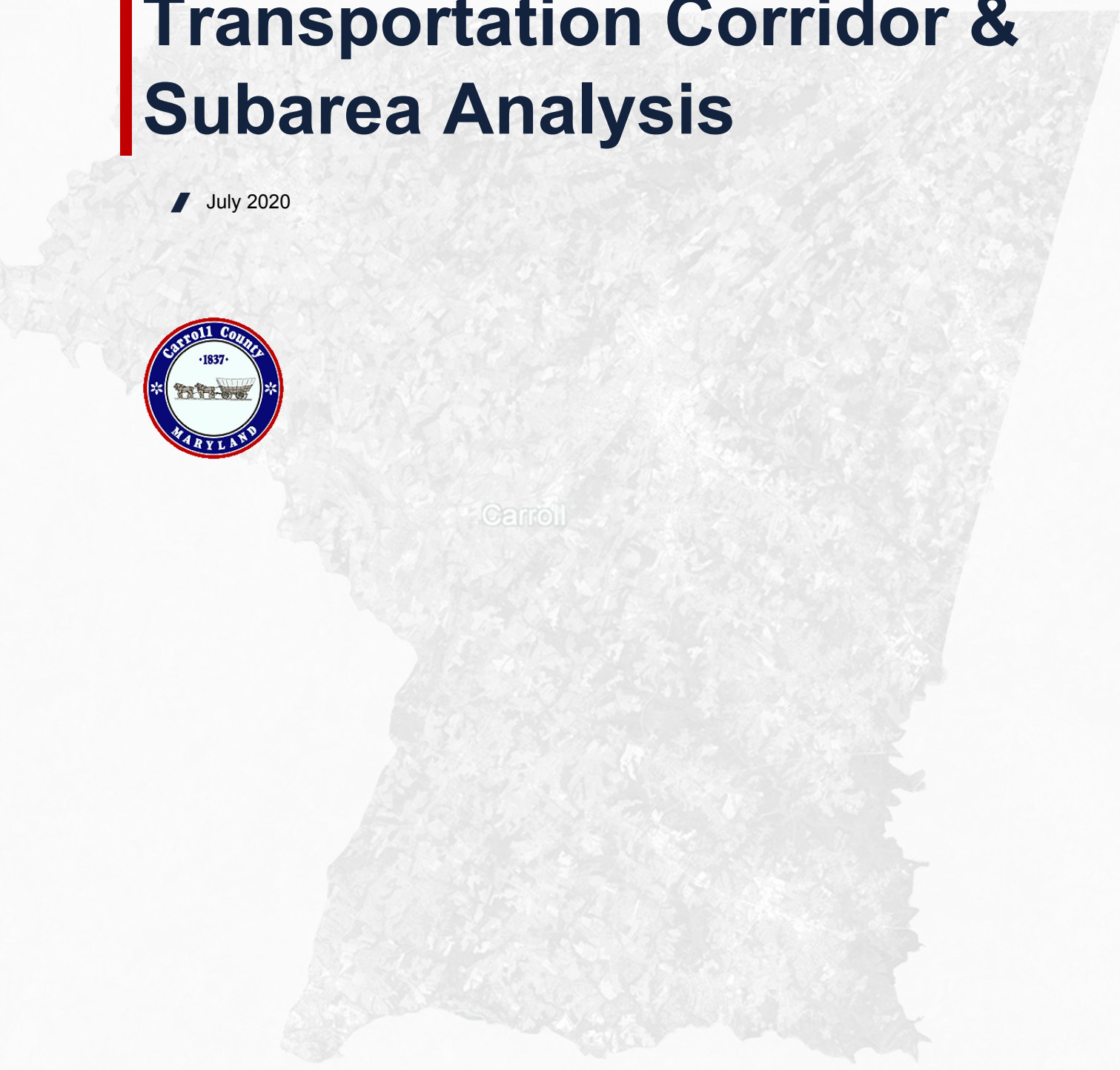
Carroll County Transportation Corridor & Subarea Analysis

July 2020



The United States Department of Transportation Federal Highway Administration and Federal Transit and the Maryland Department of Transportation contributed funding to this project through the Baltimore Regional Transportation Board's Unified Planning Work Program.

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Executive Summary

Every ten years, Maryland's local jurisdictions are required to update their comprehensive plan which covers land use, transportation, environmental resource management and other topics. The 2014 Carroll County Comprehensive Plan (amended in 2019) called specifically for creation of a transportation functional plan 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 a framework 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. Whereas roadway improvements called for in the Comprehensive Plan are projected to cost between $1 - $3 billion over the next 20 years, this plan identifies $50 - $100 million of the most promising improvements which could be achieved in less than a decade. Improvements are intended to help the entire transportation network better regardless of municipal, county or state roadway ownership; collaborative policy and funding mechanisms should be developed to implement the improvements.

Changing norms in transportation planning and policy indicate that major roadway expansions in exurban areas like Carroll County are no longer advisable, especially where lower-cost, high-value improvements can achieve the same benefit much more quickly.

Part 1 of this document describes the purpose and need for the transportation plan and how it was developed, gives and overview of and context to the transportation plan including a summary of land use and demographic trends, prior planning efforts and a description of roles and responsibilities for transportation planning, policy and operations in the County.

Part 2 of the report contains individual chapters devoted to each of the corridor or subarea. Each chapter describes:

- local goals and policies as expressed through the County's Comprehensive Plan or municipal comprehensive plans
- trends in land use, population, and employment within the corridor or subarea
- commuting patterns for those who live within the subarea and those who travel to the corridor or subarea for work.
- recent and committed transportation improvement projects in the corridor or subarea
- existing and forecasted traffic conditions
- potential approaches to address traffic congestion
- the most promising potential transportation improvements in the corridor or subarea; and,
- the benefits and impacts of the most promising potential improvements

Each corridor or subarea chapter has a different extent of description, technical analysis, possible planning approaches and potential improvements depending on the level of growth anticipated and the studies already completed in the area.

Part 3 of the report highlights issues, policies, and programs beyond the original scope of this study but which may be important for the County and its transportation partners to consider.

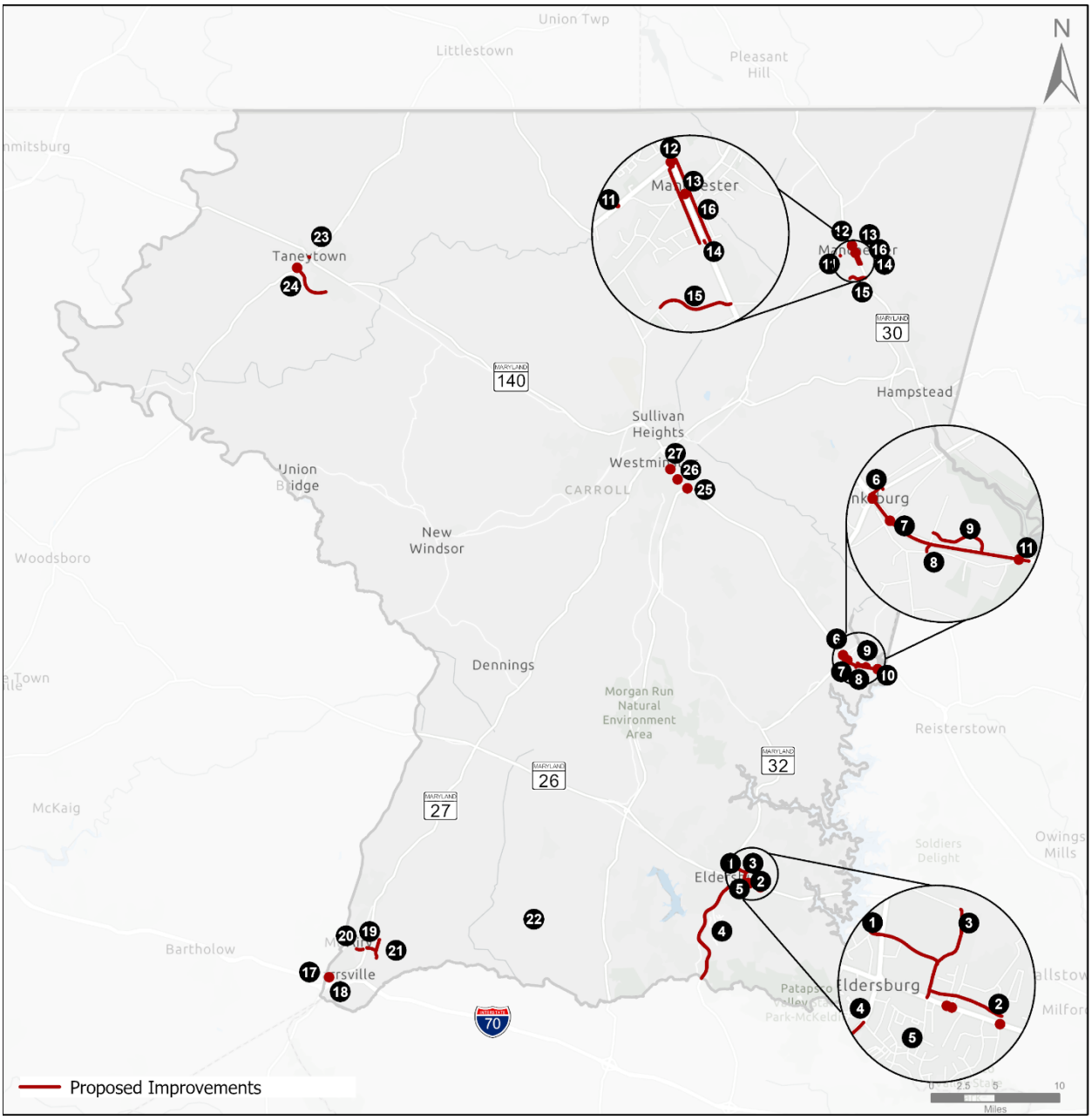


Figure 1. Most Promising Potential Improvements to Improve Mobility and Reduce Traffic Congestion

Table 1. 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	Walnut Park Internal Circulation Road
10	Finksburg	Old Westminster Pike at MD 140 Access Management
11	Hampstead-Manchester	MD 27/Westminster St Roundabout
12	Hampstead-Manchester	MD 30 at Westminster Street New Left Turn
13	Hampstead-Manchester	MD 30 at MD 27 Intersection Improvements
14	Hampstead-Manchester	MD 30 at New Street – New Left Turn
15	Hampstead-Manchester	Southwestern Avenue Extended
16	Hampstead-Manchester	Maiden/Long Lane Upgrade
17	Mount Airy	South Main Street Roundabout
18	Mount Airy	Main Street at Ridgeside Drive
19	Mount Airy	Center Street East
20	Mount Airy	Century Drive Extension
21	Mount Airy	Center Street
22	Mount Airy	MD 94 Corridor Improvements
23	Taneytown	MD 140/MD 194 Left Turn Bay Extension
24	Taneytown	Allendale Lane/Antrim Blvd Extension
25	Westminster	MD 140 at Malcolm Drive – Turn Restriction and New Acceleration Lane
26	Westminster	Gorsuch Rd at MD 140 Right-In/Right-Out
27	Westminster	MD 14 at Ralph Street/Cranberry Road

Part 1: Study Background & Purpose

Part 1: 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 County master plan points out, this has not always resulted in cohesive, connected roadway networks.

The County's approach master planning framework for land use and infrastructure focuses growth in eight designated areas (DGAs) (see Figure 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 commuting to the Baltimore and Washington metropolitan areas, including trips which originate within the bordering counties of Pennsylvania.**

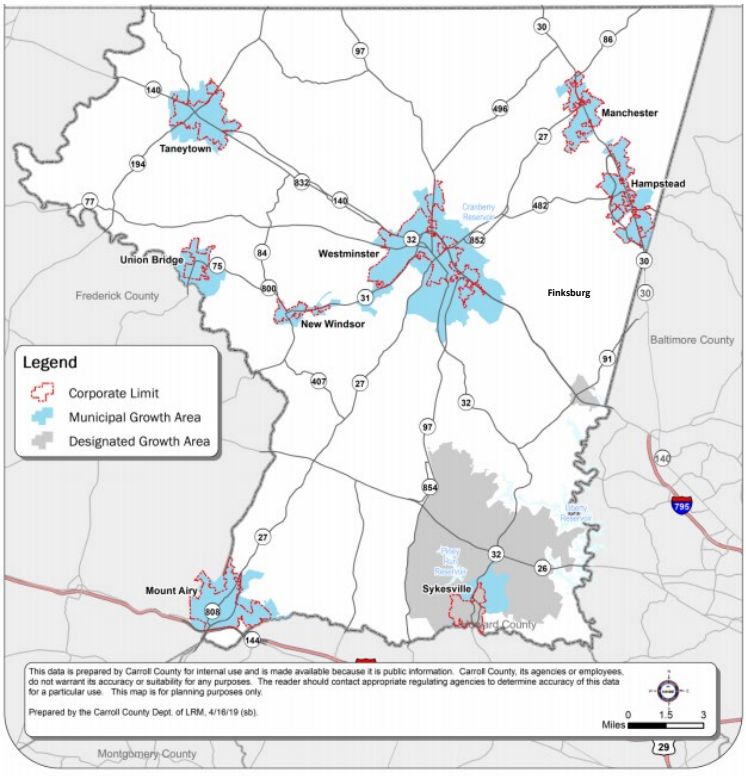


Figure 2 Carroll County's Designated Growth Areas

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.

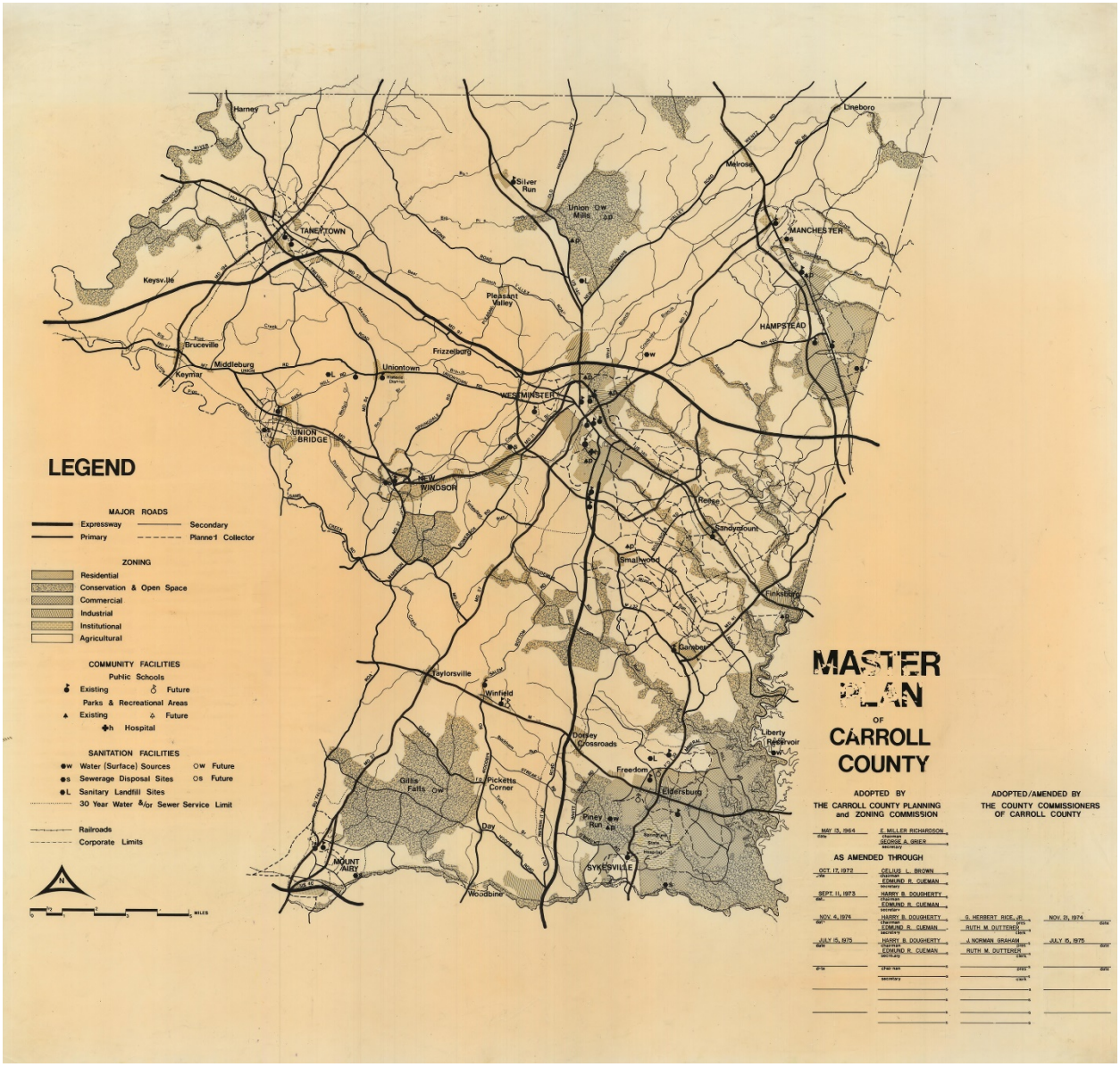


Figure 3 The 1962 Major Streets Plan as Incorporated into the County's 1964 Comprehensive Plan

In both the 2000 and 2014 Comprehensive Plan, 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.

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. (P.113)

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. (P. 58)

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.

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 along 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 This 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.

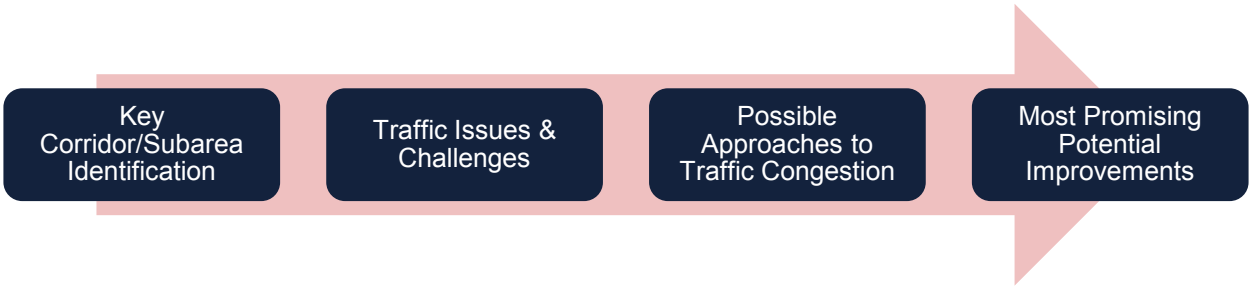
This plan reviews those 100 potential transportation improvements to **identify the most promising potential improvements which have a broad public benefit**, **improve mobility within municipalities** and/or are **critical to economic development**. Unlike the County's master plan and municipal master 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 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 consideration by MDOT SHA.

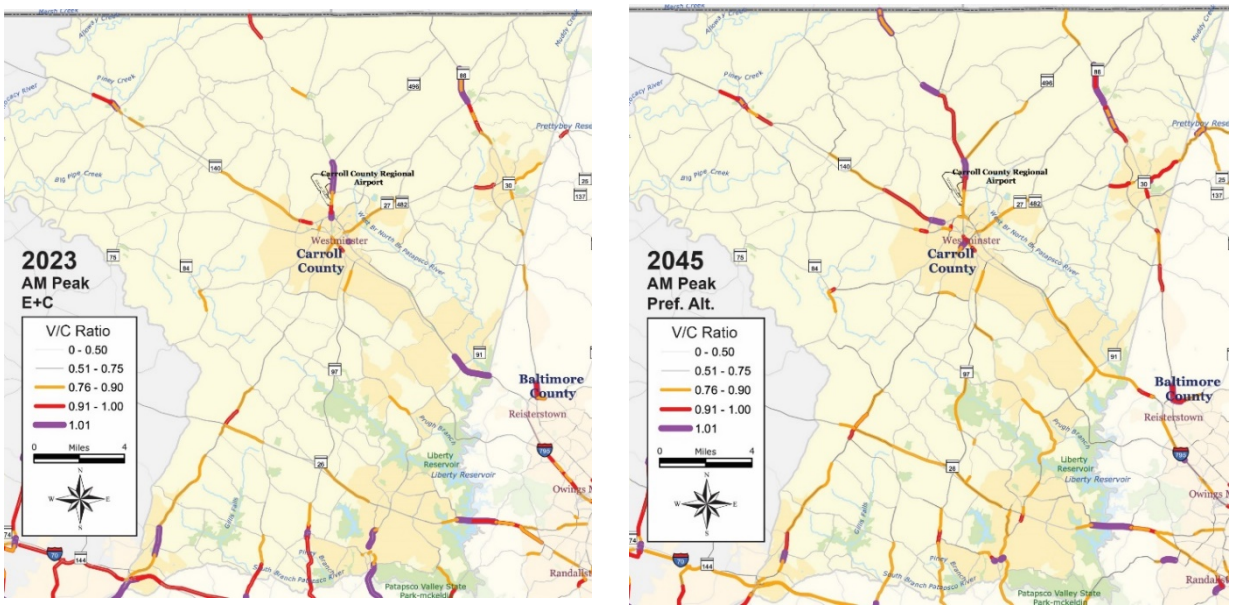


Figure 4. Existing (left) and 2045 Forecasted (right) Traffic Congestion under the Regional Constrained Long-Range Transportation Plan

With a project development process that is slow to deliver too few congestion-relief benefits and at an 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 were measured the intersection level and identify level 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 projects 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 in the lower than forecast 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 forecast 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 forecast 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.

Table 1, below, summarizes forecasted population, employment, and worker population changes in Carroll County between 2020 and 2040.

