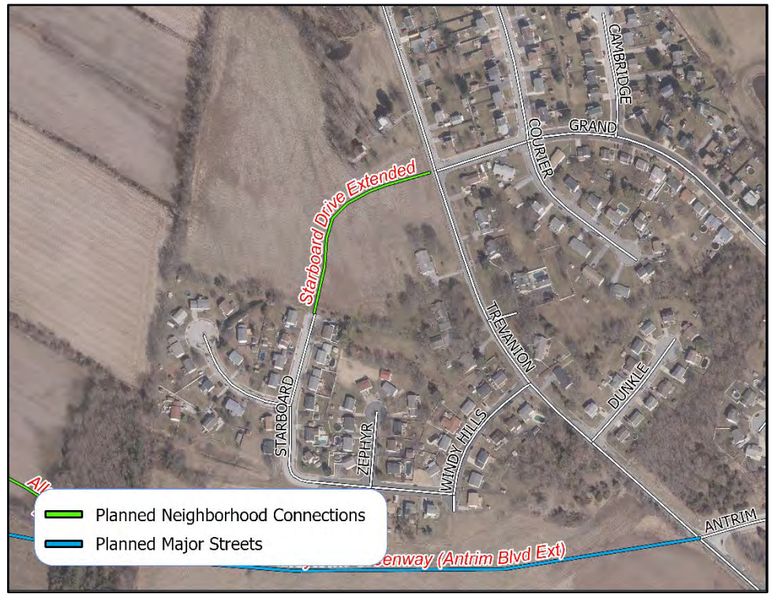
Extension of Starboard Drive to Trevanion Road

Functional Classification: Local Roadway Urban

Length: 697 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: Starboard Drive will provide new residential access to Trevanion Road. It also will provide a second access location for the local neighborhood, which currently only has access via Windy Hills Drive.



8 Stumptown Road Relocated

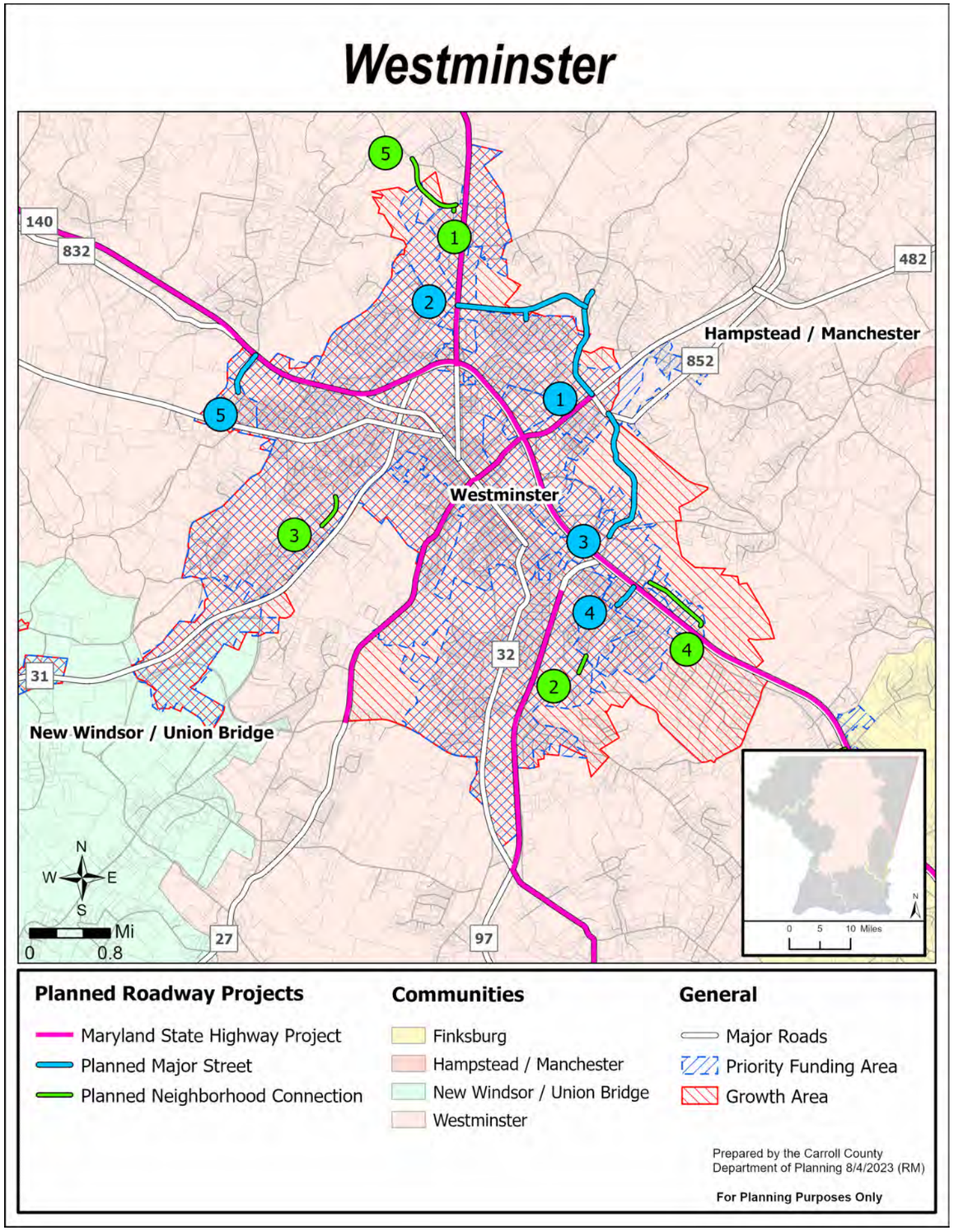
Realignment of Stumptown Road

Functional Classification: Local Roadway Urban

Length: 1,335 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: This project realigns Stumptown Road to eliminate a 90-degree bend. Reconstructing this segment of Stumptown Road will improve geometry and provide better traffic flow in an area proposed for future residential development.



Map 6.9: Westminster Community Boundary

1 Bennett Cerf Drive Extended

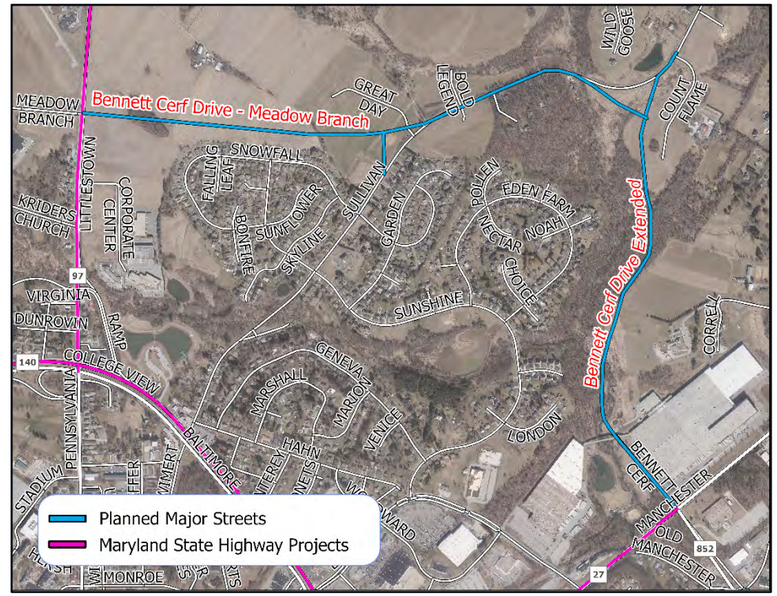
Extension of Bennett Cerf Drive from MD 27 to Sullivan Road

Functional Classification: Local Roadway Urban

Length: 5,559 Feet

Right-of-Way Status: Portion of ROW secured

Purpose: A short segment of this connection already exists. Constructing Bennett Cerf Drive in its entirety will provide a major connection between MD 27 and MD 97, improving access and circulation to the northwest portion of the Westminster community.



