



Zoning Map Amendment

Staff Report

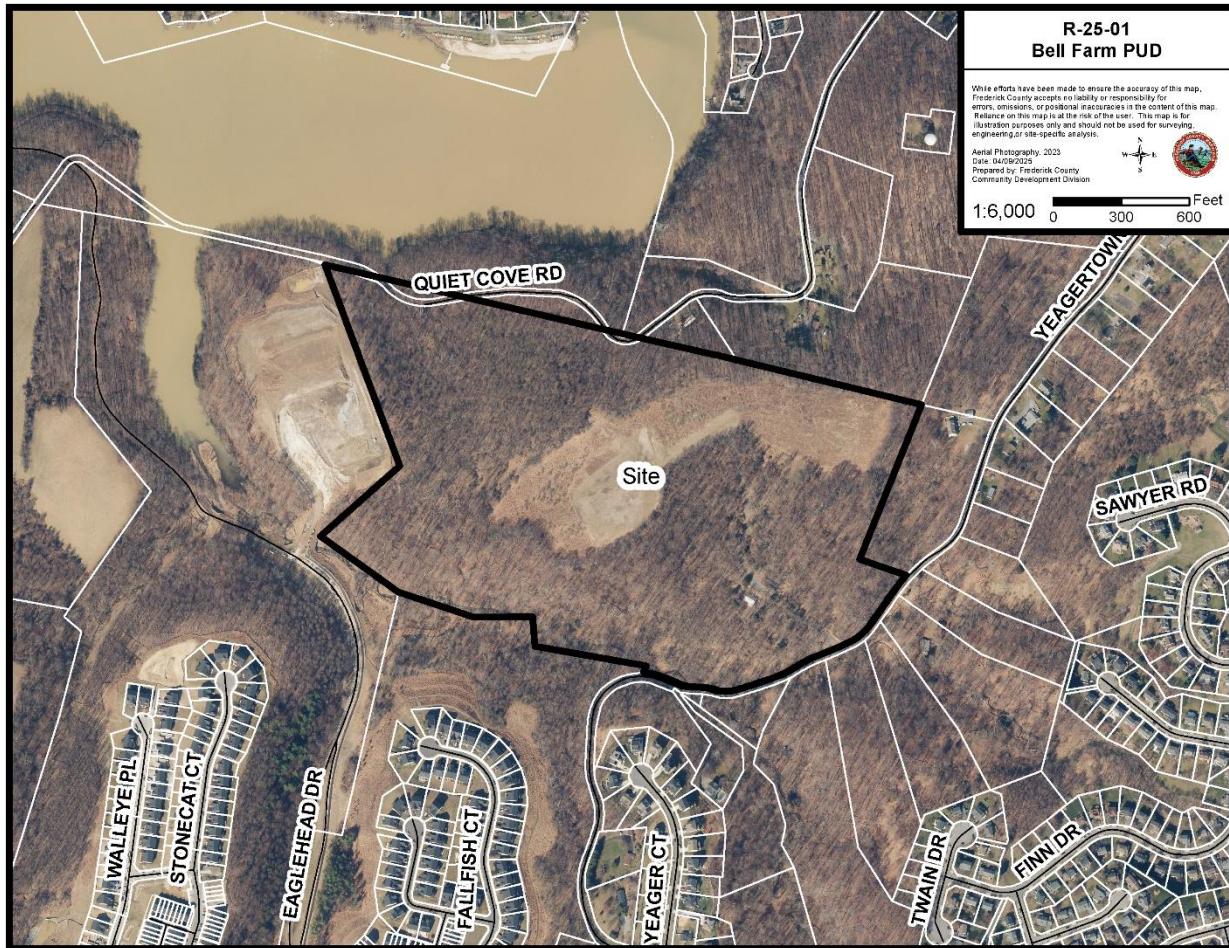
Case #: R-25-01

Applicant: 6218 Yeagertown Road LLC (Bell Farm PUD)