	2020			2040			Absolute Change			Percent Change		
	Pop.	*Emp.*	*Workers*	*Pop.*	*Emp.*	*Workers*	*Pop.*	*Emp.*	*Workers*	*Pop.*	*Emp.*	*Workers*
Carroll County	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	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	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%)
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%)

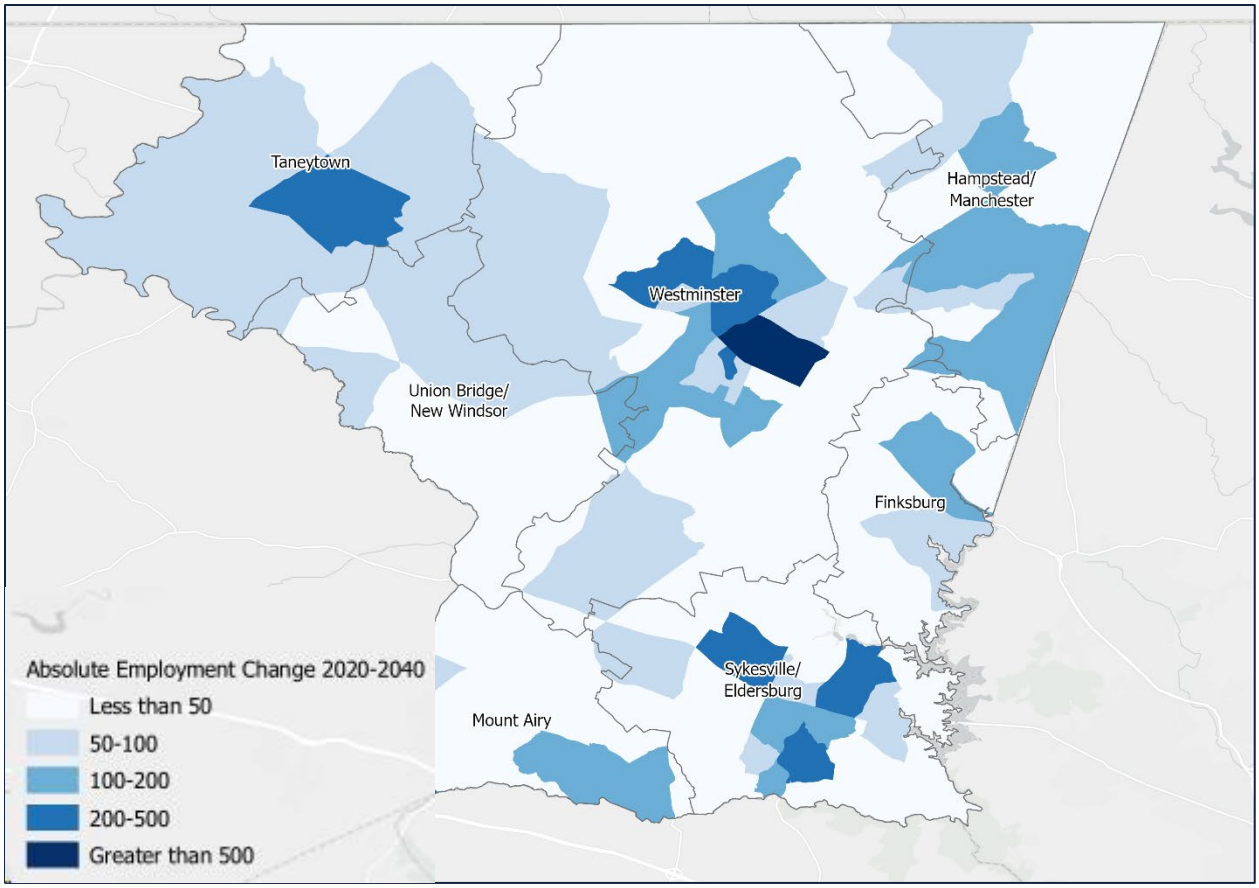


Figure 5. Carroll County Forecast Employment Growth, 2020-40

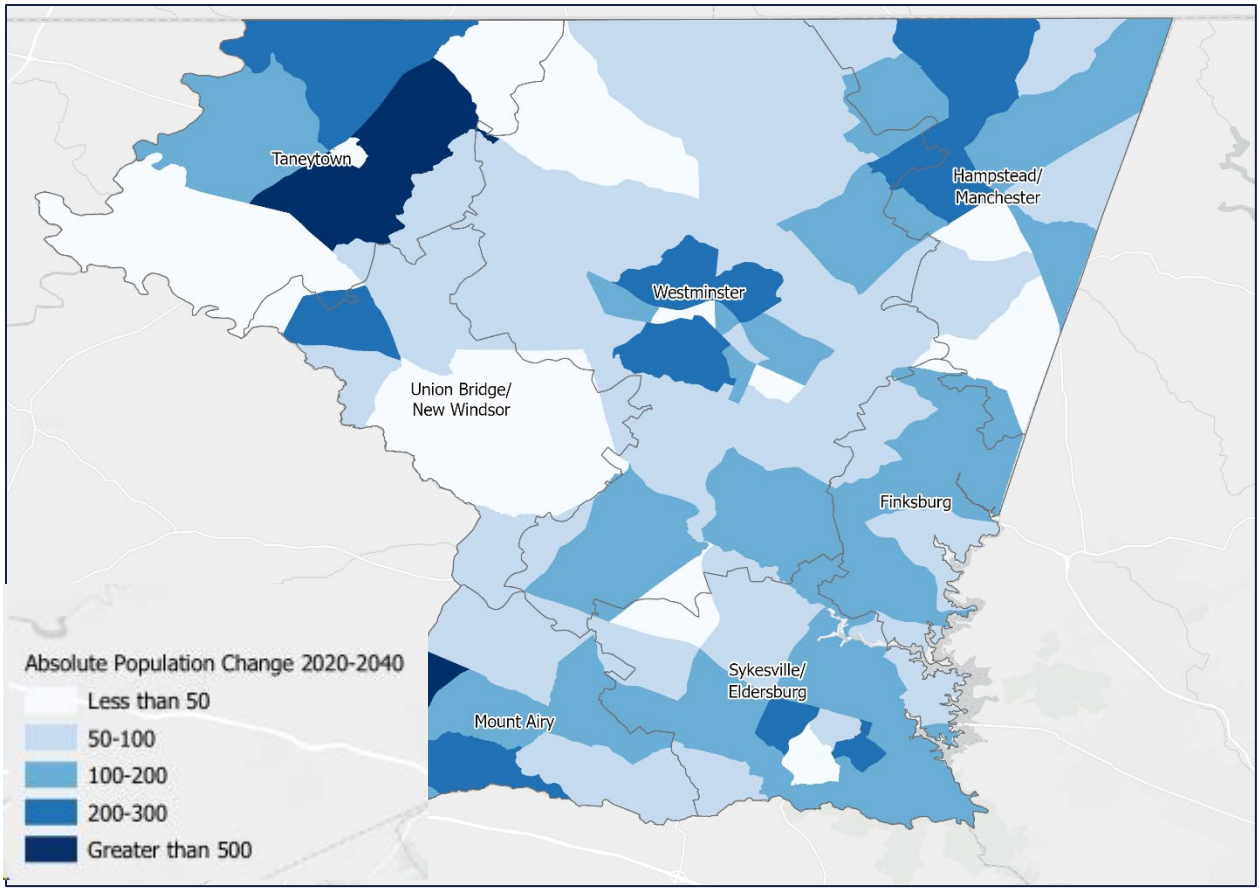


Figure 6. Carroll County Forecast Population Growth, 2020-40

While job growth is forecast 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. These data emphasize the dual roles of Carroll County's transportation system: providing mobility for regional trips and providing local access within the County.

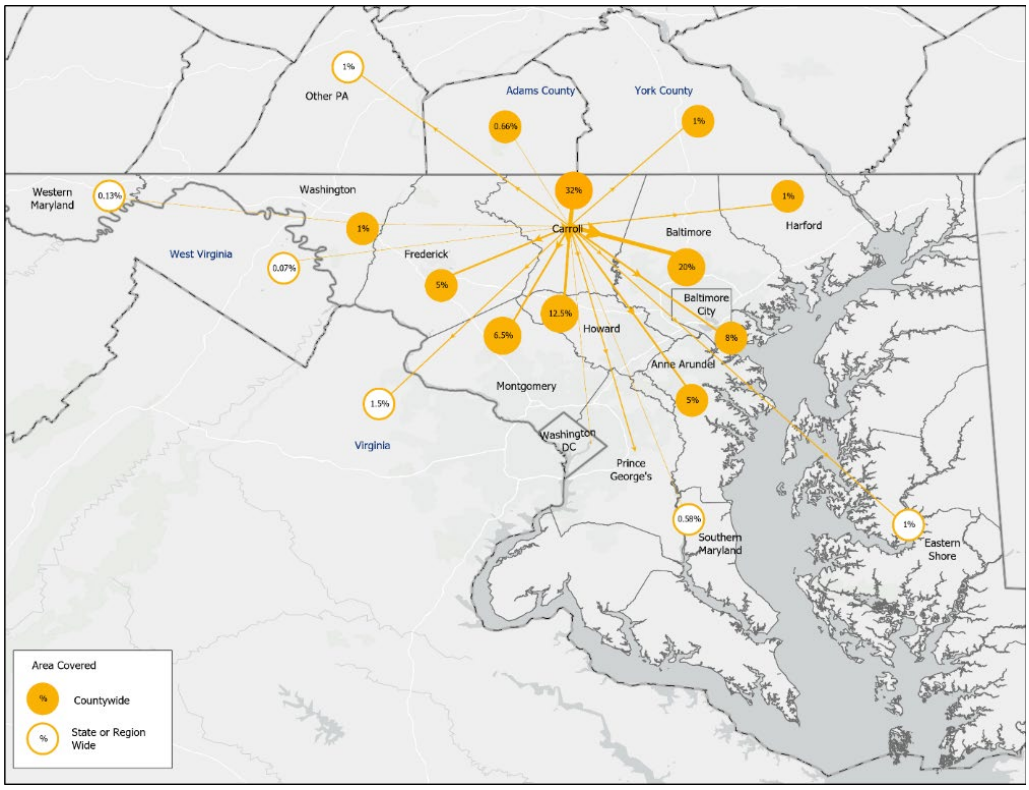


Figure 7 Commuting Flows from Carroll County

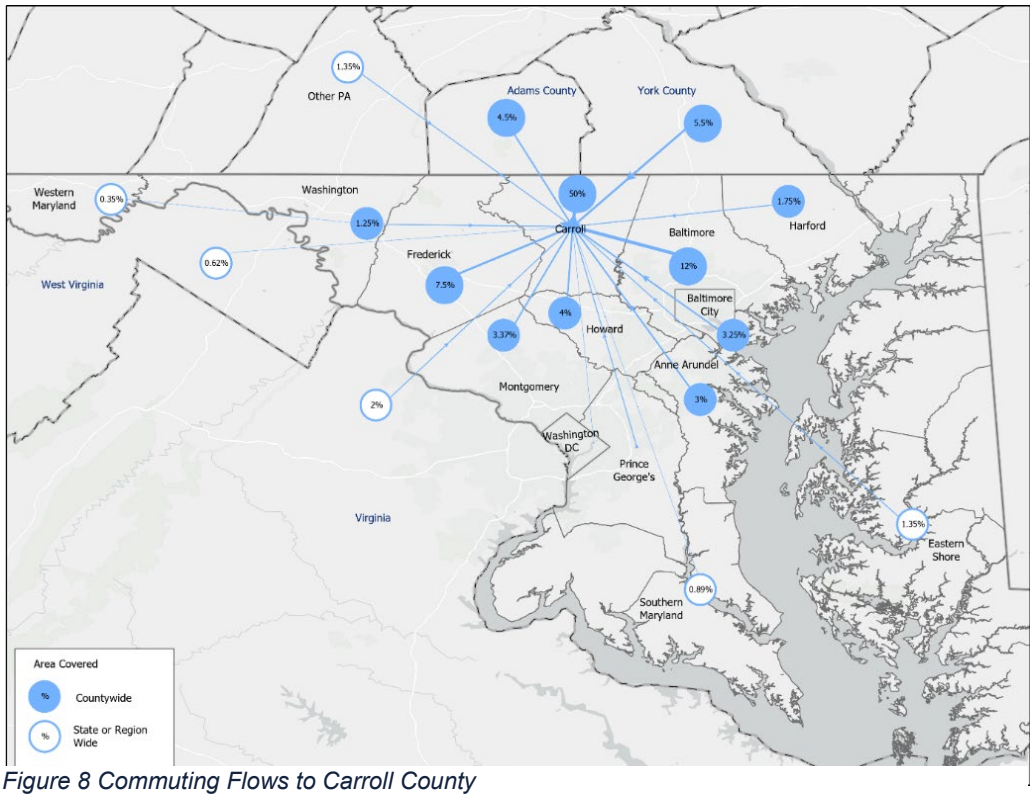
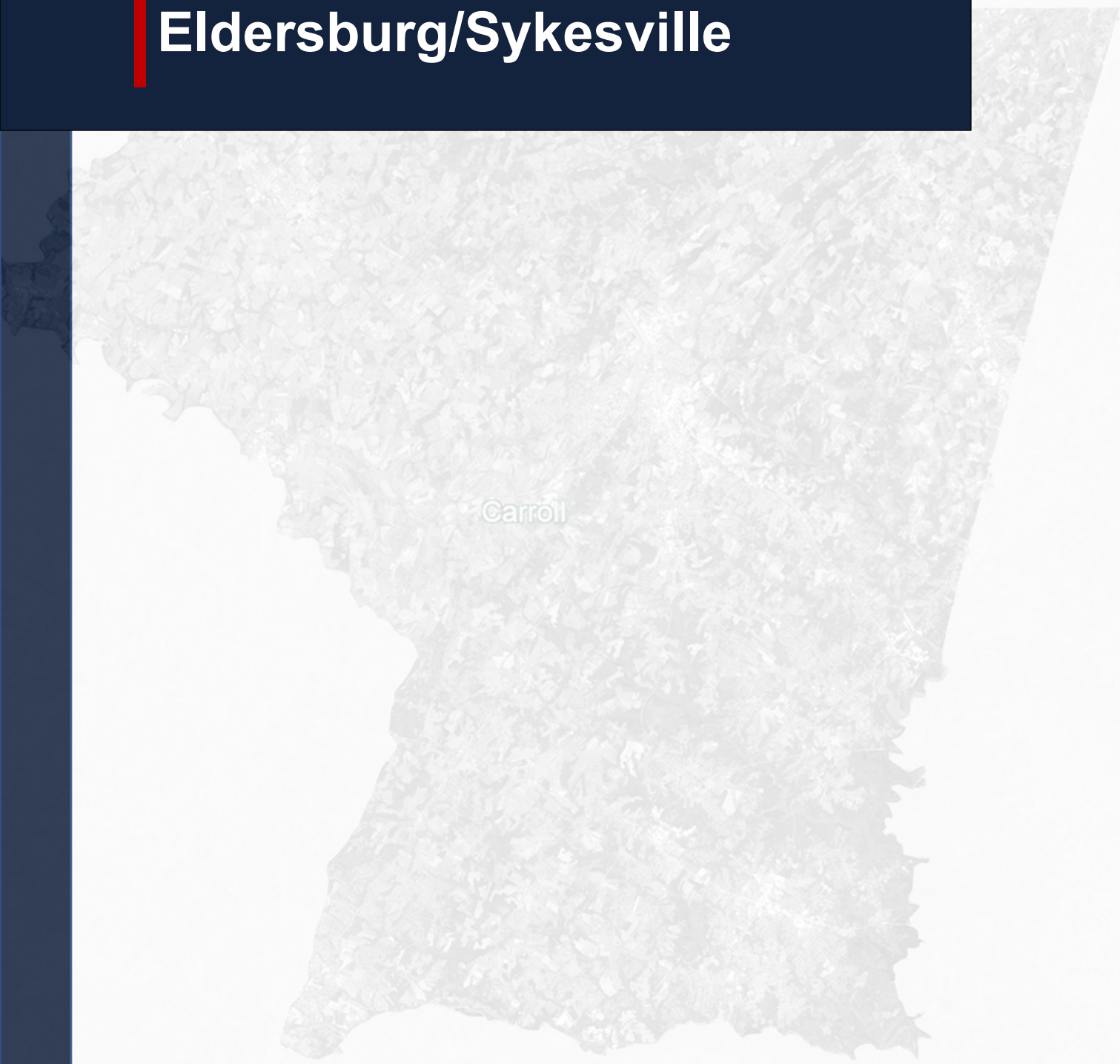


Figure 8 Commuting Flows to Carroll County

Part 2:
Key Corridors & Subareas

Eldersburg/Sykesville



Road Network

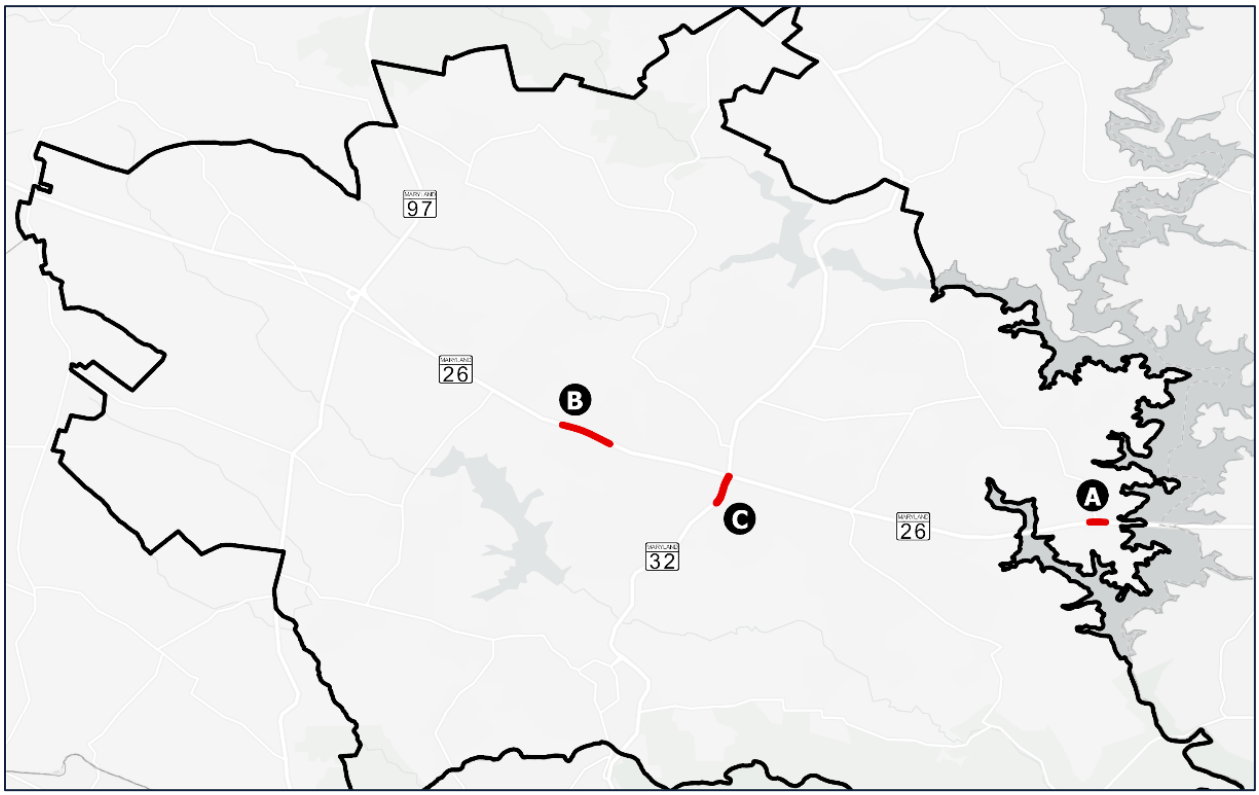


Table 2. Recent and Committed Projects in the Freedom Area

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	Expected Completion Fall 2020	$4,180,000 Source: CTP

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.

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, as shown in Table 2.

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 (see Figure 2) 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.

In Sykesville, development of Warfield at Historic Sykesville and the Freedom Readiness Center are underway. Warfield at Historic Sykesville will consist of new residential and commercial uses, including 145 residential units. While the new Freedom Readiness Center will only generate 10 new jobs, it will house 326 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.

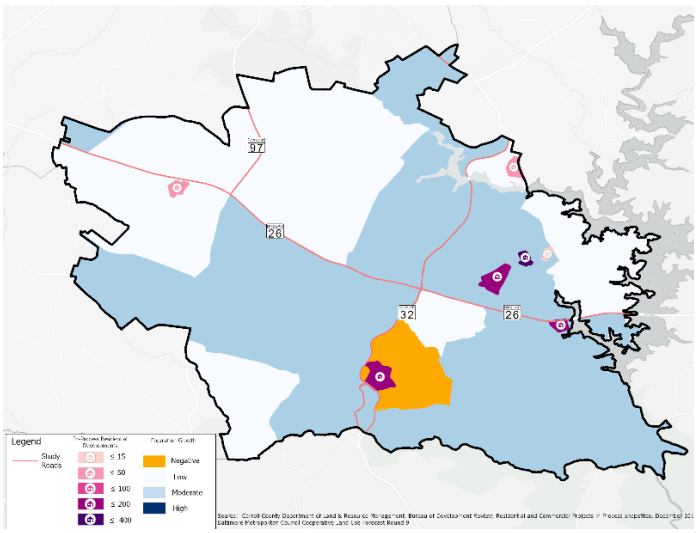


Figure 9. Freedom Area In-Process Residential Developments and Population Growth 2020-40

[NOTE: The negative growth shown along MD 32 results from the closure of the Springfield Hospital Center.]

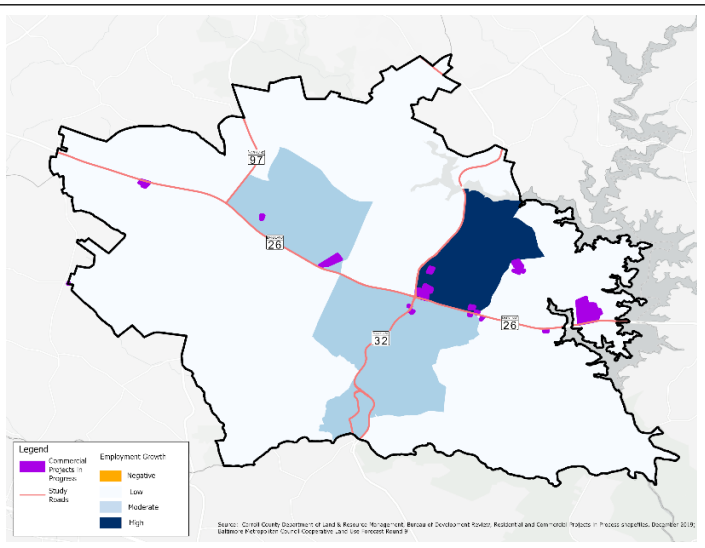


Figure 10. Freedom Area In-Process Commercial Developments and Employment Growth 2020-40

Table 3: Freedom Area Growth 2020-40

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

Commuter Flows

Eldersburg/Sykesville borders Howard County and Baltimore County, two counties with thriving job markets. Accordingly, a large portion of Eldersburg/Sykesville residents commute into these counties. Eldersburg/Sykesville is only the third most popular employment location for residents, behind Howard County and Baltimore County, and only 10% of residents work in other subareas within Carroll County.