2 Bennett Cerf Drive – Meadow Branch

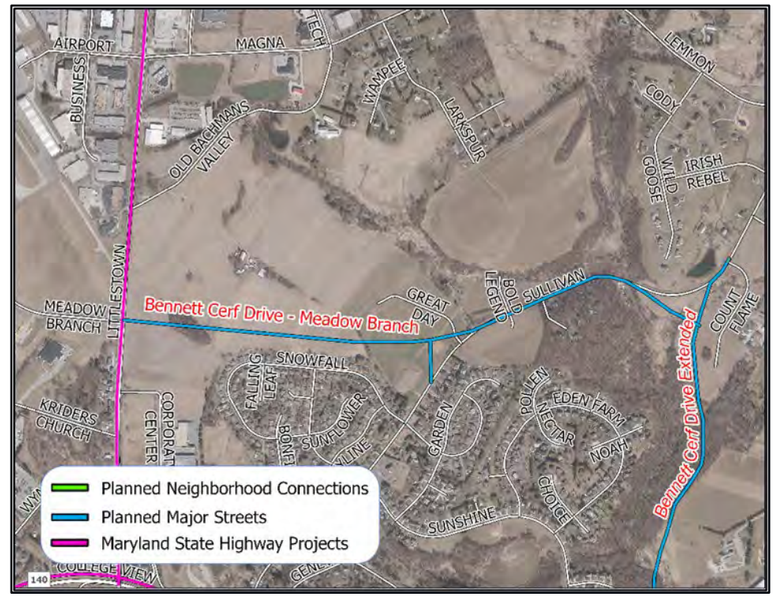
Extension of Bennett Cerf Drive from Sullivan Road to MD 97

Functional Classification: Local Roadway Urban

Length: 7,511 Feet

Right-of-Way Status: Portion of ROW secured

Purpose: Constructing Bennett Cerf Drive in its entirety will provide a major connection between MD 27 and MD 97, improving access and circulation to the northwest portion of the Westminster community.



3 Malcolm Drive Extended

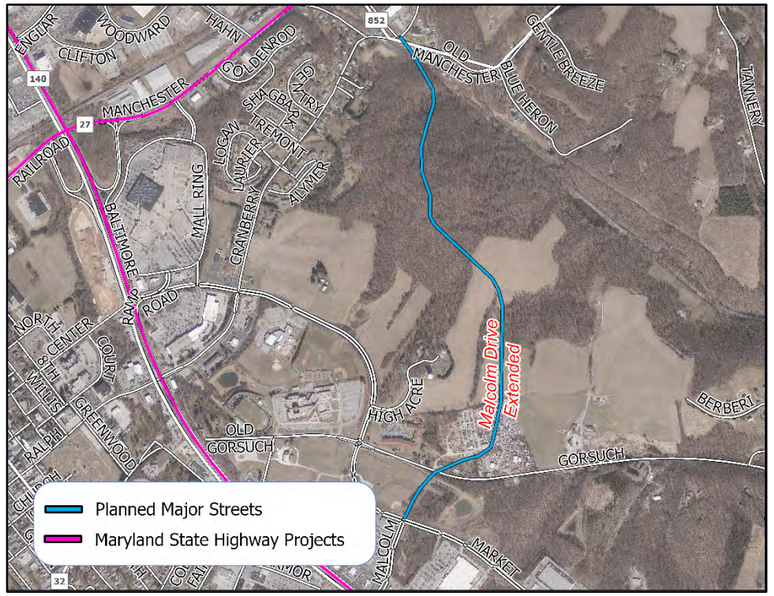
Extension of Malcolm Drive from Market Street to Old Manchester Road

Functional Classification: Major Collector Urban

Length: 7,136 Feet

Right-of-Way Status: Portion of ROW secured

Purpose: Constructing Malcolm Drive in its entirety will provide a major connection between MD 140 and MD 27, improving access and circulation to the northeast portion of the Westminster community.



5 Rockland Road Extended

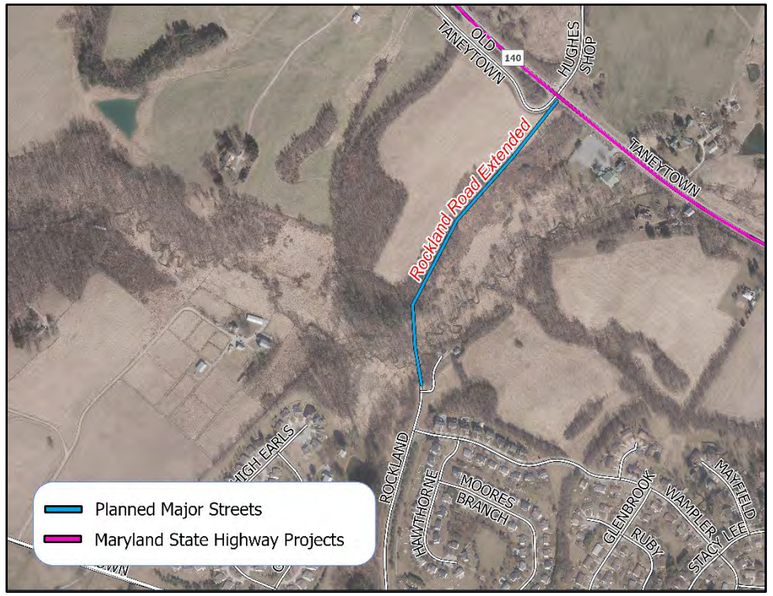
Extension of Rockland Road to MD 140 opposite Hughes Shop Road

Functional Classification: Local Roadway Urban

Length: 2,107 Feet

Right-of-Way Status: Portion of ROW secured; remainder will be developed dedicated

Purpose: The completion of this segment will provide a substantial north/south connection linking Uniontown Road with MD 140. Currently, Royer Road and MD 31 are the only roadways directly linking a large block of residential communities on the west side of Westminster with MD 140.



4 Market Street Extended

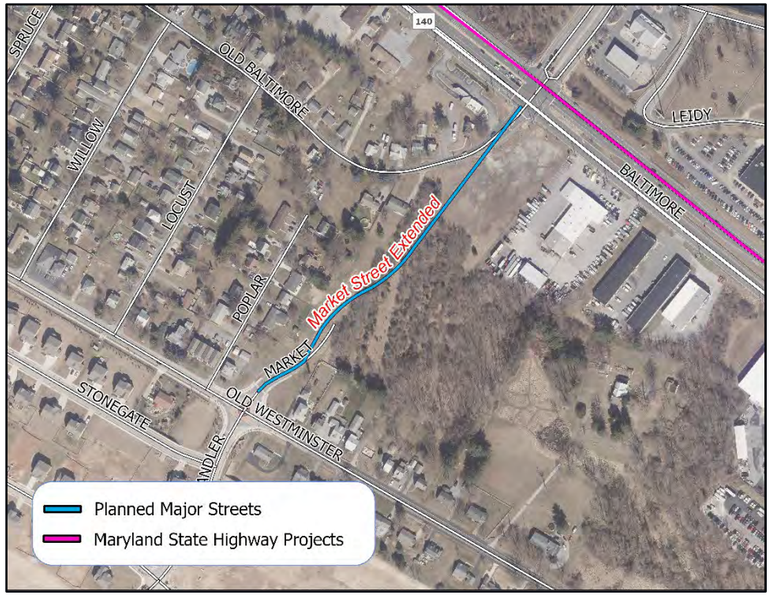
Extension of Market Street from MD 140 to Old Westminster Pike

Functional Classification: Major Collector Urban

Length: 1,244 Feet

Right-of-Way Status: Portion of ROW secured

Purpose: Constructing this segment will provide an additional route between a heavily travelled County roadway and MD 140. Currently, a large amount of traffic uses neighborhood streets as cut-through access to MD 140. These streets are not suited to handle large volumes of traffic.