Request: Rezone 75.493-acre Site by Amending an Existing Phase I
Planned Unit Development (PUD)

Applicant's Proposal

Site of Rezoning Request

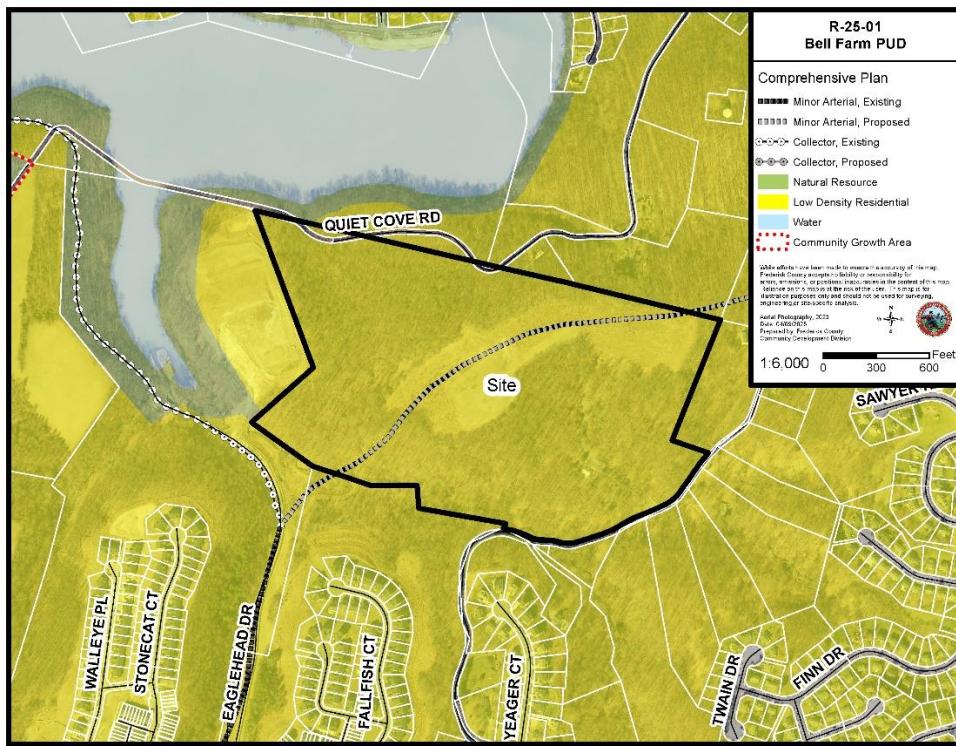


The Applicant proposes to develop an age-restricted community on the 75.493-acre Site known as Bell Farm (aka Resco Property) consisting of 248 Single-Family Attached (Townhouse) dwelling units at a gross density of 3.29 dwellings per acre, a community club, recreational amenities, active and passive open space areas, and new street connections to Golden Shiner Street on the east and Yeagertown Road on the west.