Though residents tend to work elsewhere, more Eldersburg/Sykesville workers come from within the same subarea than anywhere else, and the second largest shares come from Baltimore County and the rest of Carroll County.

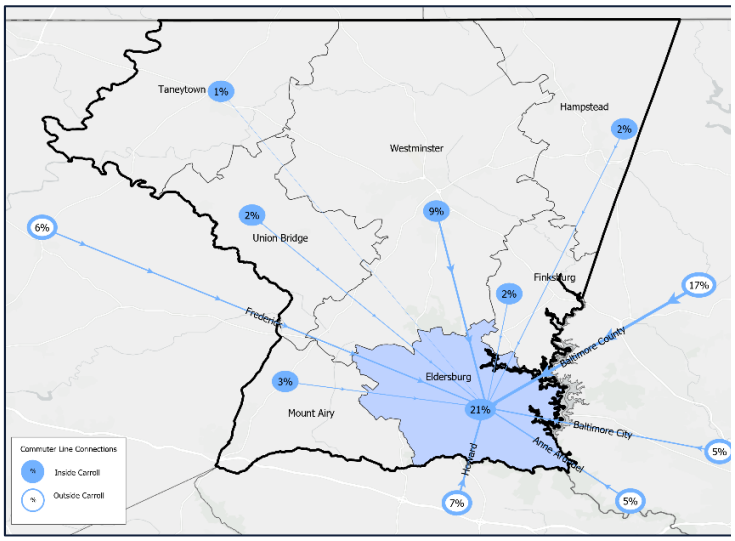


Figure 11. Commuting to Eldersburg/Sykesville

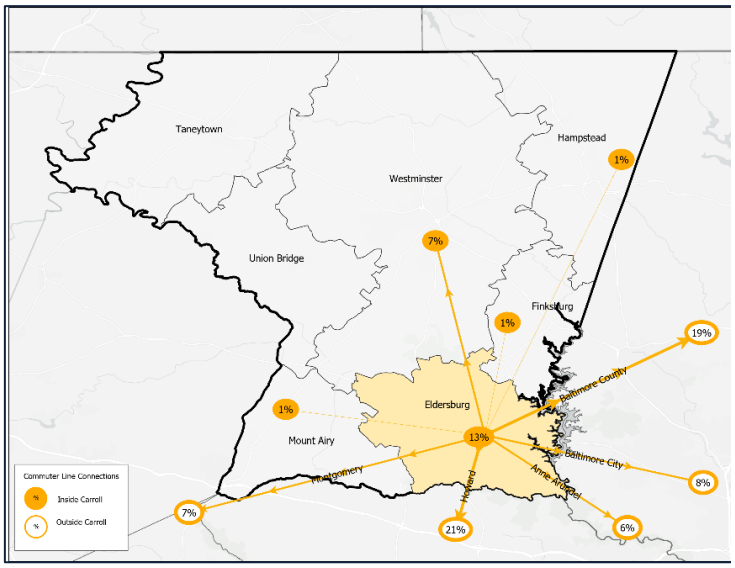
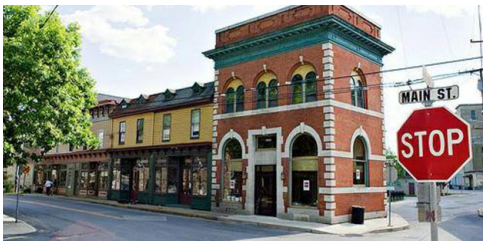


Figure 12. Commuting from Eldersburg/Sykesville

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 will soon be completed. 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 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[1] 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 which 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.

[1] By its original design, the two segments of MacBeth Way were supposed to connect as a continuous minor collector for the southeast quadrant of MD 32 and MD 26. This connection was removed from the County Master Plan in 2019 after a pedestrian trail was built in the right of way.

Traffic Conditions

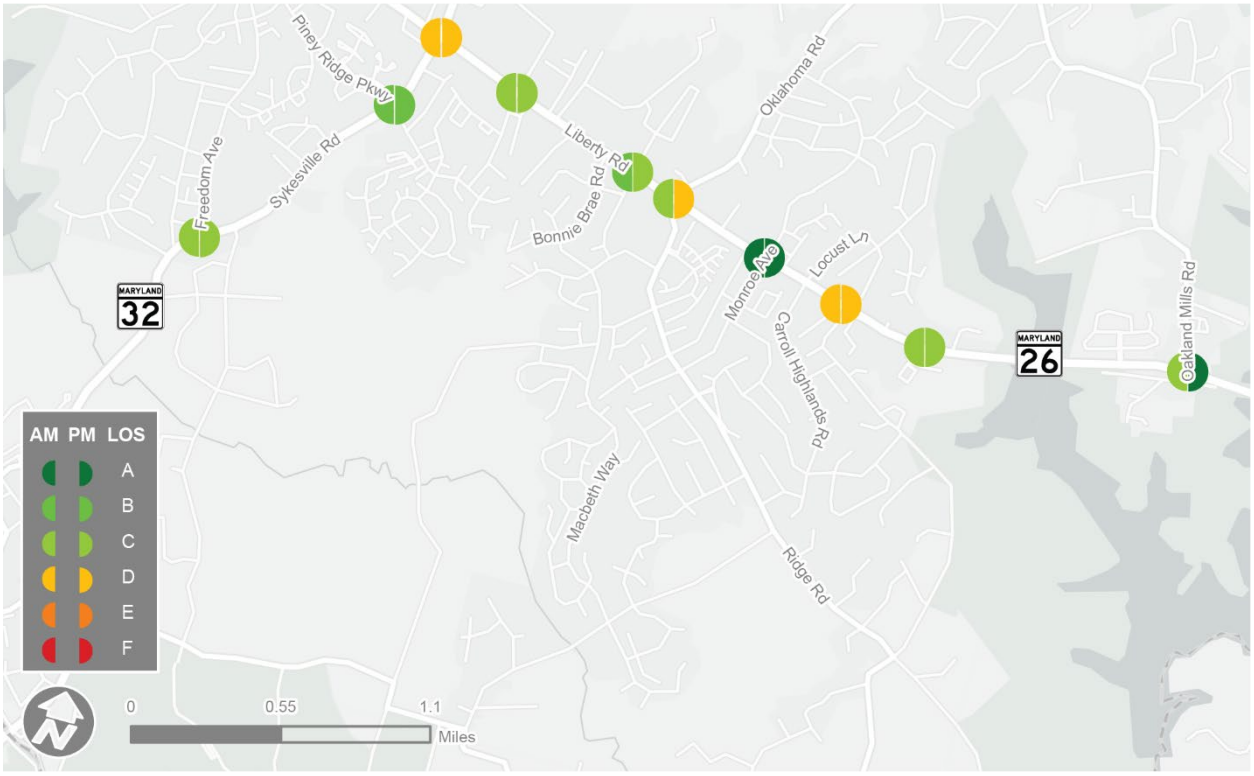


Figure 13. Eldersburg/Sykesville Existing Traffic Conditions

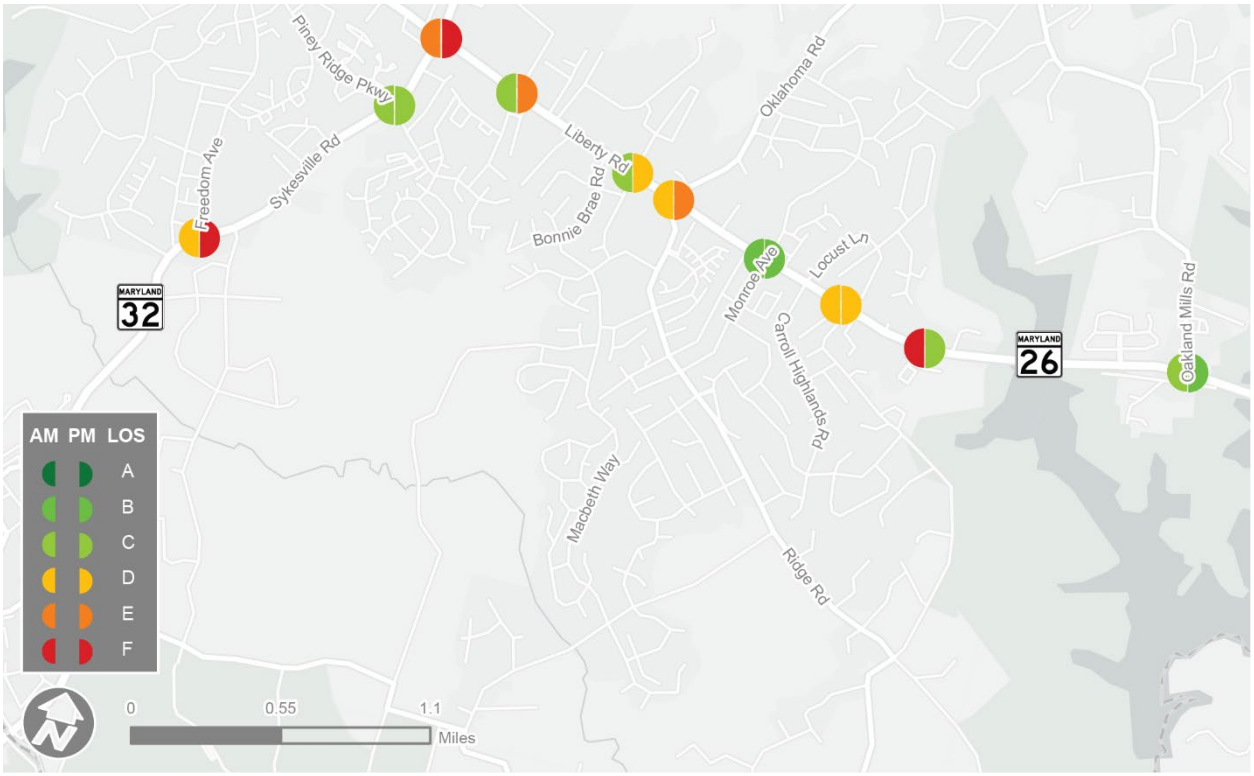


Figure 14. Eldersburg/Sykesville 2040 No-Build Traffic Conditions

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 11). 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.

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 E during the AM peak hour and LOS F during the PM peak hour by 2040, and the Oklahoma Road/Ridge Road intersection will worsen to LOS D during the AM peak hour and LOS E during the PM peak hour. In addition, the intersections of MD 26 with Hemlock Drive and Georgetown Boulevard will degrade to LOS D and E respectively during the PM peak hour, while the intersections of MD 26 with Carroll Highlands Road/Locust Lane and Fallon Road will both drop to LOS F during the AM peak hour. 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 at the Freedom Avenue intersection and LOS F during the PM peak at the Freedom Avenue and Sandosky Road/Raincliffe Road intersections. Notably, conditions along MD 32 approaches will significantly degrade during the PM peak hour; the northbound and southbound approaches at the Freedom Avenue and Sandosky Road/Raincliffe Road will all operate at LOS D or worse.

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.

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 delay at MD 32 and MD 26.

Most Promising Potential Improvements

In the above context, the most promising potential improvements for the Eldersburg/Sykesville area are as follows (see Figure 7).

Number	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1-4	**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 TABLE (ABOVE)

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 15. Most Promising Potential Improvements in the Freedom Area

Benefits & 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 over a no-build 2040 condition by a full letter grade to LOS D. 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, but may contribute to increased development pressure in those areas by easing their access to job centers in Howard and Anne Arundel counties. 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.

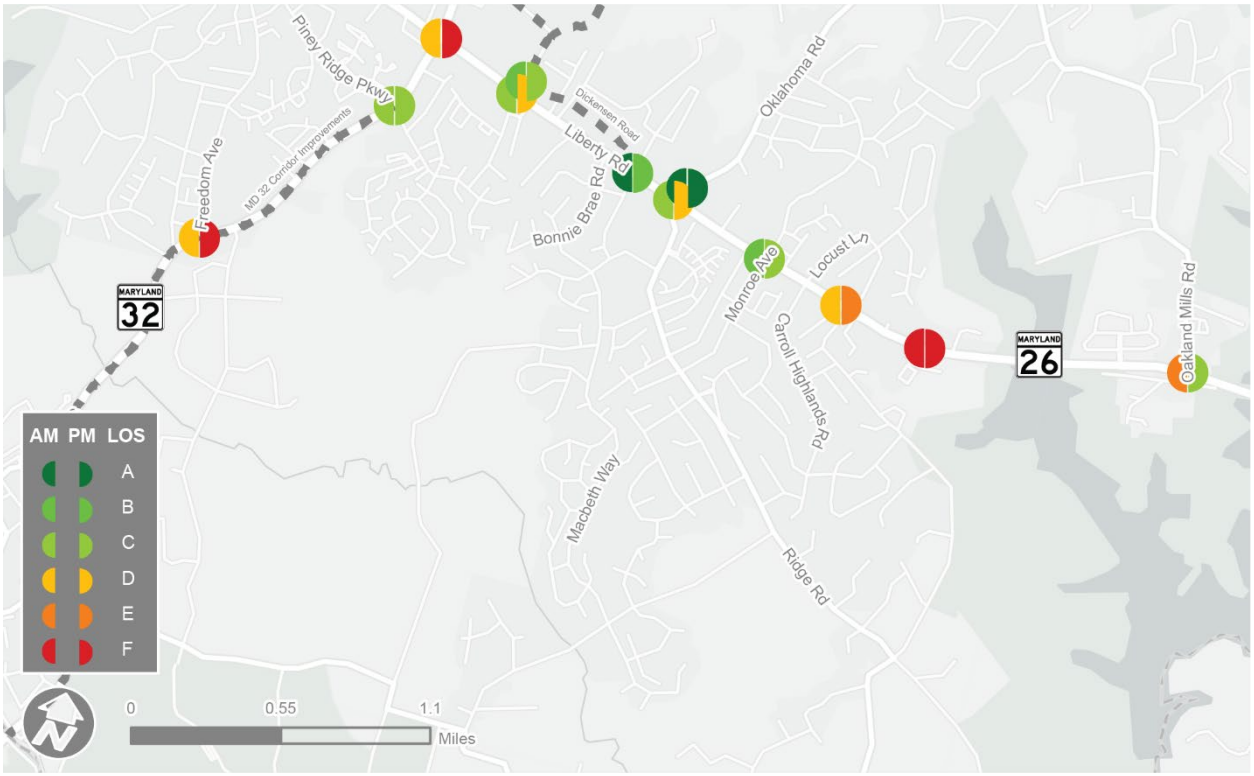


Figure 16. Eldersburg/Sykesville 2040 Traffic Conditions with Most Promising Potential Improvements

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 Westminster.

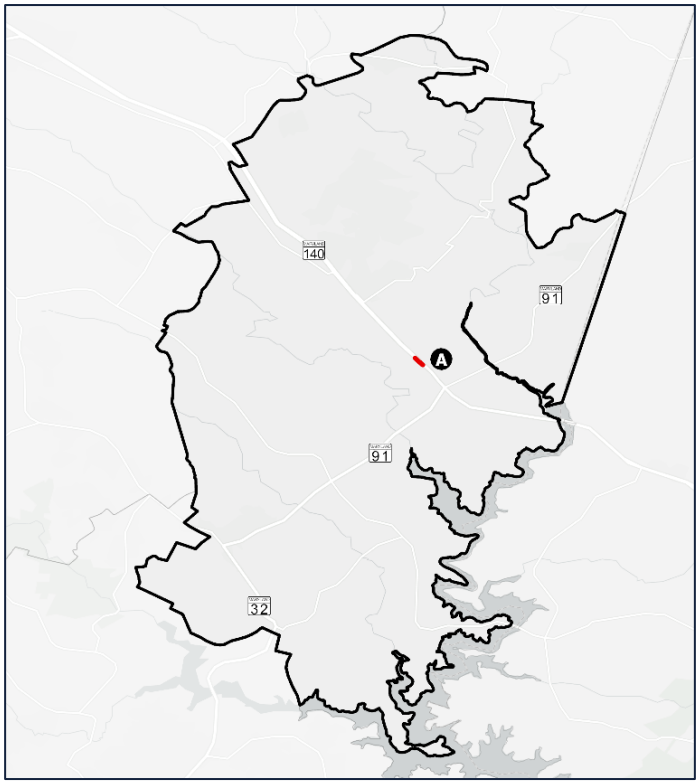


Table 4. Recent and Committed Projects in the Finksburg Area

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 4).

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 2010 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. Finksburg Area Growth 2020-40.

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

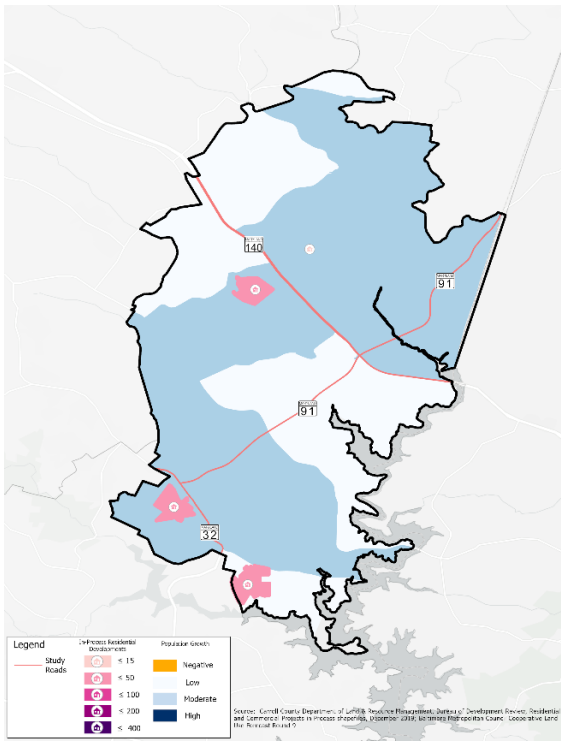


Figure 18. Finksburg Area In-Process Residential Developments and Population Growth 2020-40

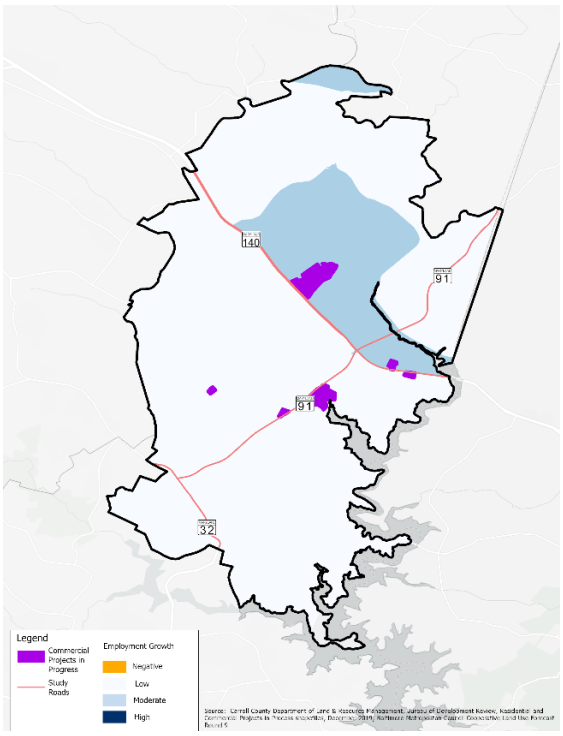


Figure 17. Finksburg Area In-Process Commercial Developments and Employment Growth 2020-40

Commuter Flows

Finksburg residents mainly work in Carroll County and Baltimore County. Of the residents who work in Carroll County, most work in Westminster. Over half of the workers employed in Finksburg live in Carroll County, with the largest share coming from Westminster

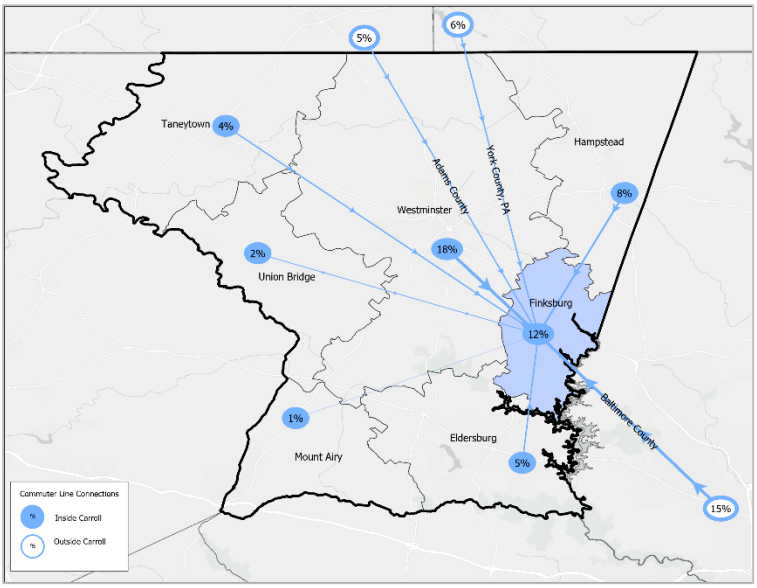


Figure 19. Commuting to Finksburg

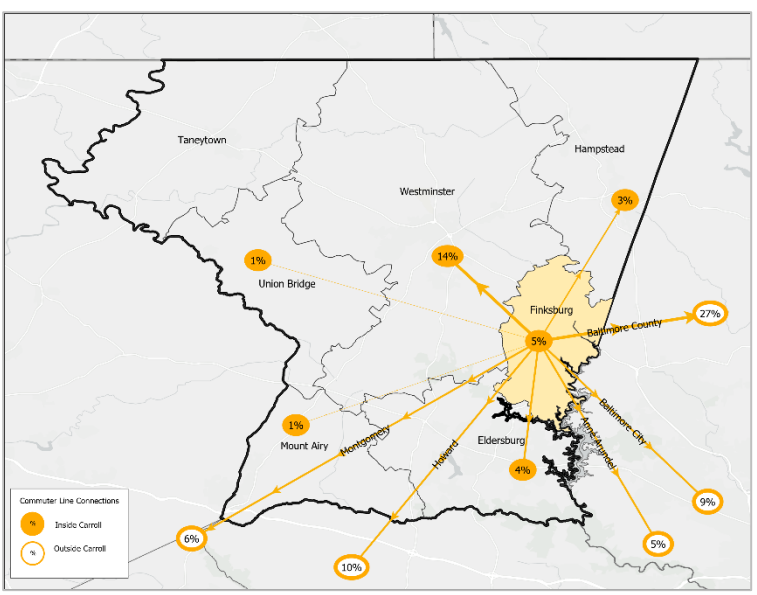


Figure 12. Commuting from Finksburg

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 Maryland Route 140 and Maryland 91 intersection." These primarily comprised alignment straightening, recommendations in Gamber and completion of several under-development roadways from the 1970 street plan.