1 Aileron Court Extended

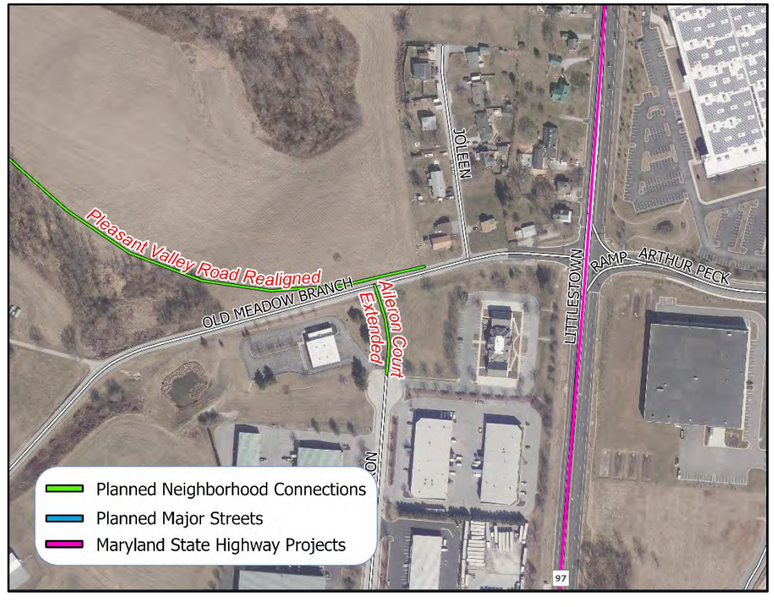
Extension of Aileron Court to Old Meadow Branch Road

Functional Classification: Local Roadway Urban

Length: 257 Feet

Right-of-Way Status: Portion of ROW secured

Purpose: The Airport Business Park (west) currently only has one public access point at MD 97, Airport Drive. The construction of this segment will provide a second access point for existing and future businesses within the park.



2 Chandler Drive Extended

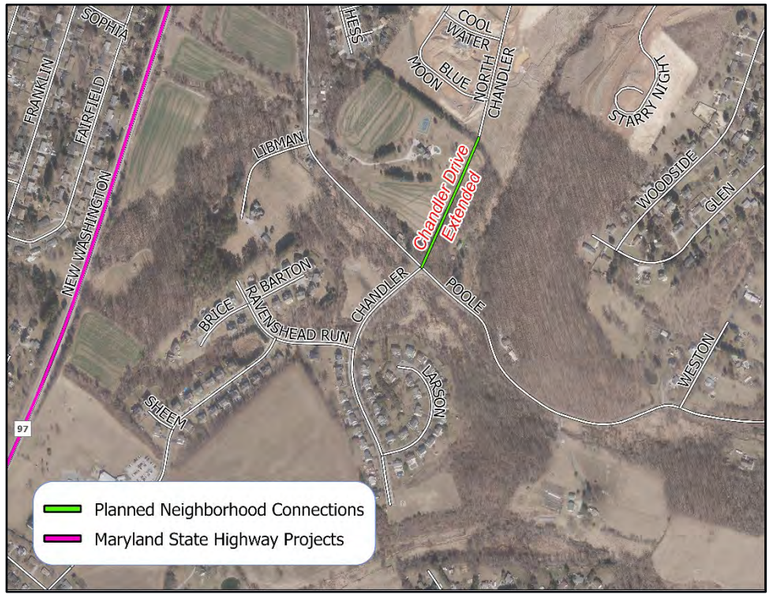
Extension of North Chandler Drive to Old Westminster Pike

Functional Classification: Local Roadway Urban

Length: 898 Feet

Right-of-Way Status: No ROW secured; will be developer dedicated

Purpose: This extension will provide a connection between Poole Road and Old Westminster Pike. It will provide redundancy in the network, and improve access, connectivity, and mobility in the southeast portion of the Westminster environs area.



4 Leidy Road Extended

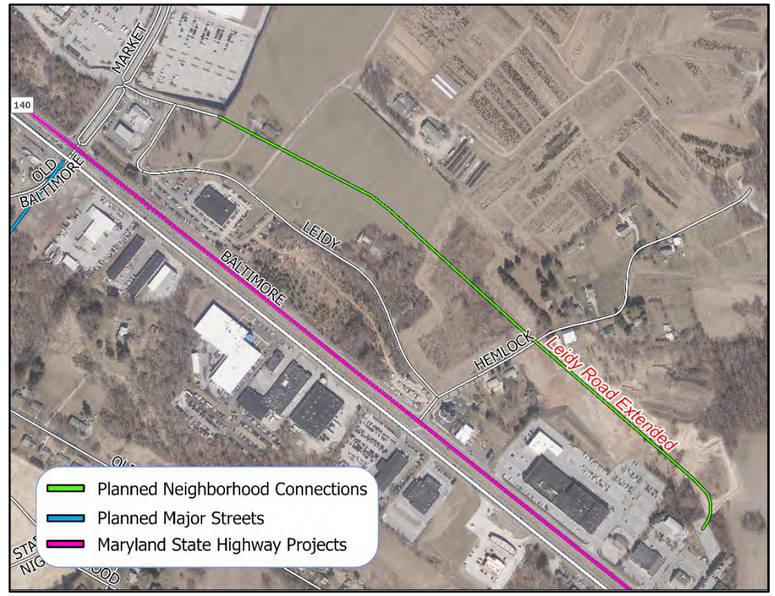
Realignment and extension of Leidy Road

Functional Classification: Local Roadway Urban

Length: 3,387 Feet

Right-of-Way Status: Status unknown

Purpose: Existing Leidy Road is substandard from Market Street to Hemlock Lane. Constructing a new road will provide better geometric and consolidated access to both current and future development and allow for the elimination of many individual access points along the north side of MD 140. It will also provide an additional means of access to school and commercial destinations north of MD 140.



3 Crossbridge Drive Extended

Extension of Crossbridge Drive to Tahoma Farm Road

Functional Classification: Local Roadway Urban

Length: 1,687 Feet

Right-of-Way Status: ROW secured; will be developer dedicated

Purpose: This extension will provide a connection from Windsor Drive to Tahoma Farm Road. It will improve access and connectivity in the southwest portion of the city in an area of potential future commercial development.