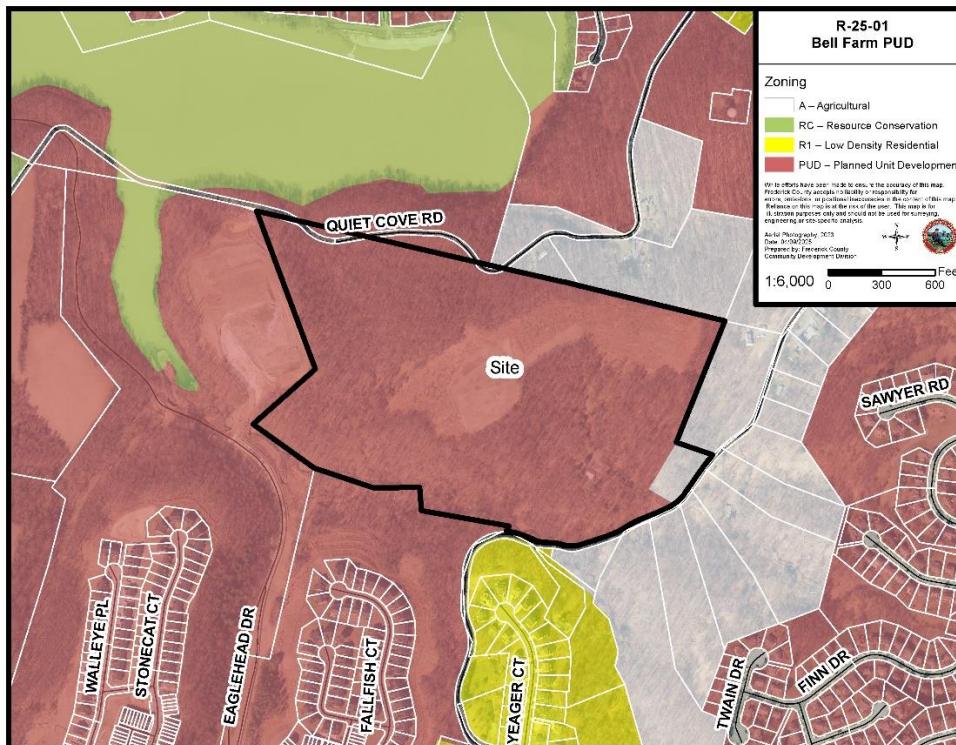
The Site consists of a single, vacant parcel at 6218 Yeagertown Road, located near Lake Linganore and within the Linganore Community Growth Area.

Nearly the entirety of the parcel has been zoned Planned Unit Development (PUD) since at least 1973, appearing on an official County Zoning Map adopted on January 24, 1977. The original approved residential density permitted up to 248 dwelling units, which remains unchanged in this proposal. A small 1.72-acre portion of the parcel located along Yeagertown Road is zoned Agricultural (A). The Applicant is seeking to amend the original PUD to allow for the development of this parcel as an age-restricted community, and to rezone the outlying 1.72 acres to PUD.

Comprehensive Plan Map



Existing Zoning Map



Application At-A-Glance

What:

- Requesting a *rezoning* (a change to an existing zoning map) of a 75.493-acre vacant Site located within the area identified as the Lake Linganore PUD.
- Seeking to amend the existing Planned Unit Development (PUD) to allow the approved 248-dwelling unit neighborhood to develop as an age-restricted community for residents 55 years & older.
- The Applicant also seeks to rezone a small (1.72-acre) portion of the parcel that remains zoned Agricultural (A) to Planned Unit Development (PUD).

Where:

- The Site is located in the Linganore Community Growth Area on the north side of Yeagertown Road, south of Quiet Cove Road, and less than 200 feet from Lake Linganore.

Why:

- The Applicant plans to develop an age-restricted neighborhood of 248 townhouses, also known as *single-family attached* homes, as well as a community club amenity on the Site.

How:

- The Zoning Ordinance allows an applicant to request the rezoning of a property under limited circumstances, including the application of floating zones, such as the Planned Unit Development (PUD) or Mixed Use Development (MXD) designations. An Applicant may also request to amend a previously-approved rezoning. Procedurally, an *amendment* to a Planned Development District is identical to a newly-initiated rezoning.
- An applicant seeking the rezoning of a site must first conduct an advertised community meeting. The Applicant conducted its required community meeting for this proposal on June 24, 2024 at the New Market Grange. Frederick County staff attended this meeting.
- A rezoning application is subject to a two-step review process:
 - (1) *Planning Commission* conducts a public hearing to consider the application and accept public input, after which the Commission submits its recommendation to the County Council. The Planning Commission may suggest that certain conditions be placed on any approval of the Application.
 - (2) *County Council* holds its own public hearing to consider the application and accept public input, after which it decides whether or not to amend the zoning map. The Council may place conditions on the Project if it decides to approve the rezoning request.
- The County is not required to approve a request for rezoning, or an amendment to a previously-approved rezoning application.
- If the application for an amended PUD is approved, the Project may proceed but will still have to complete the normal review and approval processes required of this type of development, including Subdivision Plan and Site Development Plan reviews by the Planning Commission. The Project will also be subject to other regulations such as the Adequate Public Facilities Ordinance that considers the capacity of schools, roads, and water/sewer service.