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, building a new roadway to provide access to the Walnut Park industrial park, relocating Bloom Road and Old Gamber Road to create a 4-way 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."

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 enacted. 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.

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 F 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.

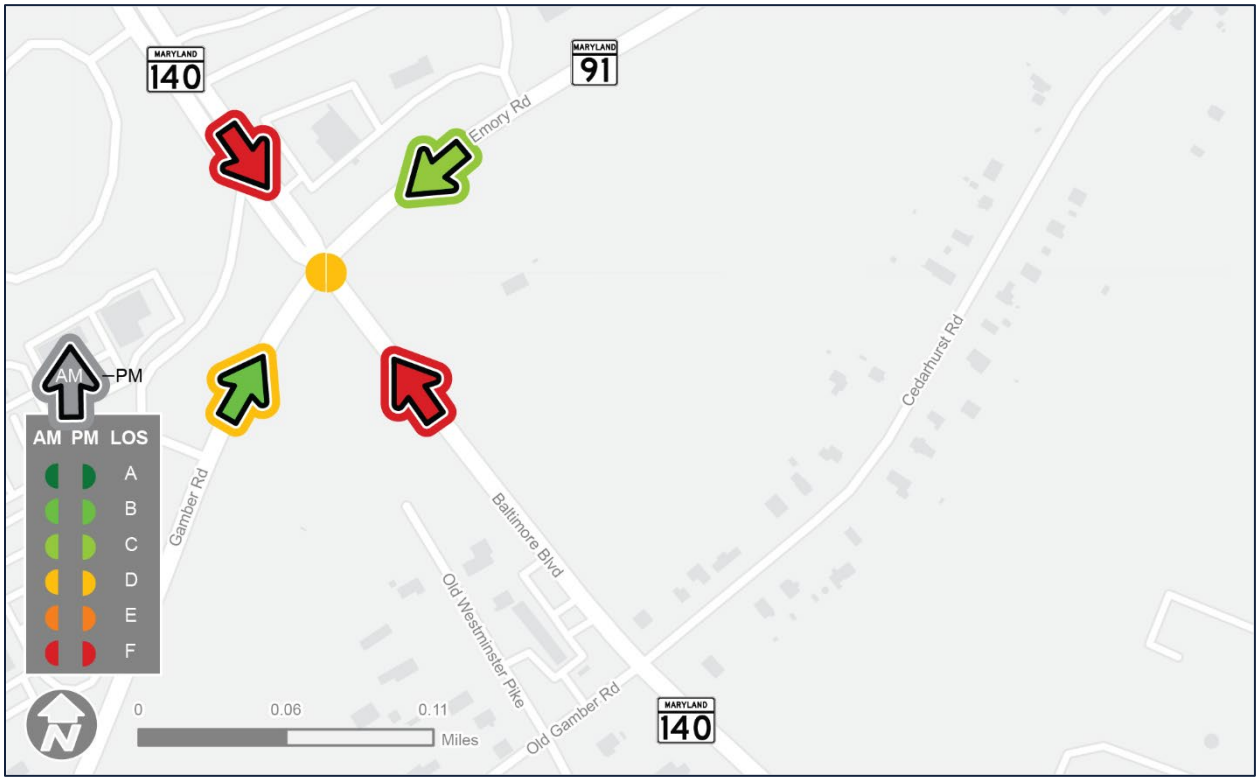


Figure 20. Finksburg Existing Traffic Conditions

Planning Approaches

Two overarching approaches could be taken to addressing 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.

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.

Most Promising Potential Improvements

In the above context, the most promising potential improvements for the Finksburg area are as follows (see Figure 14).

Number	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, 7	**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
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 by remove left turns from MD 140 onto southbound MD 91 from the signal phase. This 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	**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
6	Construct the **Walnut Park Internal Circulation Road** **Cost: $2.5M to $5M**	This would provide access from eastbound MD 140 to the Walnut Park industrial park once the median and access closures are constructed. This would be an ideal locally funded contribution to the MDOT SHA corridor improvements through the area.	Y	1	Y	N

For explanation of this table, please see Page 11.

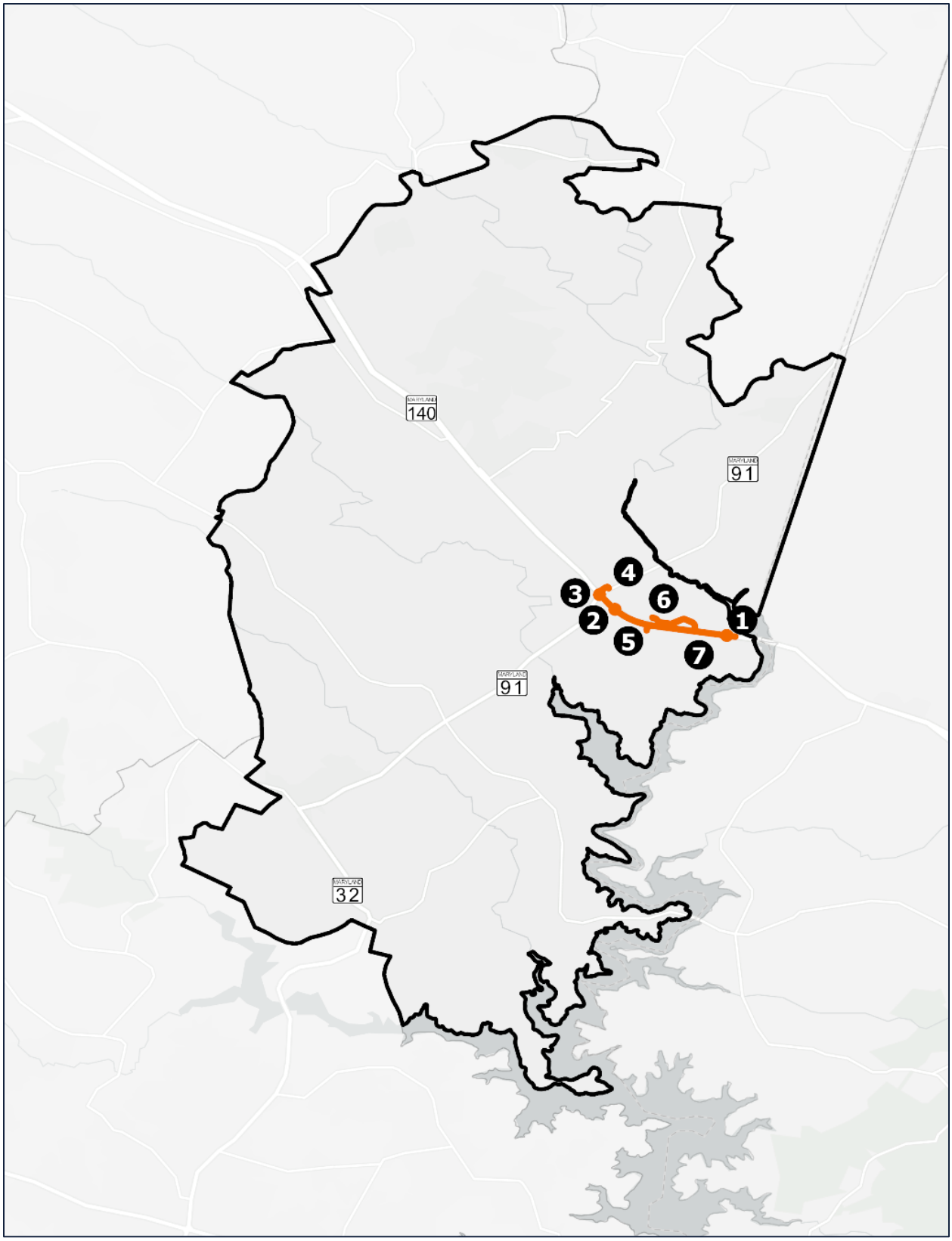


Figure 21. Most Promising Potential Improvements in the Finksburg Area

Benefits & 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, the Dede Road extension, and the Walnut Park Internal Circulation 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.

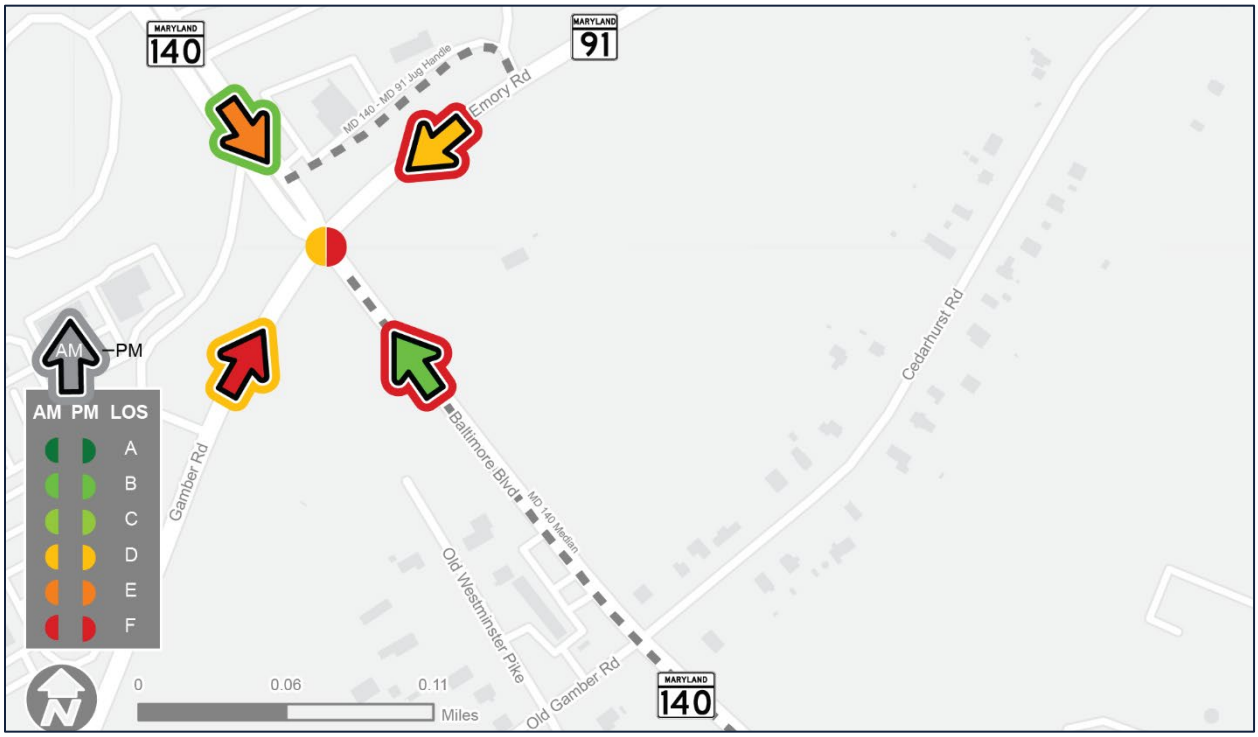
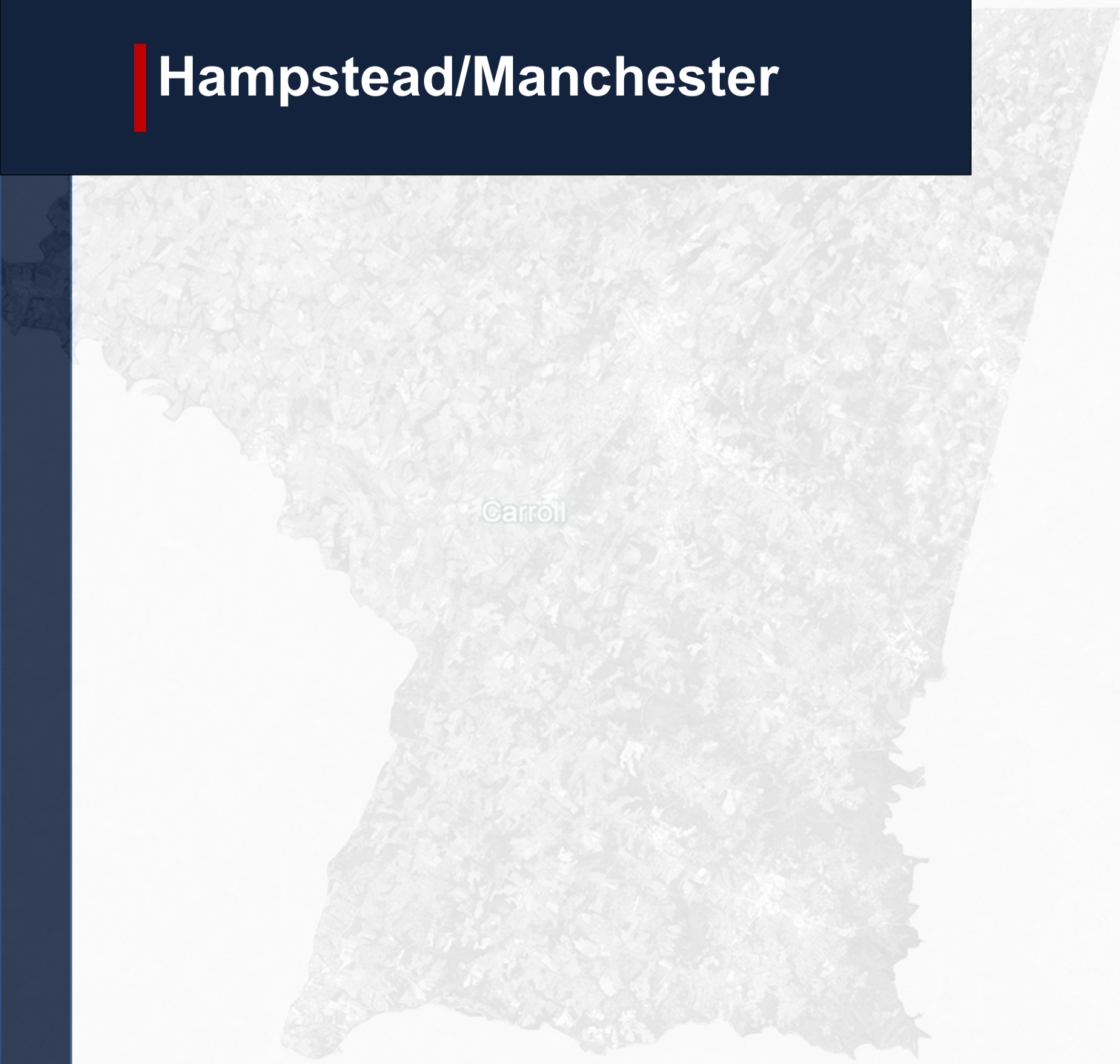


Figure 22. Finksburg 2040 Traffic Conditions with Most Promising Potential Improvements

Hampstead/Manchester



Road Network

Hampstead and Manchester are located in the northeastern corner of Carroll County. MD 30, 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. 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.

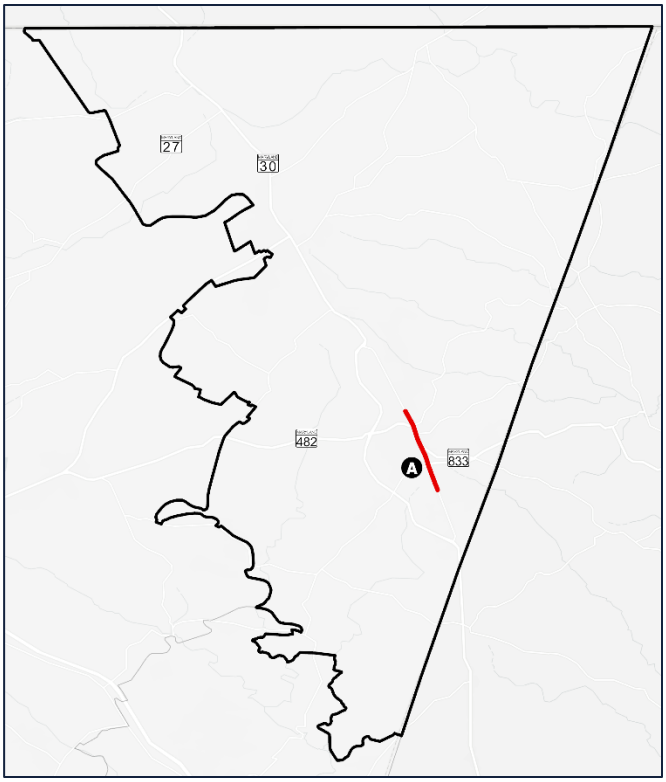


Table 6. Recent and Committed Projects in the Hampstead/Manchester Area

Location	Project	Status	Construction Cost
A	**MD 30 – Streetscape Improvements** to improve roadway, drainage, and streetscape from North Woods Trail to CSX Railroad (Hampstead Urban Reconstruction). Bicycle and pedestrian facilities will be provided (1.6 miles)	Completion Expected Fall 2020	$27,400,000 *Source: CTP*

Land Use and Demographics

The Hampstead/Manchester Subarea contains two DGAs, Manchester and Hampstead, between which most of the subarea's growth will be split (Table 6).

Much of the existing 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 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 7. Hampstead/Manchester Area Growth 2020-40

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

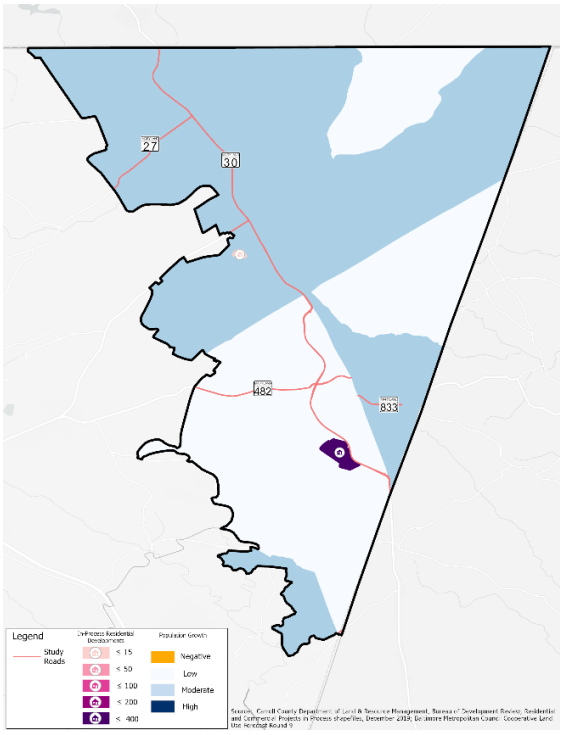


Figure 23. Hampstead/Manchester Area In-Process Residential Developments and Population Growth 2020-40

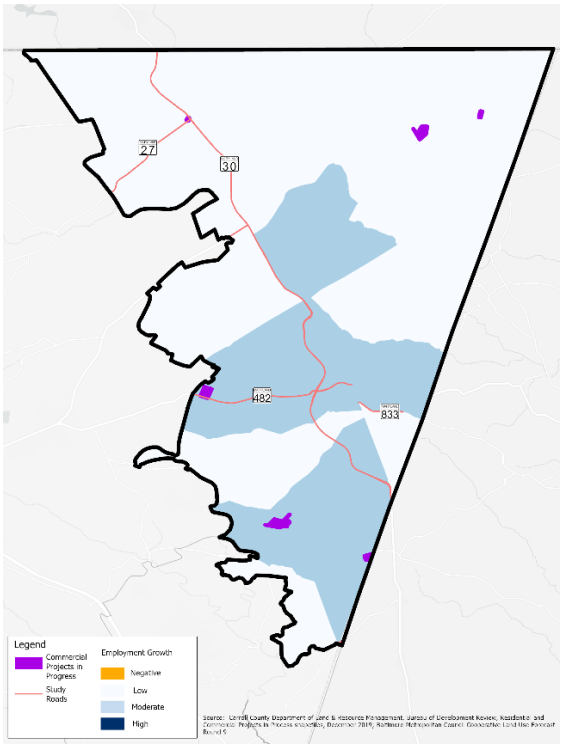


Figure 24. Hampstead/Manchester Area In-Process Commercial Developments and Employment Growth 2020-40

Commuter Flows

Most Hampstead/Manchester Subarea residents work within either Carroll County or Baltimore County. Baltimore County is an attractive employment option for these residents due to its market diversity and close proximity; Owings Mills, which is a major employment center, is only a 20-minute drive away. Within Carroll County, a majority of Hampstead/Manchester Subarea residents work in Westminster; the subarea itself is a close second. The Hampstead/Manchester subarea workforce largely originates within Carroll County, mainly from Hampstead and Westminster. Other sizeable commuter flows come from Baltimore County and Pennsylvania.