5 Pleasant Valley Road Realigned

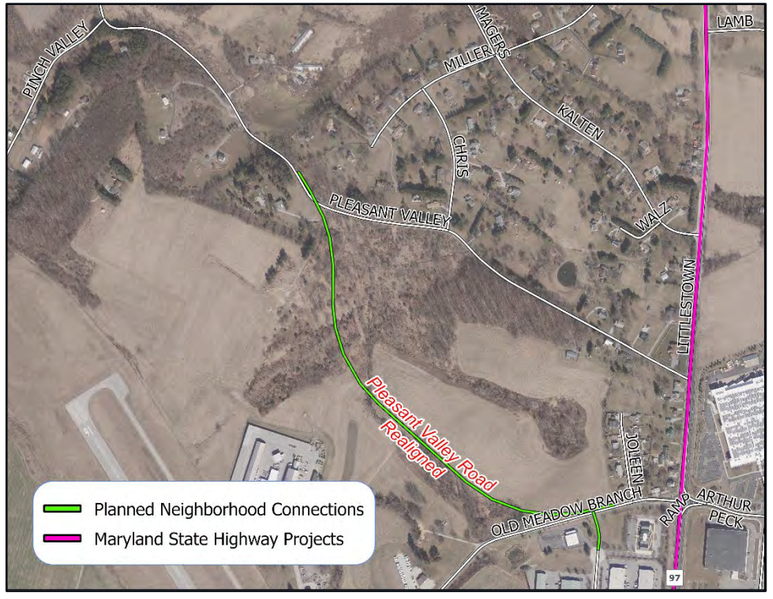
Relocation of Pleasant Valley Road

Functional Classification: Minor Collector Rural

Length: 3,590 Feet

Right-of-Way Status: ROW secured

Purpose: This project redirects traffic flow from the current intersection of Pleasant Valley Road at MD 97 to Old Meadow Branch Road. It will consolidate access along the MD 97 Corridor. The current connection to MD 97 has limited visibility and a history of accidents. A permanent cul-de-sac is planned at the current Pleasant Valley Road at MD 97 intersection. A re- examination of the proposed alignment will be necessary.



Prioritization of Planned Major Streets & Planned Neighborhood Connections

While the forty-four road improvements outlined above are all considered necessary improvements and connections for the ultimate development of the County, certain roads are more feasible, will have a greater impact, and are more significant to the realization of the County's adopted land use plans.

Future road improvements were ranked using ten criteria. These criteria are all in the furtherance of the goal in the 2014 CCMP to *provide a safe and functional intra-County transportation system that promotes access and mobility for people and goods through a variety of transportation modes.* Improvements that met the criterion were assigned 1 point, for a possible total of 10 points. Following this assignment of points, all improvements are categorized as Low, Medium, or High Priority, based on the following breakdown of points:

- 0-3 Low
- 4-6 Medium
- 7-10 High

The ten criteria utilized for evaluation are:

1. Inclusion in a Designated Growth Area/Priority Funding Area
2. Safety
3. Functional Classification
4. Existing Financial Support/Right-of-Way
5. Connectivity
6. Improve Operation of Existing Infrastructure
7. Economic Prosperity
8. Immediacy of Need
9. Environmental Considerations
10. Cost/Benefit Analysis

Table 6.6 Prioritization of Planned Major Streets & Planned

	High	Medium	Low
Planned Major Street	Bennett Cerf Drive – Meadow Branch	Bennett Cerf Drive Extended	Connector Road
	Center Street Extended	George Street Extended	Key Crossing Road
	Georgetown Boulevard Extended	Malcolm Drive Extended	MD 30 Relocated (Manchester Bypass)
	Market Street Extended	Mount Pleasant Boulevard	Rockland Road Extended
	Taneytown Greenway (Antrim Blvd Ext)	Robert's Mill Road Extended	Worthington Boulevard
		Springdale Avenue Relocated	
Planned Neighborhood Connection	Allendale Lane Extended	Aileron Court Extended	Crouse Mill Road Realigned
	Arrington Road Realigned	Beck Drive Extended	Diehl Road Relocated
	Dede Road Extended	Bethel Road Realigned	Feeser Road Relocated
	Dickenson Road Extended	Boxwood Drive Extended North	Shower Road Connection
	Leidy Road Extended	Boxwood Drive Extended South	Starboard Drive Extended
	Monroe Avenue Extended	Century Drive Extended	
	Pleasant Valley Road Realigned	Century Road	
	Prothero Road Extended	Chandler Drive Extended	
	Ridenour Way Extended	Crossbridge Drive Extended	
		Doss Garland Drive Extended	
		Obrecht Road Extended	
		Sells Mill Road Relocated	
		Southwestern Avenue Extended	
		Stumptown Road Relocated	

Chapter 7 Access Management

Goal Promote communication and coordination between and among the County, the municipalities, and the state with respect to access management, and pursue corridor-level access management planning processes.

Access Management (AM) is the proactive management of vehicular access points to land parcels adjacent to all manner of roadways. Good AM promotes safe and efficient use of the transportation network. AM encompasses a set of techniques that can be used to control access to highways, major arterials, and other roadways. According to the Federal Highway Administration, these techniques include:

- Access Spacing: increasing the distance between traffic signals improves the flow of traffic on major arterials, reduces congestion, and improves air quality for heavily traveled corridors.
- Driveway Spacing: fewer driveways spaced further apart allows for more orderly merging of traffic and presents fewer challenges to drivers.
- Safe Turning Lanes: dedicated left- and right-turn, indirect left-turns and U-turns, and roundabouts keep through-traffic flowing. Roundabouts represent an opportunity to reduce an intersection with many conflict points or a severe crash history (T-bone crashes) to one that operates with fewer conflict points and less severe crashes (sideswipes) if they occur.
- Median Treatments: two-way left-turn lanes (TWLTL) and non-traversable, raised medians are examples of some of the most effective means to regulate access and reduce crashes.
- Right-of-Way Management: as it pertains to R/W reservation for future widenings, good sight distance, access location, and other access-related issues.[7]

Access Management provides an important means of maintaining mobility. It calls for effective ingress and egress to a facility, efficient spacing and design to preserve the functional integrity, and overall operational viability of street and road systems. Implementing AM provides three major benefits to transportation systems, which are essentially the result of minimizing or managing the number of conflict points that exist along a corridor:

- Increased roadway capacity
- Reduced crashes
- Shortened travel time for motorists