Proposed Land Use Mix

Proposed Land Uses	Acres	Percentage (of gross land area)	Notes
Residential (Single Family Attached)	36.47	49%	248 townhouses at gross density of (3.29 DU/ac); permitted range of 3-6 DUs/ac
Open Space/Green Area	23.72	31%	30% minimum (22.64 acres)
Road right-of-way/Parking/SWM/Amenities	15.30	20%	
TOTAL		75.49 acres	

Proposed Concept Plan and Land Use Mix

This Application for an amendment to the approved Phase I Bell Farm PUD proposes the development of 248 market rate, single-family attached homes – ‘villa-style’ townhouses – on the 75+ acre Site utilizing the allowance for age-restricted development regulated through § 1-19-10.500.10(B. & C.), *Specific Development Standards Within the Planned Development Districts*.

As demonstrated in the table above, titled *Proposed Land Use Mix*, the individual home lots will occupy approximately one half of the Site. Open Space/Green Area is proposed for 31% of the Site, while the remainder will be used to accommodate local streets/sidewalks and rights-of-way, parking areas, recreational amenities, and stormwater management infrastructure.

The conceptual layout of the Site shown on the Concept Plan illustrates a series of small residential blocks arranged in an east-to-west pattern across the development, with local rectilinear loop streets (and a single cul-de-sac serving 24 homes on the parcel’s northeastern corner) providing multiple internal routes for travel within the community. The community club amenity site is situated centrally within the proposed neighborhood and backs up to the right-of-way for Quiet Cove Road. Vehicular access to the Project is shown conceptually as connecting directly onto Yeagertown Road on the southwestern corner of the Site. A second access point, onto Golden Shiner Street within the North Land Bay of the Linganore Town Center Project will be constructed by the Applicant, providing both a through-route for future residents of the Bell Farm PUD, as well as a secondary access point for the 88 future households currently approved on a dead-end road system.

The proposed land use table confirms general conformity with the PUD regulations, demonstrating that the residential density derived from this Concept Plan will result in a project density that meets the requirements for Low Density Residential uses as described in the Zoning Ordinance.

Open Space

With a gross Site area of 75.493 acres, the open space requirement for Low Density Residential uses is 30% or 22.64 acres. Active recreational and amenity areas such as the community garden and community club are tucked in amongst the residential blocks. A proposed loop trail connects these amenities. Most of the open space provided in the Concept Plan is identified on the southern one-third of the Site, with much of this passive recreation area identified as having steep slopes (>25%), not uncommon within the Lake Linganore community.

The Open Space/Green Area, identified in the Concept Plan, includes the proposed 1.72 acres to be rezoned from Agricultural (A) to PUD. The Applicant is not requesting any additional development density other than that approved in the 1970's. The additional acreage, however, increases slightly the percentage of the Site to be set aside for open space and recreational uses.

Phasing Plan

The Application proposes a single-phase Project of 248 townhouses and their accompanying on-site amenities and infrastructure over the course of a 3-to-5-year period.

Water and wastewater service will be provided to the Site through developer-funded design and construction of public water and sewer facilities that will be consistent with Frederick County's East County Water & Wastewater Master Plans. The property is currently designated W-4/S-4 via County Council approval on March 19, 2024 (Case # WS-23-21).