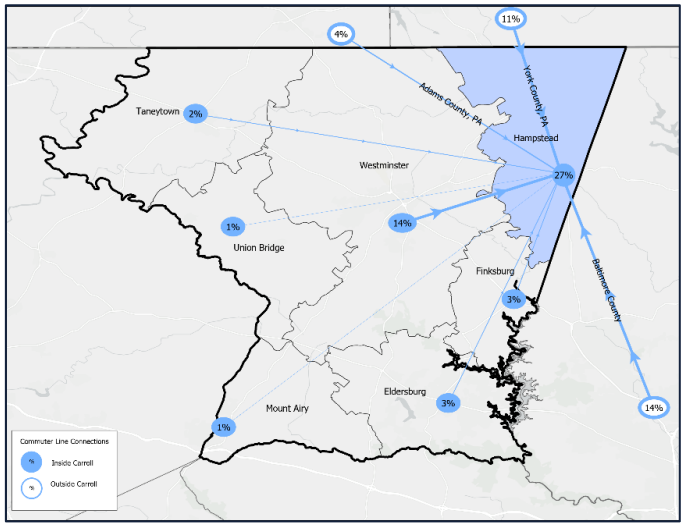


Figure 25. Commuting to Hampstead/Manchester

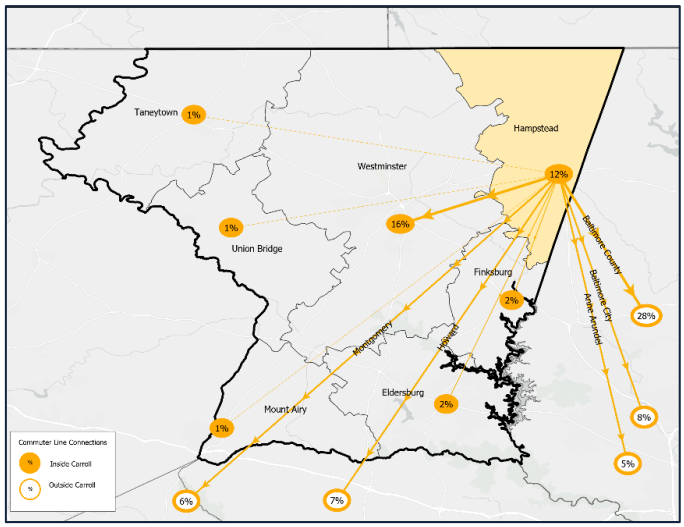


Figure 19. Commuting from Hampstead/Manchester

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 more than $50 million and largely mitigated congestion through downtown Hampstead, which is returning to its Main Street "feel" with an ongoing streetscape project expected to finish in Fall 2020.

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 the project is included in the County's Comprehensive Plan, the Manchester Bypass is not included in *BMC's Maximize 2045* 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 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—although no development has taken place that would appear to come in the way of the bypass.. 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 and only indirectly benefit Manchester residents.

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.

Traffic Conditions

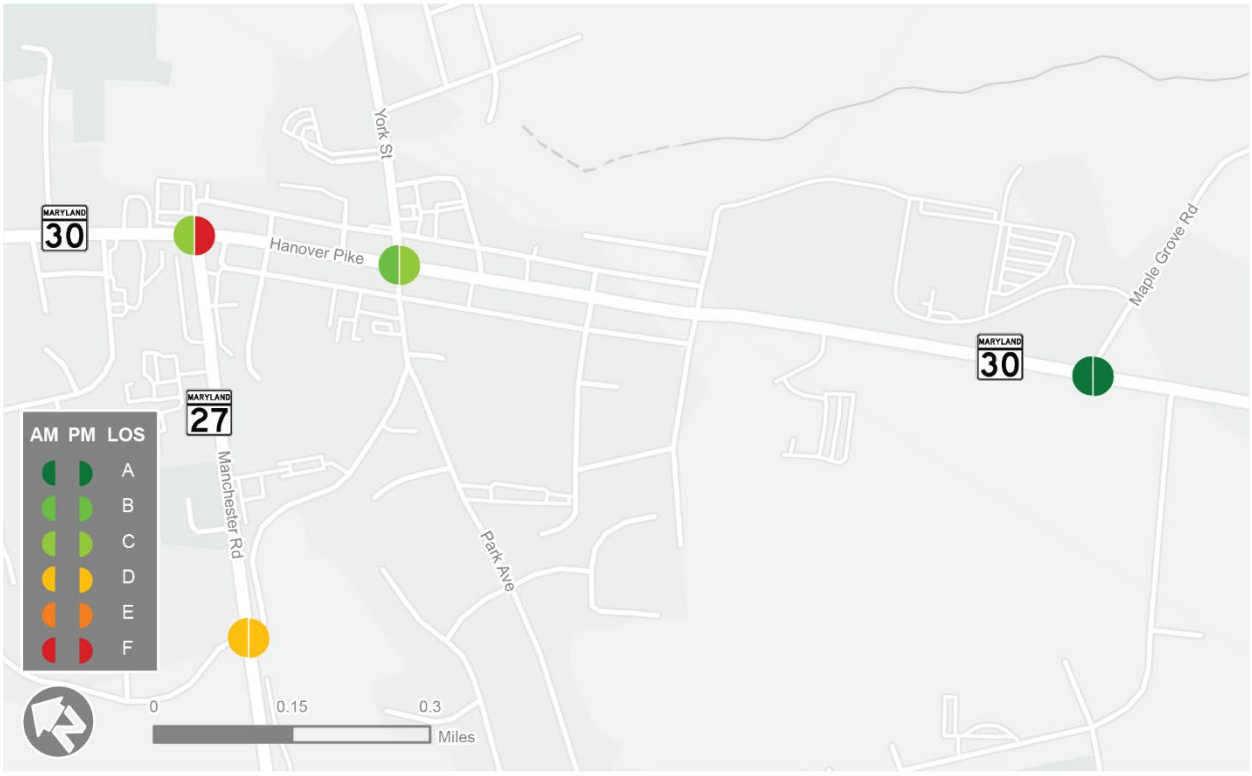


Figure 26. Manchester Existing Traffic Conditions

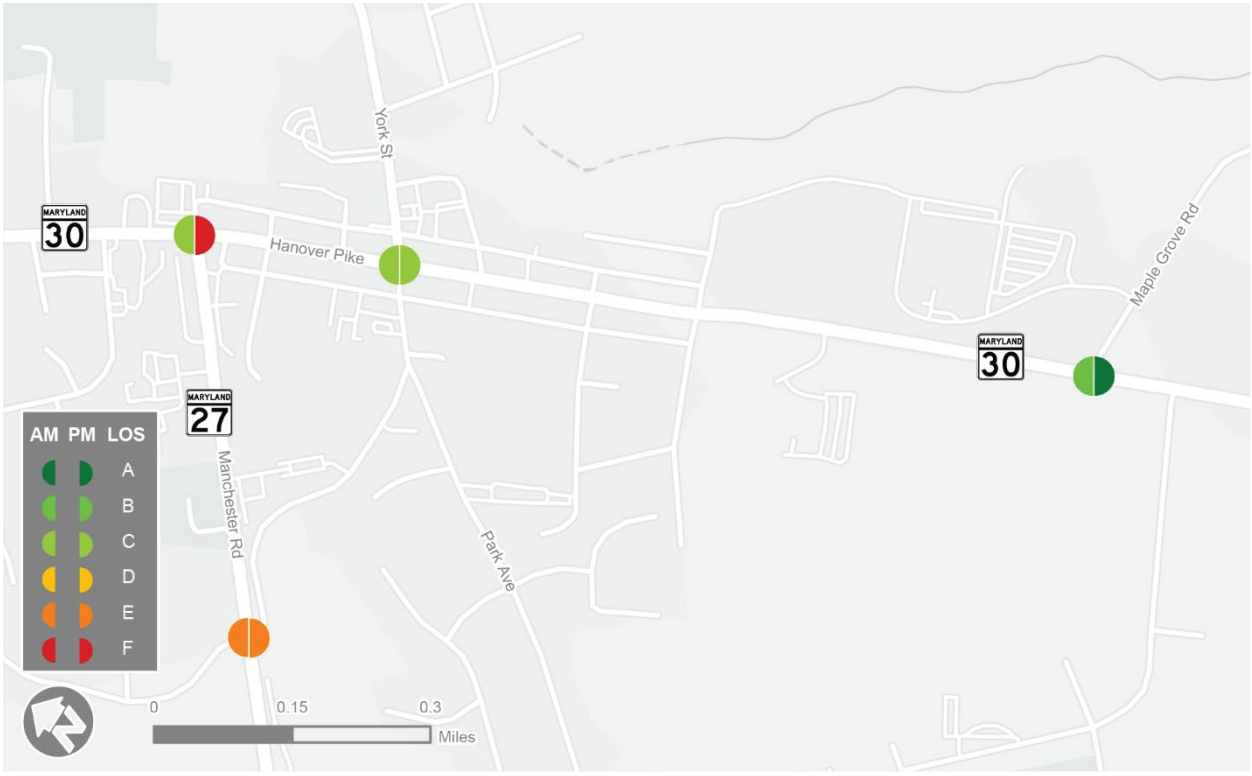


Figure 27. Manchester 2040 No-Build Traffic Conditions

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.

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 St/York St, and 7 seconds at Maple Grove Road, and average PM northbound delays were about 7 seconds at Maple Grove Road, 15 seconds at Westminster St/York St, and 12 seconds at MD 27. The MD 27 and Westminster St/York St intersections operate at LOS B in the peak hour direction, and Maple Grove Road intersection operates at LOS A in the peak hour direction.

In contrast, side street approaches at the MD 27 and Westminster St/York St experience significant delay. 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 southbound approach and 30 seconds of delay (LOS D) in the 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 194 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.

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 the 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.

Most Promising Potential Improvements

In the above context, the most promising potential improvements for the Hampstead/Manchester area are as follows (see Figure 22).

Number	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**	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 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/MD27 intersection.	N	N/A	N	N
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 MD 30 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

For explanation of this table, please see Page 11.

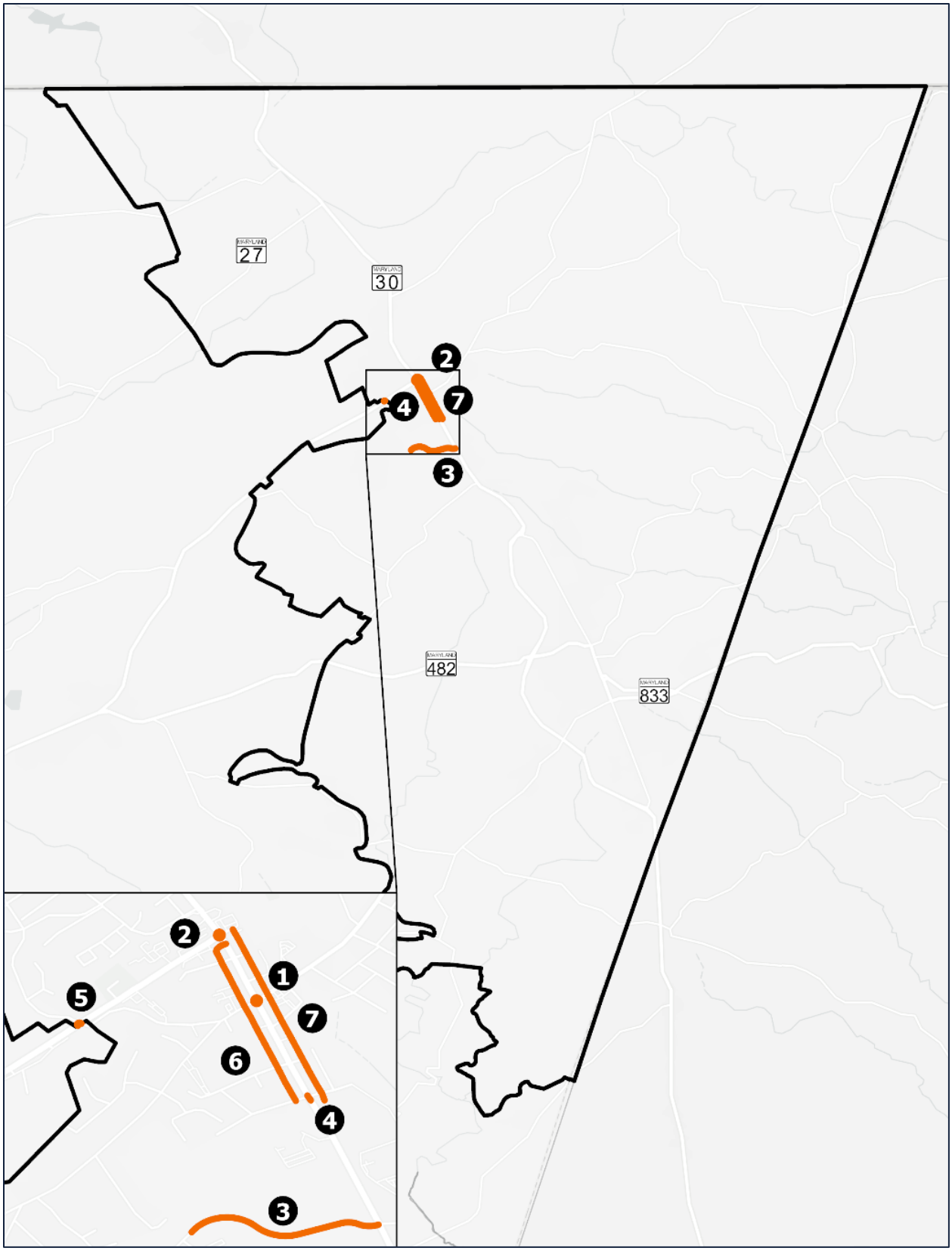


Figure 28. Most Promising Potential Improvements in the Hampstead/Manchester Area

Benefits & Impacts

Together, this analysis' proposals for Manchester will better connect the roadway network parallel to MD 30, reducing residents' need to travel through Main Street'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 travel between Manchester and Westminster.

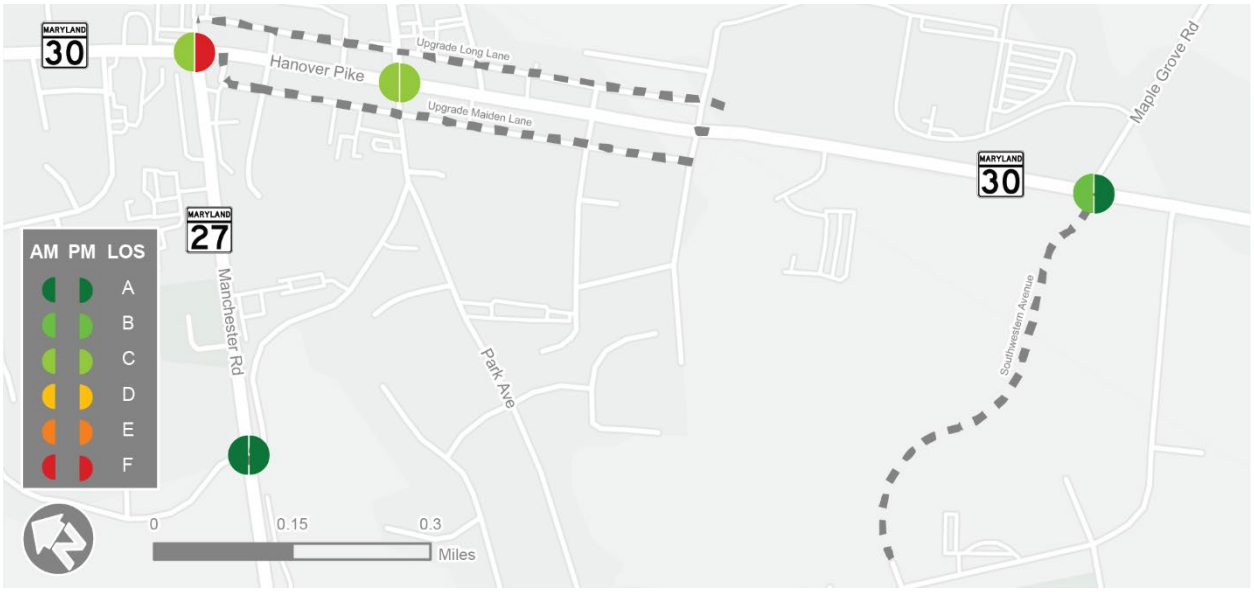


Figure 29. Manchester 2040 Traffic Conditions with Most Promising Potential Improvements

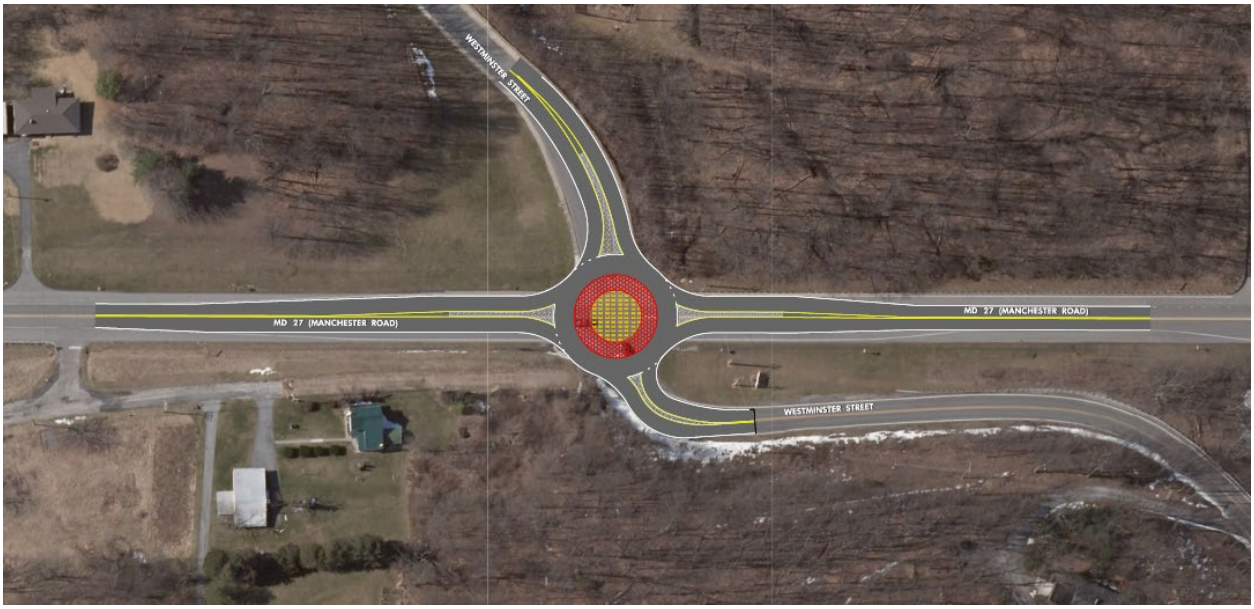


Figure 30. MD 27/Westminster Street Roundabout Concept

Mount Airy

Road Network

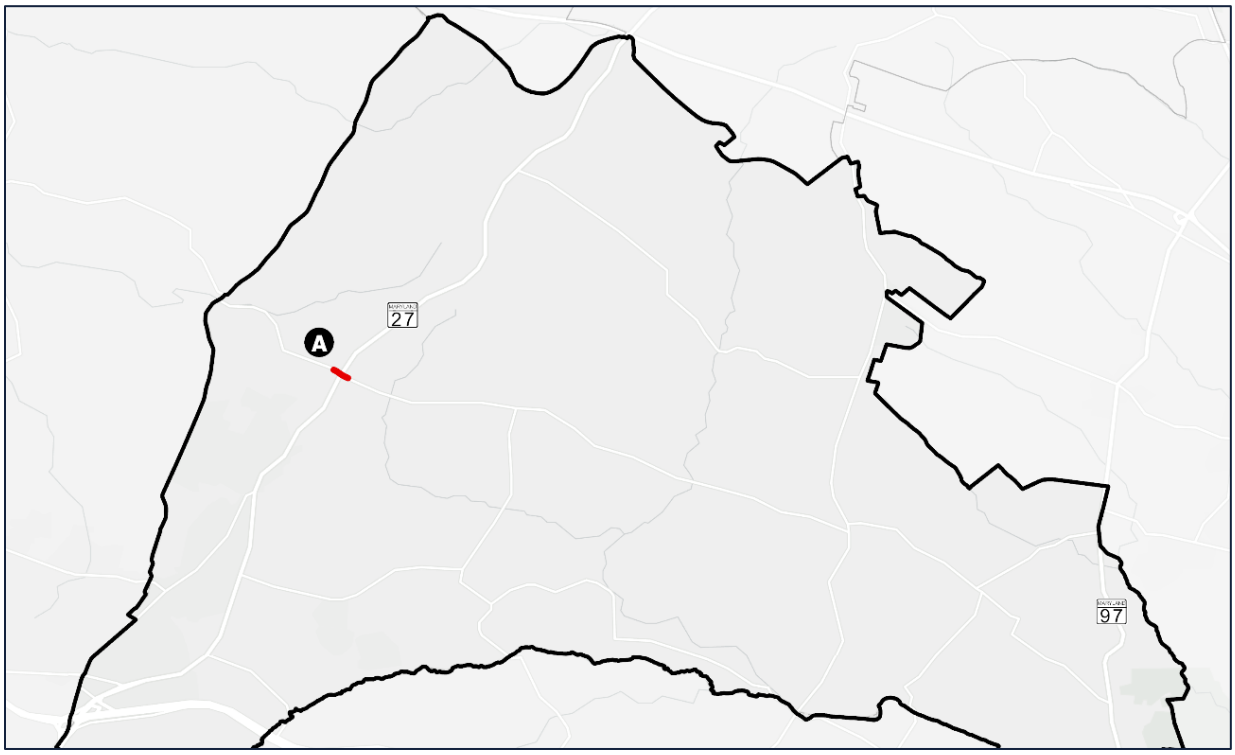


Table 8. Recent and Committed Projects in the Mount Airy Area

Location	Project	Status	Construction Cost
A	**MD 27 – Roadway Realignment** of MD 27 (Ridge Road) intersection, Gillis Falls Road and Harrisville Road	Expected Completion Summer 2020	$2,179,000 *Source: CTP*

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.

Land Use and Demographics

The Mount Airy subarea has the second highest projected growth rate of the seven subareas of Carroll County (Table 8).