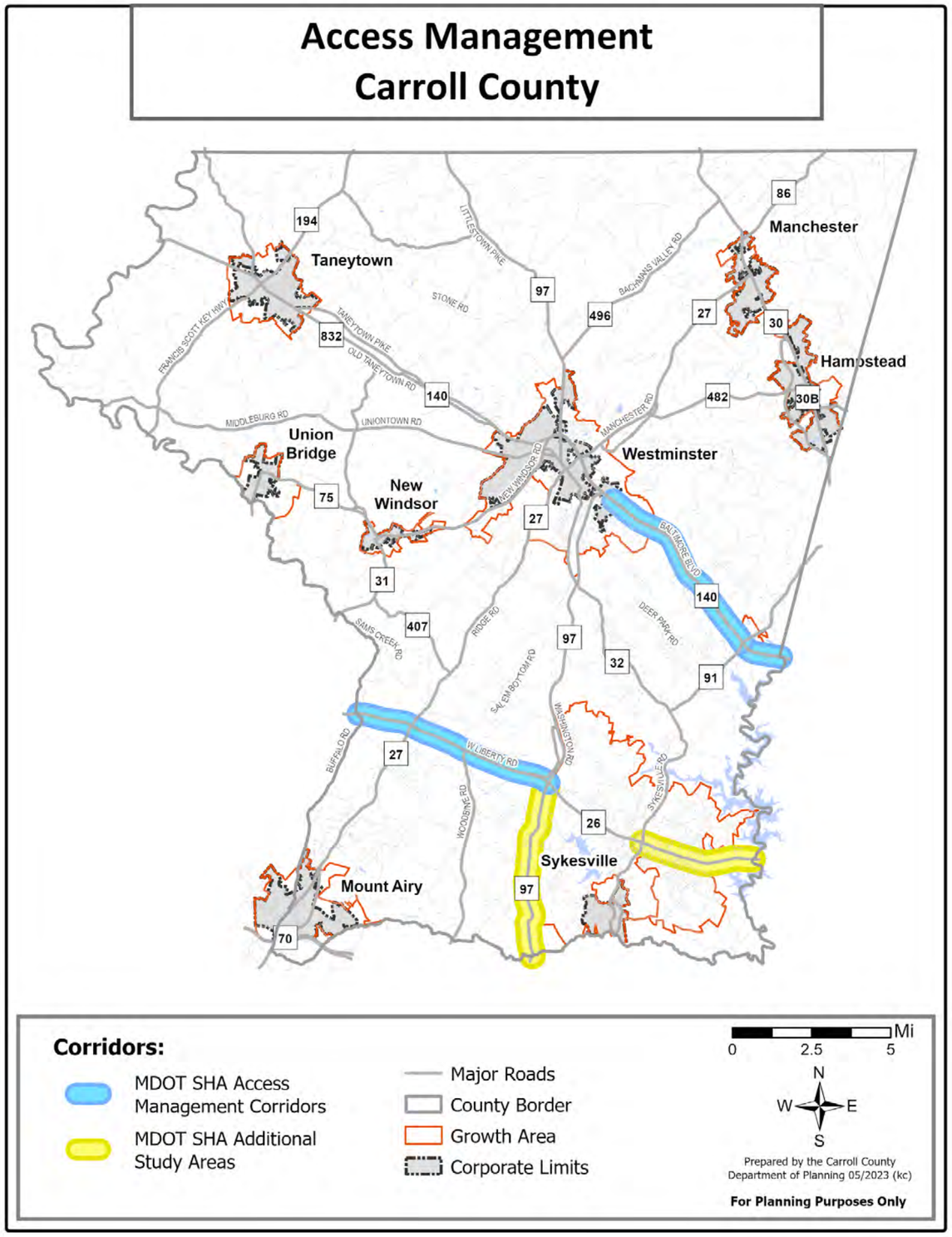
In addition to improved safety and efficiency of the road network, AM facilitates orderly land use and enhances the economic development potential of the corridor being served.

Maryland Department of Transportation State Highway Administration (MDOT SHA) employs a set of techniques to control access to state highways. The Access Manual[8] provides the guidelines needed to meet the asset management requirements of MDOT SHA.

By state law, MDOT SHA may not deny an owner of property abutting a state highway all access to the highway if the abutment is within the boundaries of a municipal corporation unless:

- The property abuts another public road to which reasonable access can be granted.
- The denial is based on an AM plan that has been agreed to by the Administration and the municipality.
- The Administration pays just compensation to the property owner as part of the exercise of eminent domain powers.[9]

[7] USDOT Federal Highway Administration.
[8] MDOT State Highway Administration. Access Manual. Retrieved from https://roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=393
[9] Transportation Article §8-625, Annotated Code of Maryland.



Map 7.1: Access Management Carroll County

In the late 2000's MDOT SHA identified roadway corridors in Carroll County that could benefit from corridor-wide AM concepts. MDOT SHA conducted planning level AM studies on MD 26 (Liberty Road) from the Frederick County line to MD 32 and MD 140 (Baltimore Boulevard) from Leidy Road to I-795 in Baltimore County. In addition to the techniques discussed above, the MD 140 study recommended the public purchase of access control rights and laid out a detailed implementation plan. As described in Chapter 1, MDOT SHA has also conducted two recent studies for MD 32 from the County line to MD 26 (2018 Planning and Environmental Linkages Study) and MD 26 from MD 32 to the Liberty Reservoir (2020 MD 26 Corridor Traffic Analysis and Targeted Improvement Recommendations)[10] that include AM strategies. While these plans and studies are instructive, they have not been implemented in a deliberate manner nor are they legally binding. Implementation is further complicated by overlapping development review and approval responsibilities among MDOT SHA, the County and municipal governments, and by pressure placed by developers to allow for access points where such access may undermine a corridor-wide AM approach.

Staff from Carroll County agencies and from MDOT SHA District 7 indicate that while the development review process with respect to AM works well on a project-by-project basis, there is no corridor-level agreement on how and where access should be provided to new development projects. Moving forward, it is essential that corridor-level AM planning processes be assessed and adopted by all relevant parties.

[10] See Appendices B and C.

Chapter 8 Emerging Trends

Goal Integrate transportation planning with environmental and cleaner energy goals; transition to a cleaner and more efficient transportation system, with electric vehicle readiness and accommodation of autonomous vehicles incorporated into public and private projects.

In order to plan effectively in 2023, it is important to discuss emerging transportation technologies such as electric vehicles (EV) and autonomous vehicle (AV) technology. Every year, EV technology assimilates more into society, as exemplified with the many new public EV charging stations located throughout Carroll County, from Mount Airy to Hampstead, and with the many new EV models being offered by vehicle manufacturers. Increasing EV production and utilization can be attributed to advancements in battery technology, increased federal and state monetary incentives, along with increasing public sentiment for a more sustainable future. AV technology is currently emerging in a society that will bring about positive changes and uncertainties. In the County, AV development is being spearheaded by the Mid-Atlantic Gigabit Innovation Collaboratory, Inc. or MAGIC, leading the charge with building an autonomous corridor in the City of Westminster that connects institutions of higher education and retail centers with downtown.

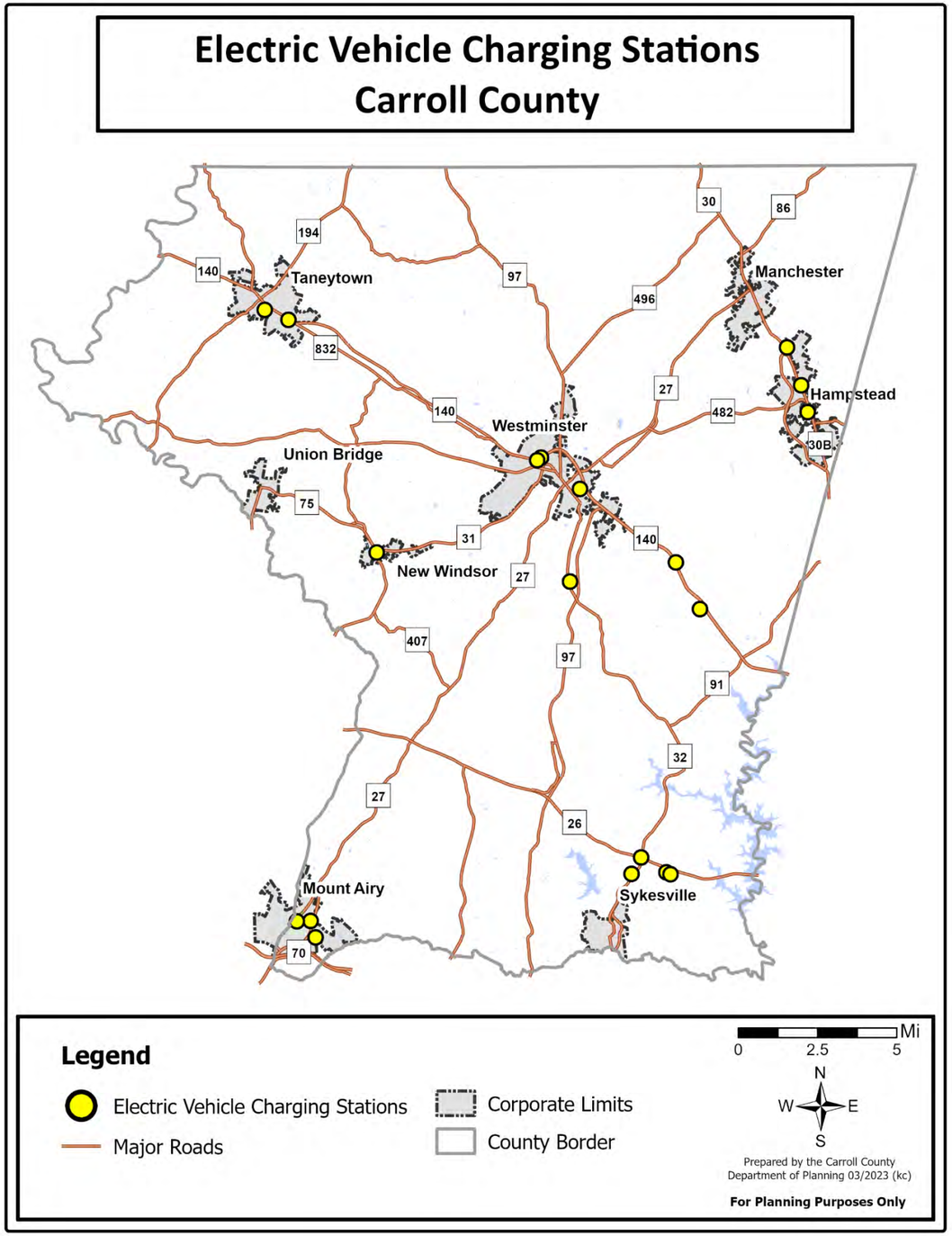
2014 Carroll County Master Plan as amended 2019