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 Arches 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 9. Mou*nt Airy Area Growth 2020-40*

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

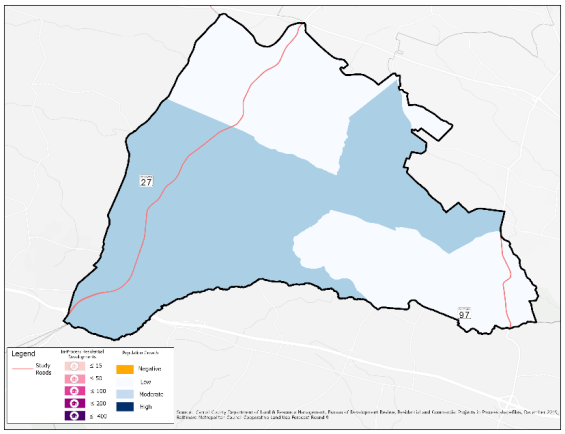


Figure 32. Mount Airy Area In-Process Residential Developments and Population Growth 2020-40

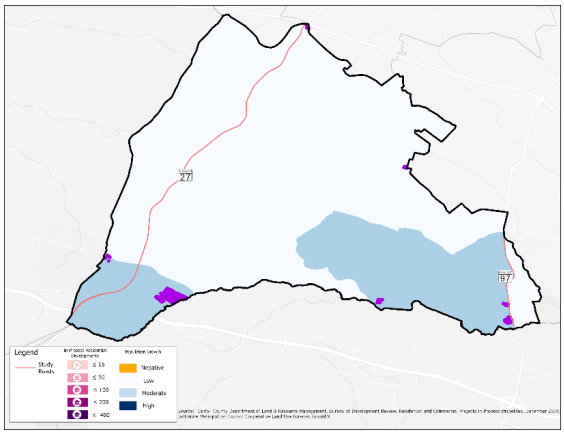


Figure 31. Mount Airy Area In-Process Commercial Developments and Employment Growth 2020-40

Commuter Flows

Mount Airy is located at the center of a four-county area and about an hour from both Baltimore City and Washington, D.C. Accordingly, its residents have access to both the Baltimore and Washington metro area job markets. There are notable commuter flows to Baltimore County, Baltimore City, Frederick County, Howard County, and Montgomery County. In fact, more Mount Airy residents work in these counties than in Carroll County. While Mount Airy workers come from all over the region, the most significant portion come from Frederick County, which shares part of the Mount Airy municipality with Carroll County.

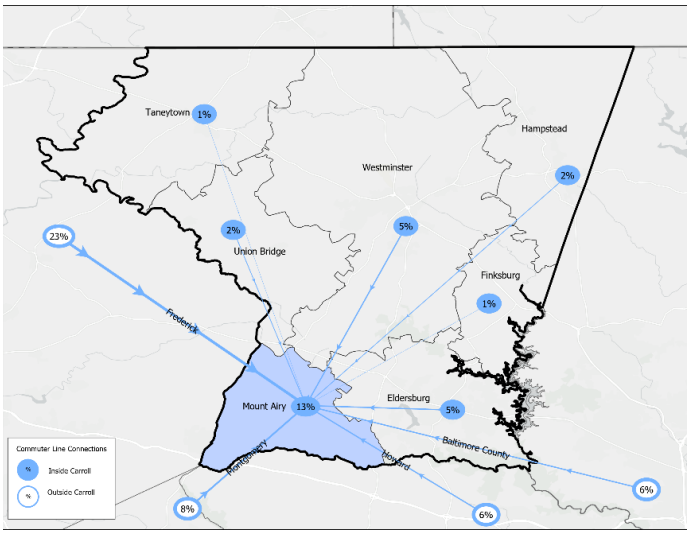


Figure 33. Commuting to Mount Airy

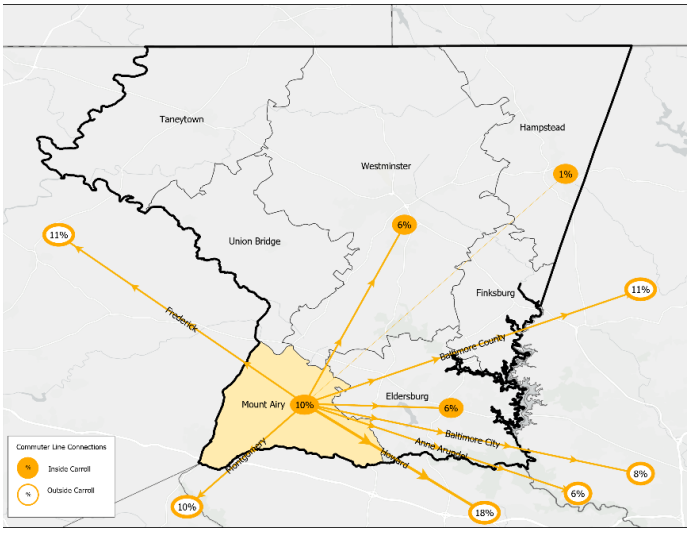


Figure 28. Commuting from Mount Airy

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 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 as shown in Figure 31, 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.

Traffic Conditions

Figure 34. Mount Airy Existing Traffic Conditions

Figure 35. Mount Airy 2040 No-Build Traffic Conditions

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 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.

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.

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. Ongoing improvements at MD 27 and Gillis Falls Road/Harrisville Road will 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.**

Most Promising Potential Improvements

In the above context, the most promising potential improvements for the Mount Airy area are as follows (see Figure 31).

Number	Description	Justification	Potential Impacts (Y/N)			
			Right of Way	Stream Xings	Wetlands	Floodplain
1	Restrict left turns from southbound **Ridgeside Drive onto South Main Street** **Cost: $100K or Less**	This will reduce delay for vehicles heading south on Ridgeside Drive and discourage use of MD 27 for short trips by making it take longer to get onto MD 27 from southbound Ridgeside Boulevard.	N	N/A	N	N
2	**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
3	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
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
2,4	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
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

For explanation of this table, please see Page 11.

Figure 36. Most Promising Potential Improvements in the Mount Airy Area

Benefits & Impacts

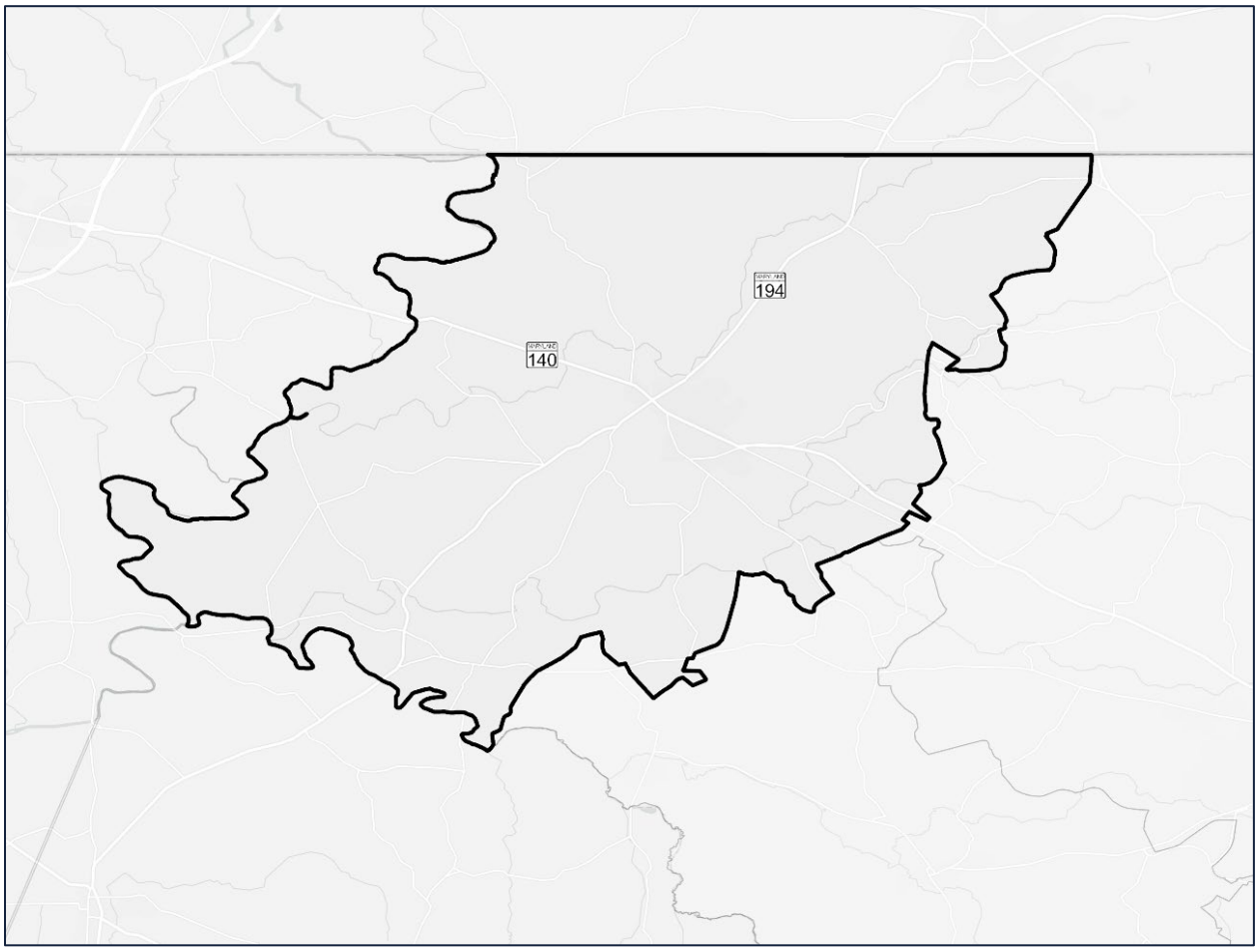
Within the immediate Mount Airy area, these improvements would improve local travel east and west of MD 27. The Century Drive extension will improve short-trip access east of Ridge Road, while the proposed roundabout and access changes would make for more reliable travel between businesses along Ridgeside 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.

Figure 37. Mount Airy 2040 Build Traffic Conditions with Most Promising Potential Improvements

Taneytown

Road Network



NOTE: MDOT SHA does not have any recent or committed projects in Taneytown

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 9). 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 10. Taneytown Area Growth 2020-40

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

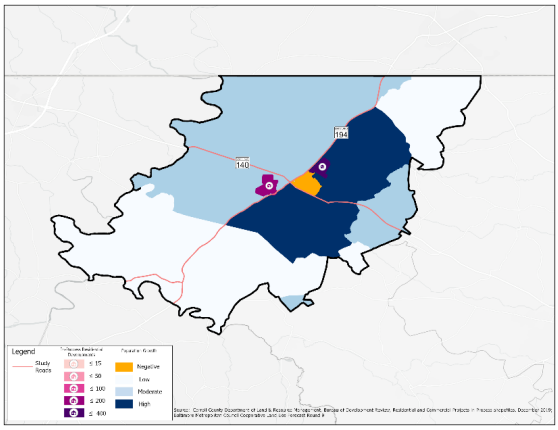


Figure 39. Taneytown Area In-Process Residential Developments and Population Growth 2020-40

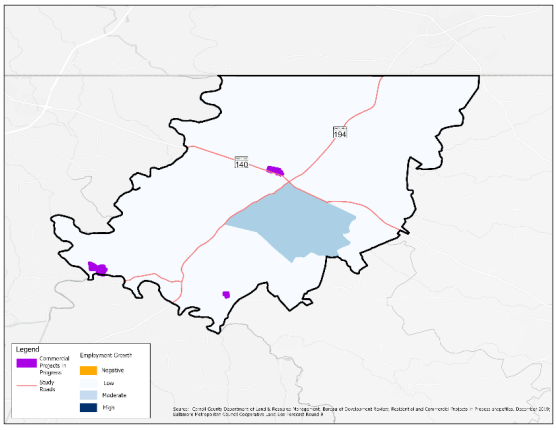


Figure 38. Taneytown Area In-Process Commercial Developments and Employment Growth 2020

Commuter Flows

Most Taneytown residents do not work in Taneytown. Westminster attracts the most Taneytown workers, and Carroll County is the most significant county of employment for residents. 12% of Taneytown residents also work in Baltimore County and another 12% work in Frederick County, the two largest out-of-county employment locations. Although a small share of them work in Taneytown, Taneytown residents make up the largest portion—nearly a quarter—of the area's workforce. Other significant sources are the remainder of Carroll County, Frederick County, and Adams County, Pennsylvania. In fact, nearly 30% of all Taneytown workers commute from north of the Mason-Dixon line.

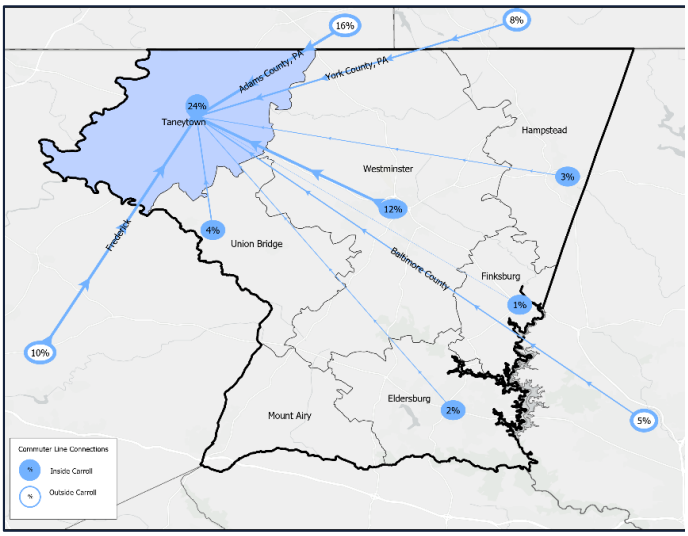


Figure 40. Commuting to Taneytown

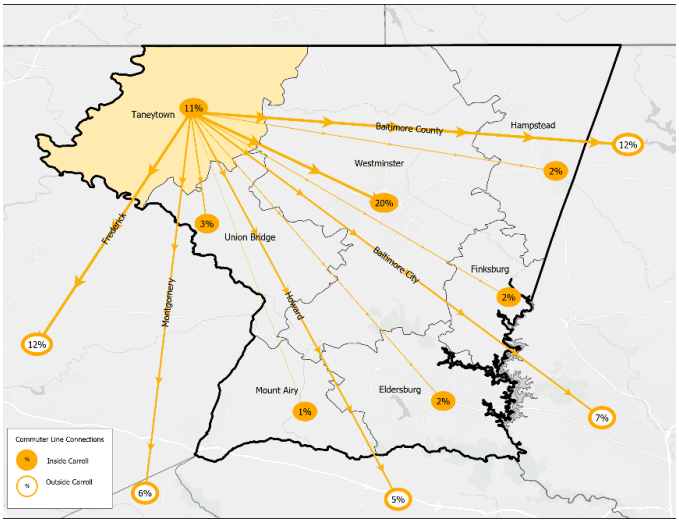


Figure 41. Commuting from Taneytown

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 yearsFinally, 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.

Traffic Conditions

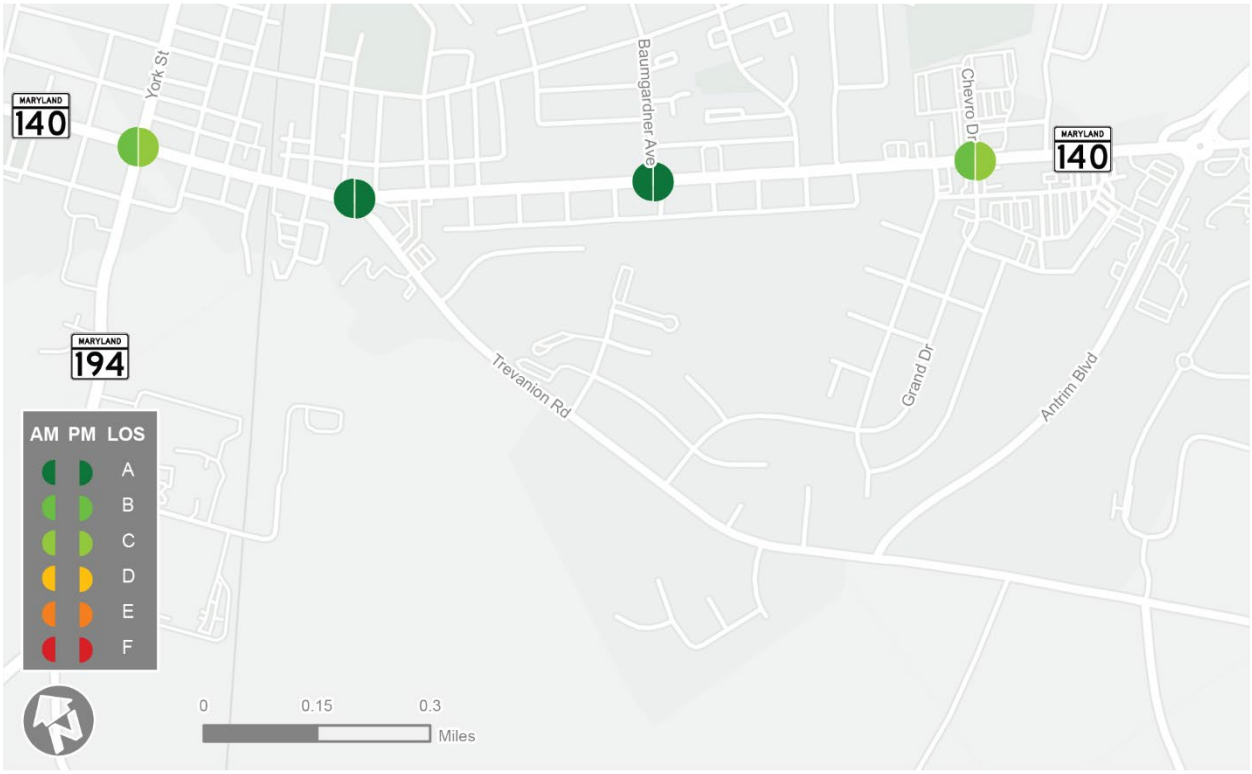


Figure 42. Taneytown Existing Traffic Conditions

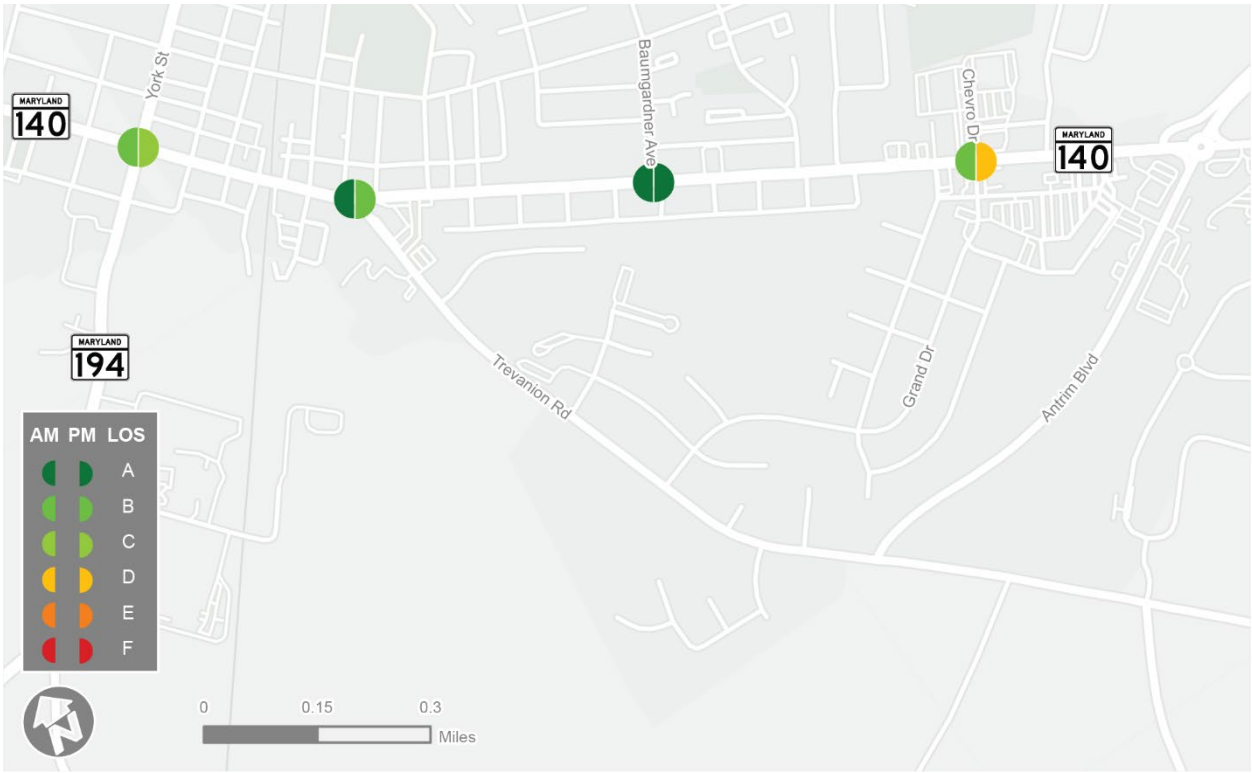


Figure 43. Taneytown 2040 No-Build Traffic Conditions

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 or B.

AM peak hour traffic speeds along Baltimore Street 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.

2040 Traffic Conditions with No Improvements

Over the next 20 years, the MD 140 at Grand Drive/Chevro Drive and MD 140 at MD 194 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.

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 both County and City of Taneytown comprehensive plans, 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.

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 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.

Most Promising Potential Improvements

In the above context, the most promising potential improvements for the Taneytown area are as follows (see Figure 39).

Number	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

For explanation of this table, please see Page 11.

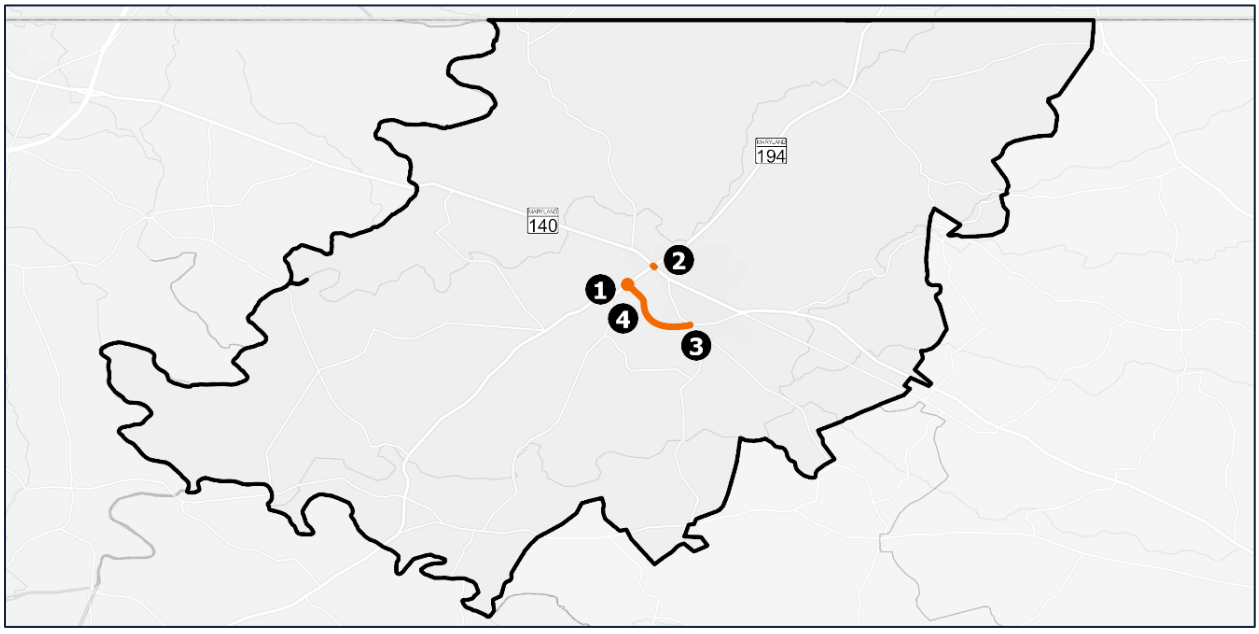


Figure 44. Most Promising Potential Improvements in the Taneytown Area

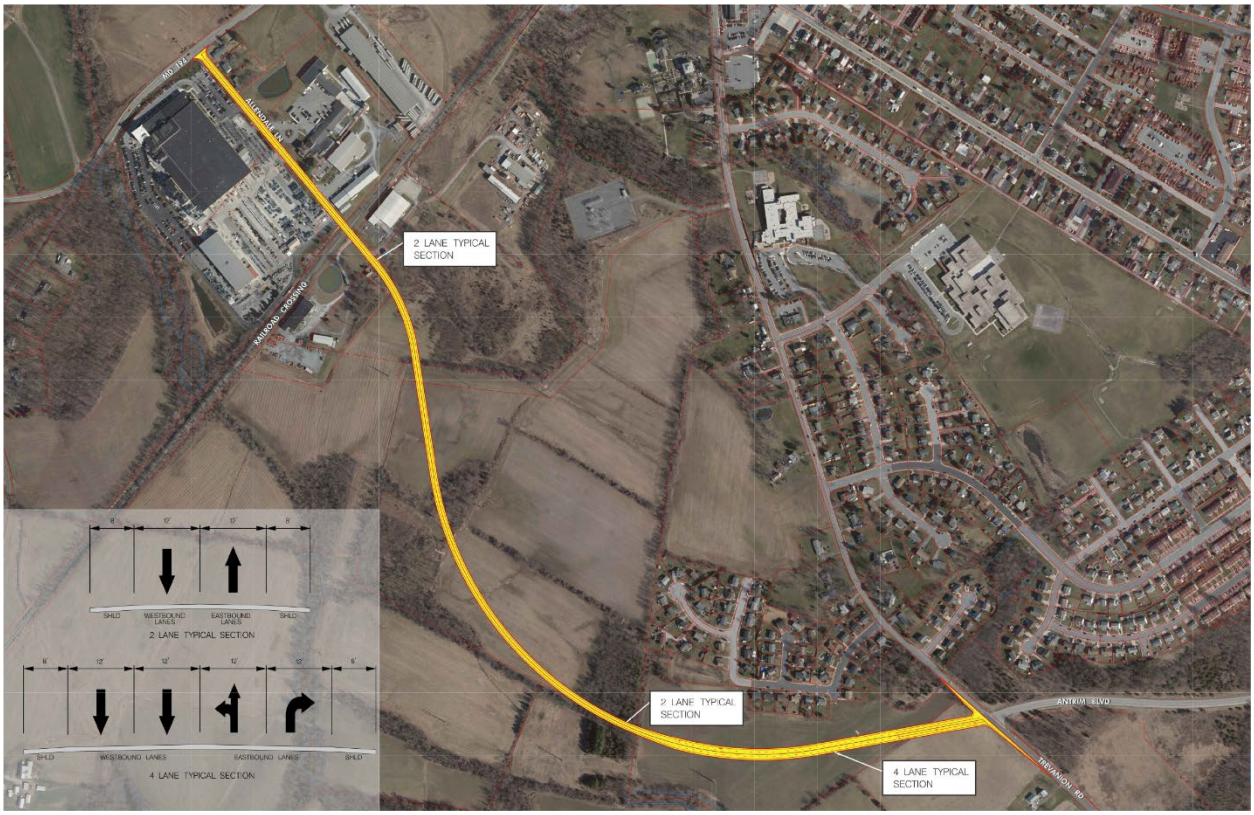


Figure 45. Antrim Boulevard/Allendale Lane Extension Concept

Benefits & 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.

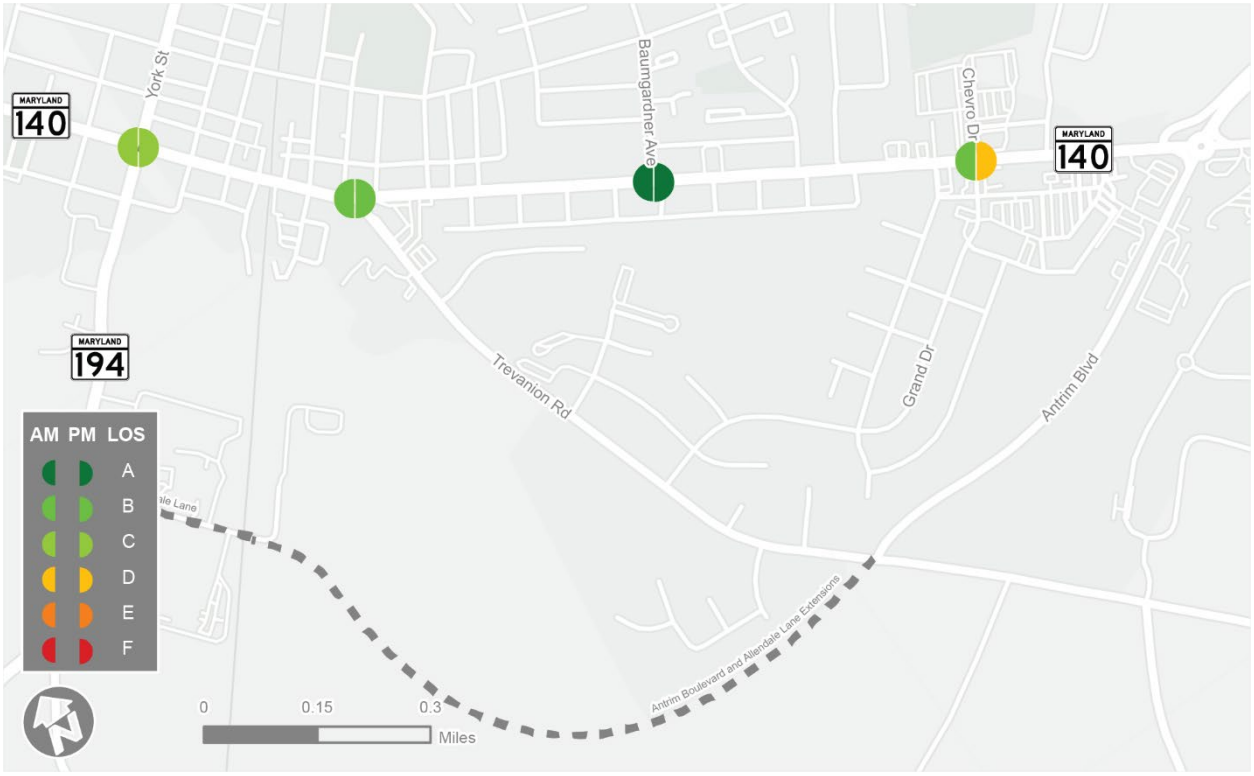


Figure 46. Taneytown 2040 Traffic Conditions with Most Promising Potential Improvements

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, Pennsylvania. Finally, MD 140 provides access southeast to Finksburg, Reisterstown, and the rest of the Baltimore metropolitan area and access northwest to Taneytown.

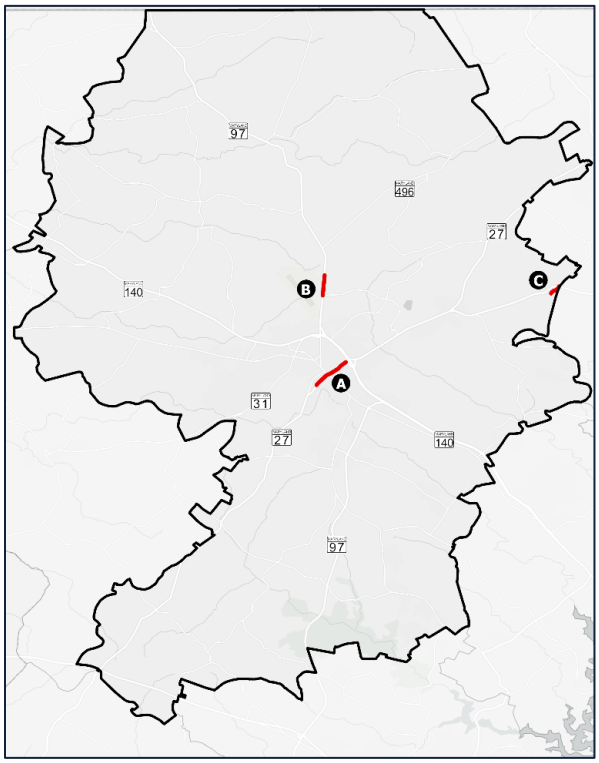


Table 11. Recent and Committed Projects in the Westminster Area

Location	Project	Status	Construction Cost
A	**MD 27 – Bicycle Retrofit** sidewalk enhancements along Railroad Avenue; Baltimore Boulevard 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 Fall 2020	$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 in downtown Westminster.

As shown in Table 11, the largest area of population growth is predicted in the northwest quadrant at the junction of MD 97 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 is also some employment growth expected at the terminus of MD 32, where an assisted living facility associated with Carroll Hospital is planned. 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, Tech Park.

Table 12. Westminster Area Growth 2020-40

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

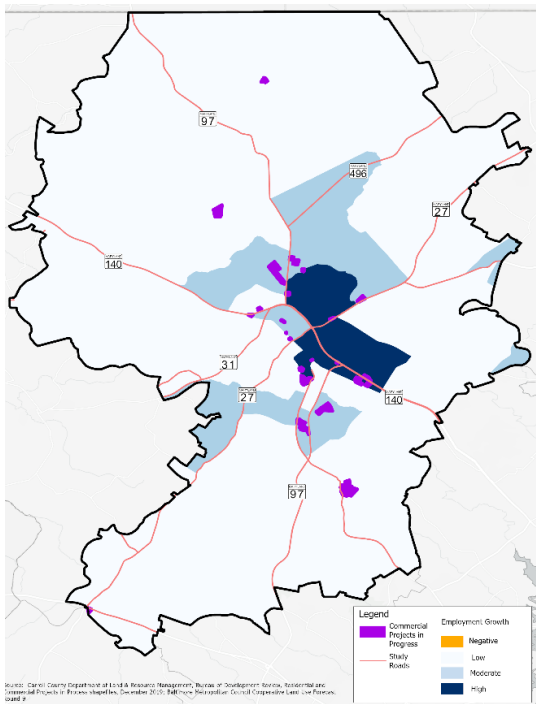


Figure 48. Westminster Area In-Process Residential Developments and Population Growth 2020-40

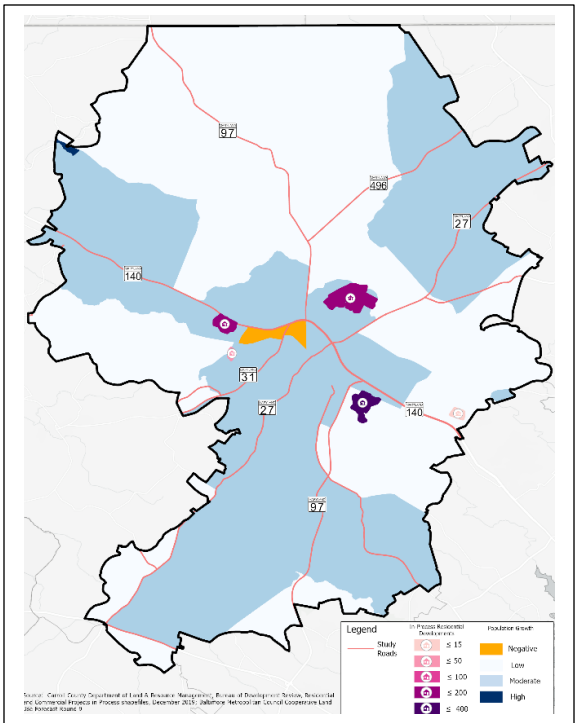


Figure 47. Westminster Area In-Process Commercial Developments and Employment Growth 2020-40

Commuter Flows

About 25% of Westminster residents work in Westminster and about 26% of Westminster workers are Westminster residents. Otherwise, residents work throughout the Baltimore and Washington regions with 14% working in the other Carroll County subareas and 19% working in Baltimore County. There is a sizable inbound worker flow to Westminster from Pennsylvania and Baltimore County.

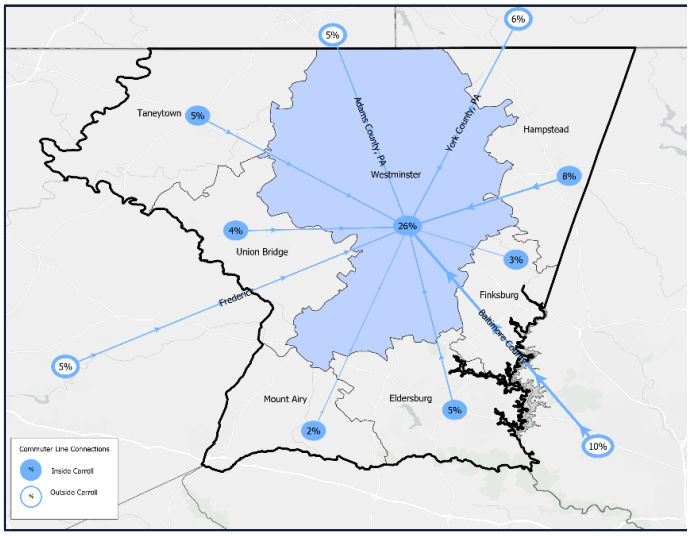


Figure 49. Commuting to Westminster

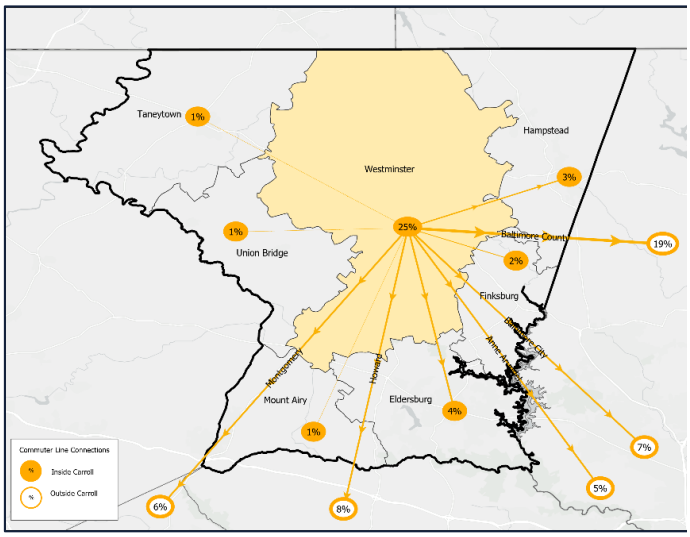


Figure 50. Commuting from Westminster

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 and 31 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 Route 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 east of Baltimore Boulevard while reducing demand on intersections along MD 140. The construction of 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.

As shown in Figure 46, 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 Bennet Cerf Drive.

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.

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. 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 and 31 towards Frederick) as well as its nearly 40,000 local jobs.

As shown in Figure 48, 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 Bennet Cerf Drive. The north end of this proposed network would intersect MD 97 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.

Traffic Conditions

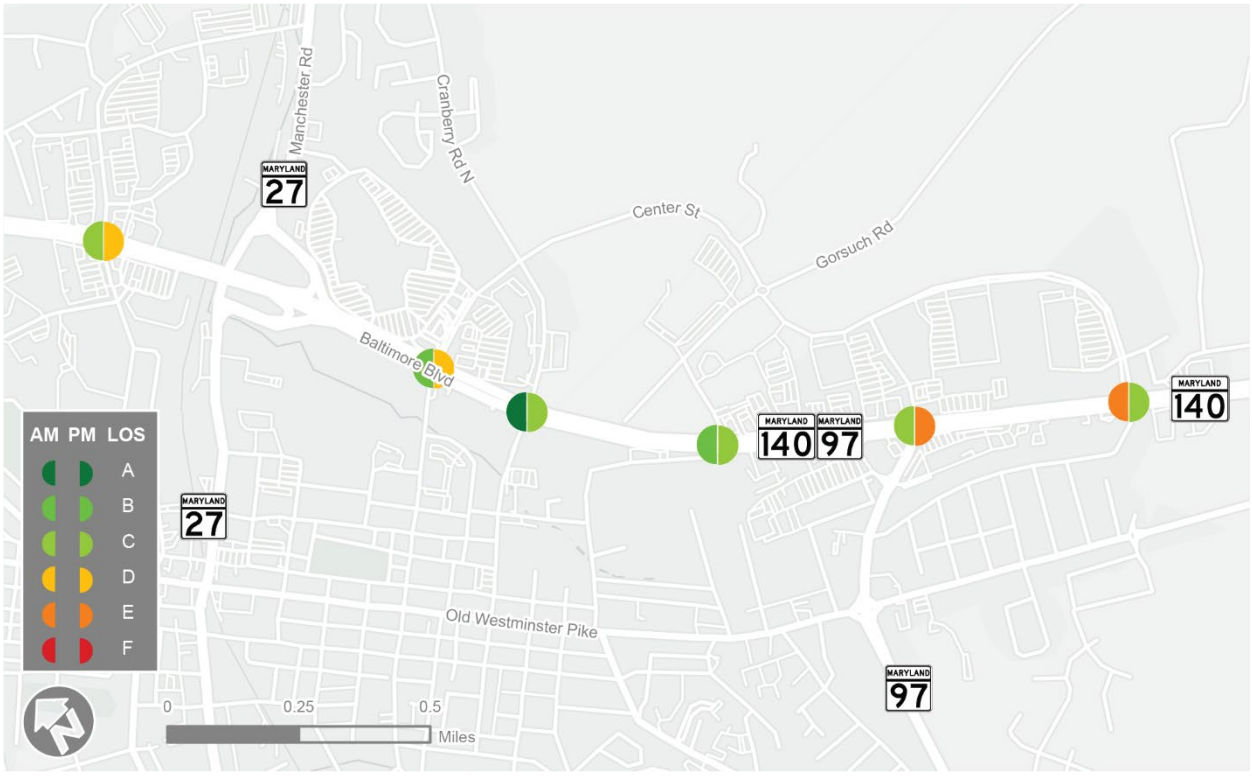


Figure 51. Westminster Existing Traffic Conditions

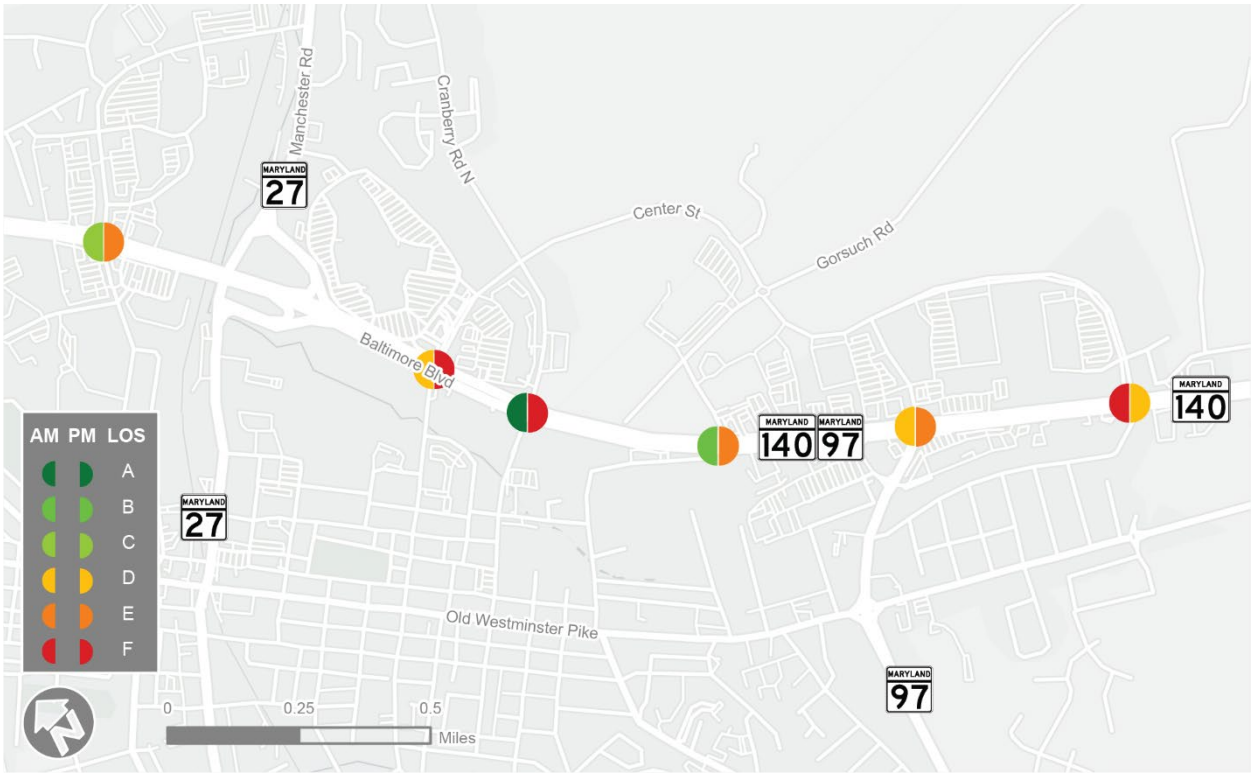


Figure 52. Westminster 2040 No-Build Traffic Conditions

Existing Traffic Conditions

Absent a bypass north of Westminster and a local road network connecting to MD 97 near the airport, MD 140 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 highest 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 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.

2040 Traffic Conditions with No Improvements

With anticipated growth and no improvements, traffic congestions 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 F with 98 seconds of delay—will more than double to 199 seconds.

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 through 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 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.

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.