The 2014 Carroll County Master Plan as amended 2019 (CCMP) references emerging transportation trends in Appendix A: Implementation Strategies, Chapter 7, P., that states, "Encourage the use of alternative transportation, such as bicycles, transit, and carpools, to improve air quality by reducing the number of vehicles on the road during the week".[11] EV and AV technology may not reduce the number of vehicles on Carroll's roadways, but EV and AV technology will improve air quality from the reduction of burning oil as explained more in detail below. It should be noted for the purposes of this plan, AVs are assumed to incorporate EV technology.

Electric Vehicles

The most extensive trend in the transportation world today is the transition from vehicles powered by the internal combustion engine (ICE) to vehicles powered by electric motors, for the following reasons:

- Sustainability: In a more sustainably conscious world that currently relies on oil, consumers are starting to consider transitioning away from the ICE. According to the United States Environmental Protection Agency, "*transportation accounted for the largest portion (27%) of total U.S. Greenhouse Gas* (GHG) *emissions in 2020*".[12] Reducing dependence on the ICE alone can dramatically reduce GHG emissions since, according to the U.S Department of Energy, only about 12 to 30 percent of energy generated in ICE vehicles are used to power the vehicle as compared to 77+ percent of energy generated in EVs.[13]
- Federal and state incentives: In 2021 and 2022, federal legislation allocated up to $9.2 billion in EV incentives, including $5 billion "*focusing on adding public charging stations in underserved communities and along highways*".[14]



Map 8.1: Electric Vehicle Charging Stations Carroll County

[11] 2014 Carroll County Master Plan as amended 2019. (2020, January). Carroll County Government. https://www.carrollcountymd.gov/media/10991/master-plan-2014-adopted-january-2-2020.pdf
[12] US Environmental Protection Agency. (2022, July). Fast Facts on Transportation Greenhouse Gas Emissions. https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions
[13] US Department of Energy. Where the Energy Goes: Gasoline Vehicles. www.fueleconomy.gov - the official government source for fuel economy information. https://www.fueleconomy.gov/feg/atv.shtml
[14] Lubinsky, A. (2023, March). Planning for On-Street EV Charging Infrastructure. American Planning Association. https://www.planning.org/publications/document/9266315/

Transitioning from ICE to EVs requires adapting our lifestyles and the way we plan for the County. Range anxiety is a concern stemming from fewer charging stations in the County as compared to gas stations. For instance, according to current County Geographic Information Systems (GIS) data, there are 19 EV charging stations located throughout the County, as shown in the EV Charging Stations in Carroll County Map 8.1. For a geographic comparison, in the North Carroll area of Hampstead and Manchester, there are three EV charging stations as compared to seven gas stations. Two of the three EV charging stations are located on public property. The County must ensure that both private and public sectors provide an adequate supply of EV charging infrastructure not only for our resident population who owns and will soon own an EV but also for visitors that own an EV so they can easily patronize local businesses within the County. In 2023, the Maryland General Assembly voted to require all new single-family dwellings and townhomes to be EV equipped by requiring a dedicated circuit for charging, so when this technology becomes more common, it will be easier and cheaper for residents to adapt. Additionally, the Governor announced a plan ending the sale of ICE vehicles in Maryland by 2035.[15] EV charging infrastructure, that must be adequately planned for, can be defined into three different levels: [14]

- Level One – Uses a standard 120-volt power outlet and usually takes eight to 12 hours to fully charge an EV. This is most typical for home charging without any special charging equipment.
- Level Two – Uses a 240-volt power outlet that will typically charge an EV in four to eight hours. This is most typical for home charging that uses special charging equipment.
- Level Three – Uses 480-volt power outlet that can fully charge an EV in about 30 minutes.

Special Considerations: For residents that have a private driveway/garage, home charging, especially while asleep, is feasible and thus adapting to EV charging technology is easier than for those who do not, and whom will have to rely more heavily on publicly accessible charging stations. Such publicly accessible charging stations will have to be planned and installed in the most equitable way possible so all County residents will be able to charge their EVs. To ensure equity, special attention should be sought to prevent "*charging deserts*" or areas that are often defined as beyond a ten-minute walk from an EV charging station.[14] Some jurisdictions within the United States have tried to solve issues with charging station accessibility by incorporating EV charging stations into light posts (Los Angles). Additionally, from a business perspective, EV charging infrastructure conveniently located adjacent to retail and businesses should be explored so customers can charge their vehicle while they shop. Industrial developments will inevitably need to retrofit and plan for *Level Three* charging infrastructure that can fully charge a large EV (such as a semi-truck or construction equipment) fast for industrial use. For any EV charging location utilizing on-street parking, an accessible location should be utilized, with two-hour time limits, so everyone can equally share. The County may wish to assess whether design guideless should be implemented for EV charging stations, so developers and the public alike have clear and accessible standards when considering infrastructure installation. As EV technology continues to evolve, quality of life will only be sustained by adapting to new forms of transportation technology by adequately planning for its associated infrastructure.

Autonomous Vehicles

AV transportation technology has the potential to drastically shape how we live, work, and play. AVs are in the preliminary stages of testing, which means that it is imperative that we strive to make this technology safe and equitable before it is even partially integrated into society. AV technology is poised to have numerous benefits over and above those provided by EVs such as improved safety, supporting aging in-place, reduced transportation costs (if shared), reduced congestion, and reduced right-of-way devoted to transportation. A challenge is incorporating AVs into a society that is currently dominated by human drivers and people who are skeptical about this evolving form of technology. Effectively educating the public along with a clear vision and goals from the County, Regional, State, and Federal Governments will be necessary to fully integrate AVs throughout our evolving and connected society.

Below are the different levels of vehicle autonomy. Some vehicles are currently equipped with some level of autonomy already. According to the American Planning Association, there are currently five levels of vehicle autonomy, that include[16]:

Increase in Autonomy ⬇

- "*Level One - driver assistance (i.e., adaptive cruise control)*"
- "*Level Two - partial automation (i.e., Tesla's autopilot)*"
- "*Level Three - conditional automation (i.e., human drivers serve as backup for an autonomous system that operates under certain conditions)*"
- "*Level Four - high automation (i.e., Google/Waymo test cars)*"
- "*Level Five - full automation (i.e., no steering wheel in the vehicle)*"

What will incorporating AV technology into society physically look like, from a planning perspective, moving forward? Below are some positives and uncertainties:

Positive aspects include increases in traffic safety, since AVs will be operating without human interference. This will also allow narrower right- of- way widths (because of narrower travel lanes) spurring right-of-way reallocation which can take the form of "*enhanced bicycle and pedestrian facilities, and redevelopment that may create excellent opportunities to revitalize urban centers*", such as space for green infrastructure, and public gathering places[17]. Of special note is the "*increased mobility for special populations*" that are unable to operate a motor vehicle would have increased transportation options[17]. In addition to greater right-of-way efficiency, AVs platooning capabilities

[15] CBS Baltimore Staff. (2023, March). Gov. Wes Moore announces 12-year plan to phase out gas-powered cars. https://www.cbsnews.com/baltimore/news/gov-wes-moore-announces-12-year-plan-to-phase-out-gas-powered-cars/
[16] American Planning Association. Autonomous Vehicles. American Planning Association - Autonomous Vehicles. https://www.planning.org/knowledgebase/autonomousvehicles/

could enhance the efficiency and effectiveness of travel lanes by as much as 100 percent and increase trucking fuel economy by ten percent[17]. Furthermore, full automation AVs are poised to eliminate distracted human driving which will drastically improve public safety, since, according to research from the American Planning Association "more than 90 percent of traffic crashes are caused by human error" [17].

Uncertainties related to this technology that must be taken into consideration include fiscal impacts on government revenues. A reduction in traffic violations (caused by human error) reduces citation fees collected, and if AVs become shared, which the American Planning Associations predicts a 43 percent reduction in privately owned automobiles, how will vehicle licensing and parking fees be affected?[17] Platooning also must be carefully considered since safety challenges could be encountered with human drivers operating around truck platoons.[17] Crute et al., mentions that restricting "*the length of platoons to two to four trucks"* may be an option to address safety concerns[17]. According to the Maryland Department of Transportation (MDOT), two trucks is the current maximum allowed platooning limit in the State.[18] Additional uncertainties include the "*potential to reinforce auto-oriented sprawl*" and the increase in VMT[17]. More research must be conducted at the Federal, State, Regional, and County levels to address these and other uncertainties.

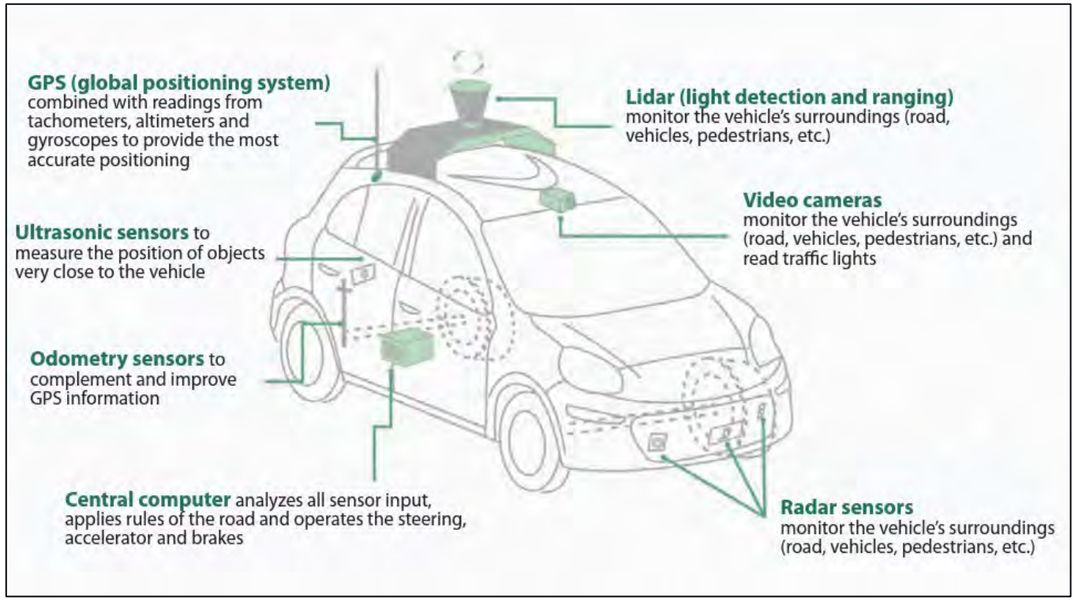


Figure 8.1: Diagram of AV Technologies

To help local governments assimilate to this new form of transportation technology and assist in quelling any uncertainties, the Baltimore Metropolitan Council (BMC) has created a Connected and Autonomous Vehicles working group (CAV). County Planning Department Staff are members of the (CAV) and provide professional planning insight on how CAVs will affect the County. The CAV Work Group has outlined ten topics where action should be focused preparing for CAV impacts, including: 1). Travel & Mobility, 2). Infrastructure, 3). Planning and Land Use, 4). Accessibility & Equity, 5). Stakeholders and Organizational Readiness, 6). Workforce & Education, 7). Funding, Financing, and Fiscal Health, 8). Automated Freight and Goods Delivery, 9). Public Safety, and 10). Data Privacy and Security. Local governments can utilize this information to draft and adopt policies that will effectively incorporate CAVs into our region and society.

Shared Use AV: According to Crute et al., "*many researchers have predicted that the three revolutions in urban transportation will be the automation, electrification, and sharing of the transportation system*".[17] Therefore, special attention should focus on rethinking parking requirements since not as many vehicles will be privately owned and will not require as much available parking infrastructure. The reduction in parking infrastructure, that typically consumes much of the developable property on a buildable lot, will make our cities and towns more compact and will be more consistent with Smart Growth principles. Therefore, parking ordinances should be reviewed to make sure the right amount of parking that is demanded will be equitably supplied and located. Shared use AVs will require loading and unloading locations both on and off the public street which should be properly delineated. Additionally, increased amounts of data collected and used during any AV commute will need to be linked to the grid. This data connectivity will need adequate communications infrastructure to interface with and may thus require communications investments all throughout the County. A major concern for local governments is what will happen to current funding sources if/when shared AVs are implemented (i.e., further reduction in vehicle registration, sales taxes, parking revenue, and traffic fines)?


Figure 8.2

Other Transportation Considerations

Future transportation considerations should focus on delivery robots and their impact on the County's transportation infrastructure. With the rise of e-commerce and the ever-increasing demand for expedited shipment of goods, companies have turned to new forms of technology to fill this evolving expectation. According to an article in *Planning*, local transportation plans should consider "*allowable travelways*" where delivery robots can operate with an added consideration on "*sidewalk maintenance roles and responsibilities*".[19] How will these types of robots operate on County sidewalks within dense urban areas? Any type of regulations would have to be discussed in a joint meeting with the County's eight municipalities since municipal boundary lines are not uniform and developed areas contain land both inside and outside the municipality. Delivery robots do not seem as feasible on rural roads with high speeds that make up most of the geographic land in the County, but delivery robots may find a useful place in and around our municipalities.