Figure 53. Quadrant Roadways Approach to MD 140 in Westminster

Most Promising Potential Improvements

In the above context, the most promising potential improvements for the Westminster area are as follows (see Figure 50).

Number	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 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
3	Reconstruct the eastbound right-turn lane of MD 140 to southbound MD 97 to **include an acceleration lane along MD 97** southbound that will tie into the existing acceleration lane from the 140 Village Shopping Center exit **Cost: $250K to $500K**	This will allow movements from eastbound MD 140 onto southbound MD 97 to proceed without needing to merge into through traffic until they are south of the shopping center exit, reducing queuing impacts on eastbound MD 140 and decreasing friction for vehicles southbound on Malcolm Drive, and thus mitigating additional southbound delay introduced by the left turn prohibition.	Y	0	N	N

For explanation of this table, please see Page 11.

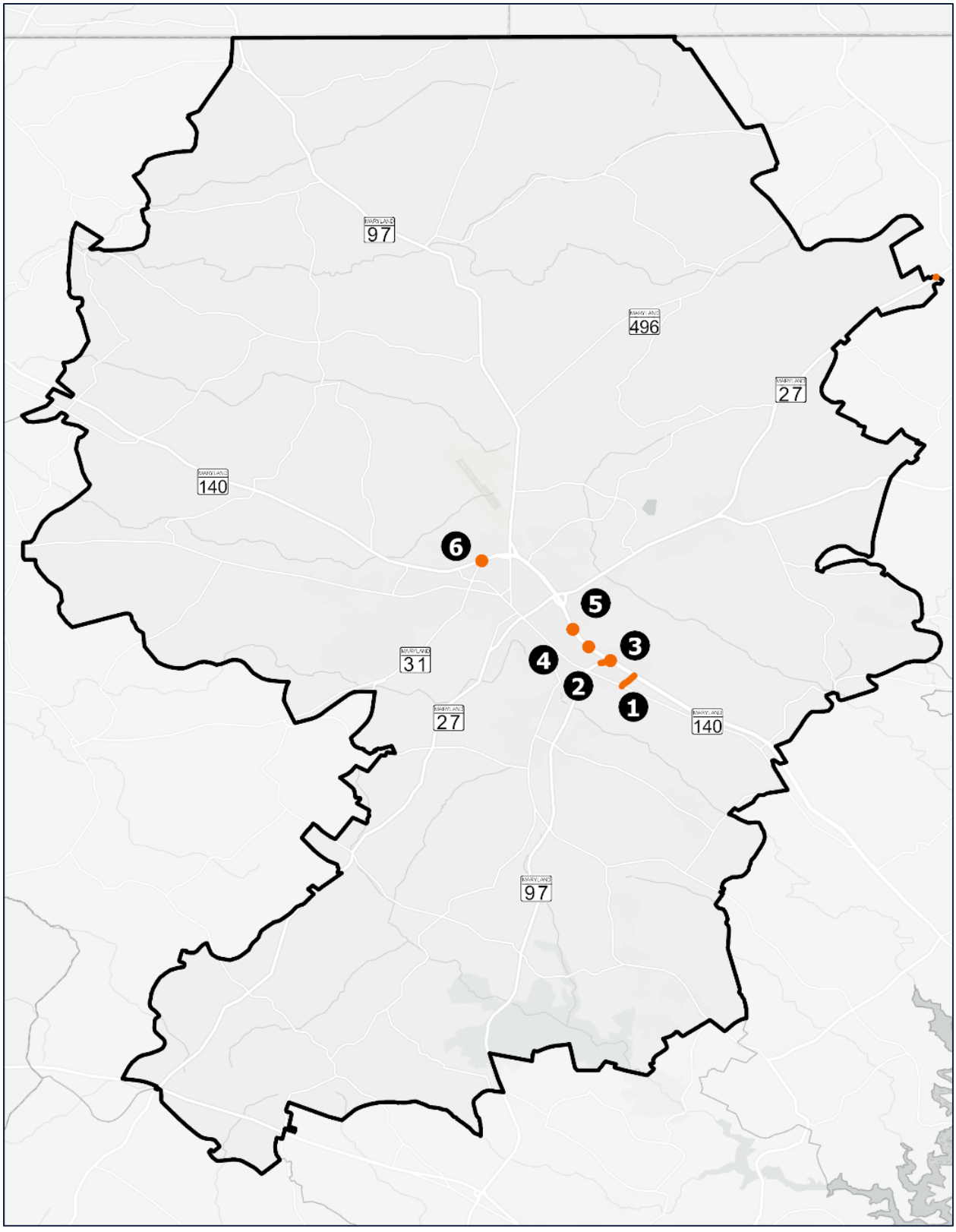


Figure 54. Most Promising Potential Improvements in the Westminster Area

Benefits & Impacts

Instituting left turn prohibitions at Market Street 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 today's 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 roads that intersect and parallel MD 140, potentially increasing the County'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.

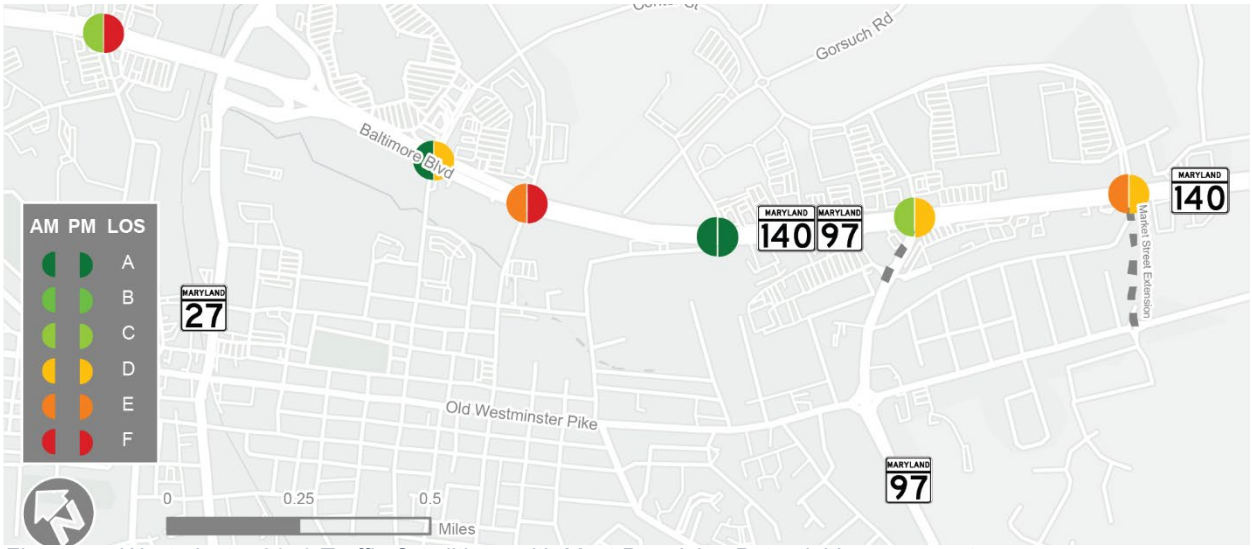


Figure 55. Westminster 2040 Traffic Conditions with Most Promising Potential Improvements

Part 3:
Additional Policy & Planning Recommendations

Part 3. 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 in 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.

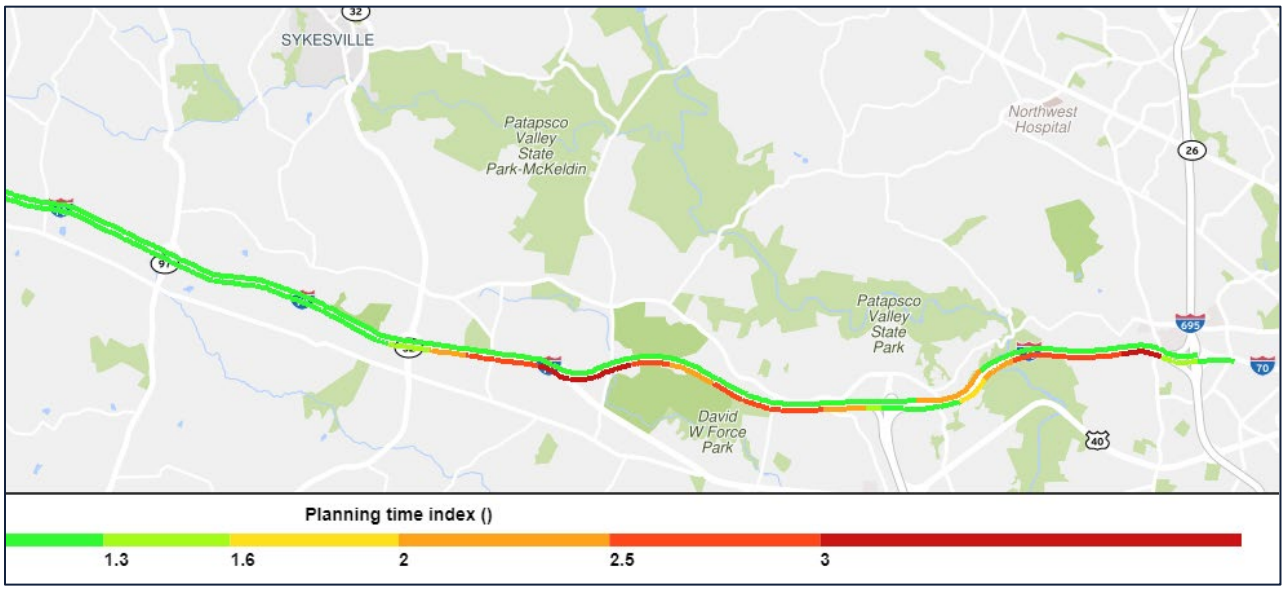


Figure 56. The AM Peak Hour Planning Time Index indicates significant congestion and delay on I-70 between MD 32 and I-695.

RECOMMENDATION:

As so many residents of Carroll County use I-70 for a significant portion of their journey to work, Carroll County should continue to monitor and advocate for MDOT SHA's I-70 TSMO plans.

Commuter Bus Service

Carroll County is not naturally suited for most transit services. Population and employment density do not support significant local bus operations, although limited service is available within the county on the Carroll Transit System's *Trailblazer* and demand response system. There is a case to be made for fixed route *commuter bus* service which provides peak-hour service from park-and-ride lots to major employment centers like Washington, DC and its suburbs like Silver Spring and Rockville. Nearly 7,000 residents of Carroll County commute to these locations (including the Northern Virginia suburbs) and likely commute more than an hour in each direction each day.

Calvert County, which has a similar demographic and travel profile to Carroll County, provides an instructive lesson on the success of commuter bus service. Each day, Calvert County residents make more than 2,300 daily trips to Washington, DC on commuter buses provided by MDOT MTA. By one estimate, nearly 40% of all daily commuter trips to Washington, DC from Calvert County are made by commuter bus. While commuter bus service may not "solve congestion" it does provide drivers with a practical and reliable alternative to driving alone.

As Carroll County's eight MDOT SHA-owned park-and-ride lots are well below capacity, there is ample space to test subscription-based commuter bus service without building new infrastructure. The most promising potential routes appear to be from Westminster/Mt. Airy to Shady Grove and Rockville Metro Stations and Eldersburg/Sykesville to Bethesda or Silver Spring Metro Stations.

Another potential partner in providing commuter bus service for residents of Carroll County is *Rabbit Transit*, the transit service agency of York County, Pennsylvania. *Rabbit Transit* currently runs six daily express bus trips between park-and-ride lots in southern York County and the Hunt Valley and Timonium Light Rail Stations in Baltimore County along I-83. A similar service can also be envisioned in the MD 30 corridor with service from the Hanover area to the Owings Mills Metro Station.

RECOMMENDATION:
Carroll County should request that the Baltimore Metropolitan Council and/or MDOT MTA prepare a feasibility study for subscription-based commuter bus service from the county to major employment centers in the Washington, DC suburbs and from York/Adams Counties to Baltimore.

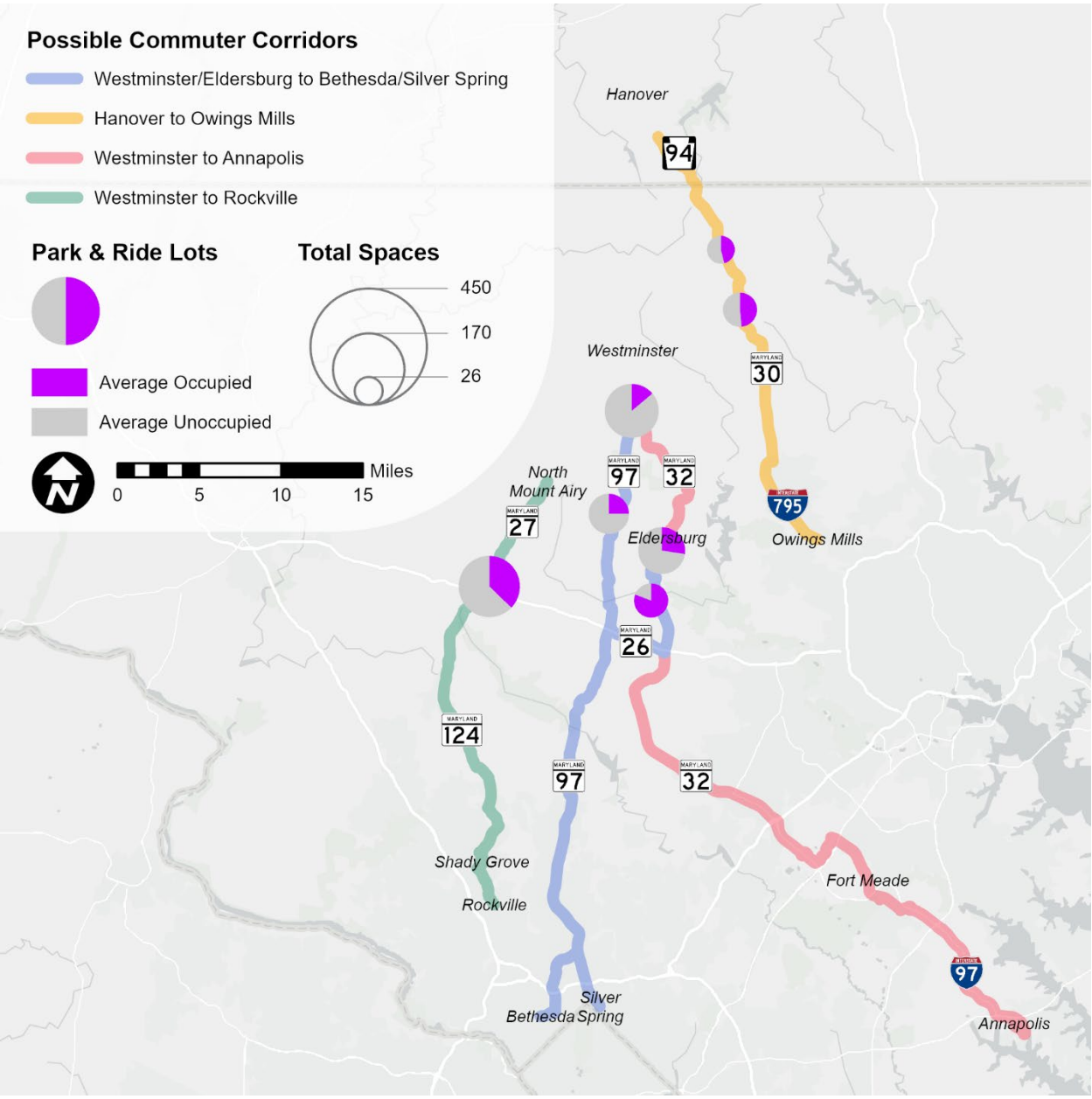


Figure 57. Park & Ride Lots and Possible Commuter Bus Corridors

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.[2] 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.[3] As part of the capital improvement planning process, governments then allocate accumulated impact fees to support specific projects in reasonably proximity.

RECOMMENDATION:

As indicated in the 2014 Carroll County Master Plan (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 county should study the efficacy of traffic impact fees as a means to address the long list of transportation capacity and connectivity improvements needed to maintain a high quality of life.

[2] Carroll County Code, § 155.059(B)(7)

[3] http://dls.maryland.gov/pubs/prod/InterGovMatters/LocFinTaxRte/Overview-of-Maryland-Local-Governments-2018.pdf#page=73

Access Management

In the late 2000's MDOT SHA identified roadway corridors in Carroll County that could benefit from corridor-wide access management concepts. MDOT SHA conducted planning level access management studies on MD 26 (Liberty Road) in Carroll County from Frederick County line to MD 32 and MD 140 (Baltimore Boulevard) from Leidy Road to I-795 in Baltimore County. While these plans 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 access management approach.

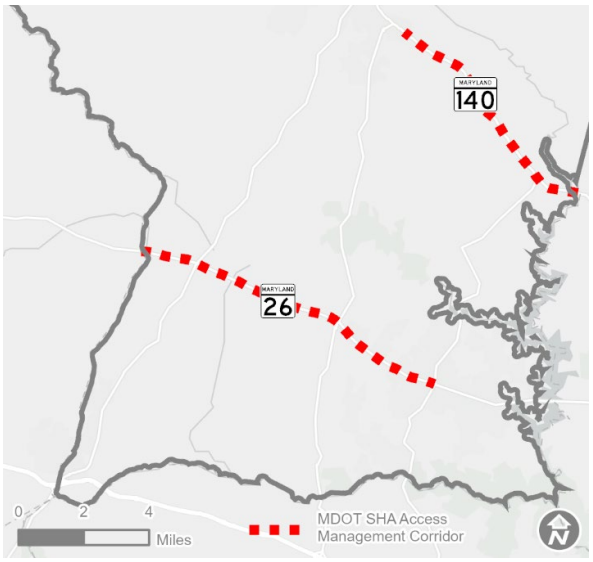


Figure 58. MDOT SHA Access Management Corridors in Carroll County

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 access management plan that has been agreed to by the Administration and the municipal corporation; or
- The Administration pays just compensation to the property owner as part of the exercise of eminent domain powers.[4]

Staff from Carroll County agencies and from MDOT SHA District 7 indicate that while the development review process with respect to access management is cordial and 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.

RECOMMENDATION:
The County should request that MDOT SHA reconvene corridor-level access management planning processes and follow through with such plans to achieve adoption by the respective municipalities.

[4] Transportation Article §8–625, Annotated Code of Maryland.

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.

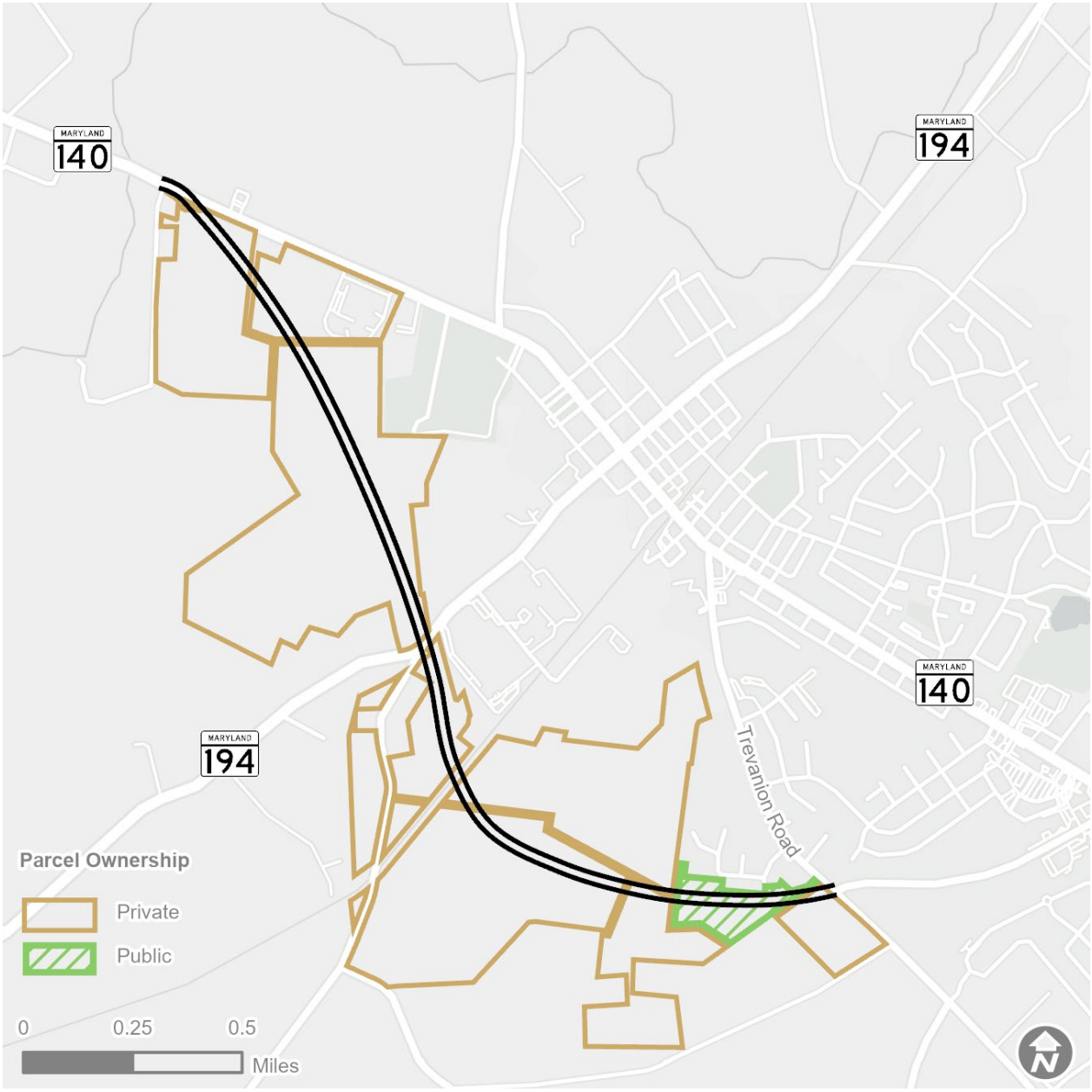


Figure 59: Current Parcel Ownership Status of Planned Antrim Boulevard

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.

RECOMMENDATION:

The County and municipalities should work together to develop a right-of-way preservation strategy for potential road improvements with priority given to those areas where development is most likely to occur over the next decade.

Carroll County Transportation Corridor & Subarea Analysis