Another are of emerging technology is air transportation and the safe and equitable use of unmanned aerial vehicles (UAV). Sometimes called drones, UAVs are being explored to transport lightweight packages, medical supplies, food and other goods. Currently, companies in the U.S. and worldwide are actively vying to define their markets and begin operations. This newer

[17] Crute, J., Riggs, W., Chapin, T. S., & Stevens, L. (2018, September). Planning for Autonomous Mobility. American Planning Association. https://www.planning.org/publications/report/9157605/
[18] MDOT. Maryland's Connected and Automated Vehicle Program: Platooning in Maryland. https://cav.mdot.maryland.gov/platooning/#:~:text=What%20is%20Platooning%3F,braking%2C%20speed%2C%20and%20oncoming%20obstacles
[19] Nisenson, L. (2020, April). Primed for Deliveries. American Planning Association. https://www.planning.org/planning/2020/apr/primed-for-deliveries/

mode of transportation has the potential to change last-mile delivery economics for smaller and lighter packages by replacing deliveries currently made by traditional car, van, or truck delivery services. Potential benefits of UAV delivery include reductions in traffic congestion, environmental pollution, delivery times and transportation costs. There are, however, significant challenges to broader overall usage and acceptance of drone delivery systems. Their use in the region for such purposes is expected to be limited throughout the planning period. While broader usage of UAVs or drones for delivery remains a challenge, MDOT currently uses drones in a variety of ways. Current uses of drones by MDOT include assessing damage to the transportation network, conducting stormwater facility inspections, tracking construction projects, assessing utilization of Park-and-Rides and viewing geohazards such as sinkholes. Moving forward, we must prioritize safety, security, privacy, noise, and coordinate with the Federal Aviation Administration and "*utilities and existing infrastructure*" operators, while developing no-fly zones, "*urban flight corridors"*, etc.[19]

Advanced Air Mobility (AAM) may be moving closer to reality. According to an article by Johamary Pena, AICP, NASA cites that, "*advanced air mobility (AAM), or the use of automated transportation technology to transport people and cargo at lower altitudes in places not traditionally served by aviation, is likely to be a commercially viable transportation option*.[20] AAM is foreseen to utilize docking stations, that would need to be equitably dispersed throughout the County, for vehicle charging and communications, with access to unobstructed flight paths. County land use regulations will need to properly regulate incompatible adjacent land uses to not affect the safe and efficient functioning of this new form of transportation technology. According to a report by the American Planning Association, benefits of AAM include reductions in 1). travel time, 2). increased direct travel routes, 3). less roadway congestion, and 4). reductions in parking demand.[21] On the contrary, future regulations must address 1). noise pollution and 2). congested skies.[21] In the future people may wish to utilize this type of transportation to avoid traffic delays on Carroll's and/or other jurisdictions more congested roadways. Additionally, emergency and medical services may wish to utilize this type of transportation to transport people to hospitals in a more effective and efficient manner. The challenge is to ensure that this new form of technology will not affect others' lives in an adverse way. The future of AAM must be acknowledged, so when this type of transportation becomes reality, The County can plan accordingly.

[20] Pena, J. (2021, January). Flying Taxis are Coming and Communities Need to Prepare. American Planning Association. https://www.planning.org/planning/2021/winter/flying-taxis-are-on-the-horizon/
[21] Gomez, A. (2021). Urban Air Mobility. https://www.planning.org/publications/document/9211442/

Chapter 9 Recommendations

Recommendations

A “recommendation” is a course of action which assists in the achievement of a goal. Adoption of this plan and its recommendations does not guarantee an immediate change. Rather, implementation of the plan’s recommendations will be realized as the outcome of the County’s efforts to maintain the reliability of its transportation network, to create access to its developed and developing parcels, and to promote the mobility of its residents.

General	1. Affirm and continue to implement the recommendations in the 2014 Carroll County Master Plan as amended 2019 Amended, 2018 Freedom Community Comprehensive Plan, and 2013 Finksburg Corridor Plan where they reinforce the Carroll County Transportation Master Plan.
	2. Monitor the progress of ongoing municipal plan updates and amend this Plan to be consistent with all municipal plans.
	3. Adopt by reference the Carroll County Transportation Master Plan, and any amendment to it, into the future Master Plan update.
	4. Study the County’s land use and transportation interaction as part of the future Master Plan update.
	5. Propose amendments to the Zoning Ordinance and Subdivision Regulations that promote developments, designs, and strategies to reduce congestion.
Chapter 5 Transportation Corridor & Subarea Analysis & Chapter 6 Planned Roadway Projects	1. Advance the design, right-of-way acquisition, and construction of Planned Roadway Projects and Most Promising Potential Improvements through a. the use of the County’s CIP, bonds, special assessments, and other financing tools, b. the development review process, and c. partnerships with the municipalities, state, BMC, landowners, land developers, and other public-private partnerships.
	2. Planned Roadway Projects and Most Promising Potential Improvements should be designed and constructed to a. improve connectivity, b. enhance safety, c. reduce traffic congestion, d. reduce conflicts between short distance and longer distance travel on major roadways, e. accommodate all users of the right-of-way, f. comply with the County’s road standards, and g. maintain a high quality of life.
	3. Where complete construction is infeasible, partial construction should be completed to facilitate inter-parcel connectivity.
	4. Coordinate with BMC to Adopt Planned Roadway Projects and Most Promising Potential Improvements into the Long-Range Transportation Plan and advance County priorities through the Unified Planning Work Program.
	5. Develop a right-of-way preservation strategy for Planned Roadway Projects and Most Promising Potential Improvements, in coordination with the municipalities when appropriate, and proactively work to acquire land necessary.
	6. Further analyze the feasibility of Planned Major Street and Planned Neighborhood Connection alignments.
	7. Study the efficacy of traffic impact fees as a means to fund Planned Roadway Projects and Most Promising Potential Improvements.

	8. Evaluate whether existing methods to fund transportation improvements though the CIP and conditions of development approval are sufficient to expand the transportation network to meet anticipated travel demand.
	9. Identify other potential sources for funding Planned Roadway Projects and Most Promising Potential Improvements, including roadway and intersection capacity enhancement, road extension, and road realignment projects.
	10. Investigate a greater role and responsibility for construction of state arterial and collector roads with the CIP funding in partnership with the state.
	11. Continue to work with MDOT SHA and the municipalities to identify additional Planned Roadway Projects by analyzing evolving roadway conditions and areas where development and traffic patterns are changing.
	12. Continue to work with MDOT SHA to a. prioritize and advance roadway and intersection projects along state highways, i. through the submission of the County's annual CTP Priority Letter; work with the County's Delegation to the General Assembly, and ii. through the update of Carroll County's Highway Needs Inventory (HNI). b. rank roadway and intersection projects along state highways, and c. seek funding for municipal streetscape improvements.
	13. Continue to monitor and advocate for MDOT SHA's I-70 Transportation Systems, Management, and Operations (TSMO) plans.
Chapter 7 Access Management	1. Coordinate with MDOT SHA to promote Access Management (AM) best practices along state highways. a. Update existing AM plans as needed. b. Identify corridors in need of an AM plan, and request MDOT SHA reconvene AM planning processes. c. Adhere to recommendations and implementation strategies in existing AM plans. d. Develop policy to implement existing and future AM plans and achieve adoption of plans by the respective municipalities.
	2. Review the County Code for obstacles to access management best practices, on all types of streets, to reduce vehicle trips and improve traffic circulation.
Chapter 8 Emerging Trends	1. Evaluate County codes and policies that may be impacted by the transition to EVs and/or AVs.
	2. Coordinate with federal, state, regional, and local agencies to implement EV and AV technology. a. Prepare the County's roadways for EVs and AVs. b. Educate the public about EV, AV, and other new forms of transportation technology.