Council Discretion

The County Council may in its sole discretion deny, reduce, or increase the size, type, location, and/or mixture of the various land use components if the County Council determines that the change is appropriate for the Site, or overall area of the PUD, and necessary to achieve the purpose and intent of the PUD District. The Planning Commission, in its review of the proposed rezoning application, may provide guidance in this regard to the County Council through its recommendation.

Evaluation

Proposed Land Use Density

Gross density of a proposed PUD development shall comply with the following table.

County Comprehensive Plan Land Use Designation	Dwelling Units per Acre
Low Density Residential	3-6 du/ac
Medium Density Residential	6-12 du/ac
High Density Residential	12-20 du/ac

The Site, with a gross acreage of 75.493 acres and with the proposed maximum of 248 dwellings, would have a **gross density** of 3.29 dwellings/acre. A net density calculation, based on the residential area (minus open space/green areas) of 52.5 acres, would result in a **net density** of 6.80 dwellings/acre. The gross density is consistent with the Comprehensive Plan range for Low-Density Residential of 3-6 dwellings/acre.

Consistency with the Comprehensive Plan Map - Land Use Designation

The Site is located within the Linganore Community Growth Area and represents an opportunity for what the Livable Frederick Master Plan calls 'Retrofit District':

“...[as] intended to support and improve existing suburbs to make suburban communities stronger by reinvesting in

them with infill development and redevelopment that creates more opportunities to walk, shop work and recreate closer to home."

The application of PUD zoning with a gross density of 3.29 dwellings/acre is consistent with the Low-Density Residential plan designation and falls within the 3-6 dwellings/acre gross density range.

There has not been a specific Community or Corridor Plan developed for the Linganore Community Growth Area.

Staff would consider the application of PUD zoning to be consistent with the Comprehensive Plan Land Use Map as it would allow for low-density residential uses on a site that is currently designated and zoned for such development.

Consistency with the Livable Frederick Master Plan

The Livable Frederick Master Plan (LFMP) embodies a focus on policy and general growth strategy in order to articulate a clear direction for Frederick County in the face of future change. In concert with the Comprehensive Plan Map, future Community, Corridor, Large Area, and Functional plans, the LFMP constitutes Frederick County's Livable Frederick Comprehensive Plan.

This Application is consistent with the broad LFMP policies that seek to establish land uses that are generally supportive of the compact and efficient development patterns necessary to support community infrastructure and services. The rezoning of the Property would allow for the establishment of safe internal pedestrian connections, as well as future vehicular and pedestrian linkages to Linganore Town Center, enhancing access to nearby shopping, recreation, and employment areas.

The LFMP's Thematic Plan Diagram (and supporting text) identifies the Linganore Community Growth Area as playing a significant role in the development, and redevelopment, of the County's Primary Growth Sector, and allowing Frederick County to grow its population while taking advantage of existing and improved community infrastructure.

Current Zoning and Adjoining Land Uses

The Site has been zoned Planned Unit Development (PUD) since 1973, remaining undeveloped despite significant changes in surrounding land uses, which include a mix of low- to high-density residential development. A 1.72-acre portion of the Property is zoned Agricultural and is not zoned PUD. The area surrounding the Property includes existing and proposed PUD developments, such as Summerfield to the southeast, Linganore Town Center to the southwest, Clearview at New Market to the south, and Pinehurst to the northeast across Boyers Mill Road.

The underlying land use designation of Low-Density Residential—applied during the era of Frederick County's Regional Plan updates—reflects an intent by previous elected officials and planning commissions to consider rezoning applications or comprehensive rezoning efforts that support low-intensity residential redevelopment consistent with the surrounding land use pattern. Staff finds that the proposed PUD amendment is generally compatible with the zoning and land uses of the surrounding area.

Population Change

The Applicant has provided the following information regarding population change over the next 10 years and its relationship to this Application:

The LFMP states that in 4 years (2025) "the total number of adults age 65+ is projected to exceed the total number of school-age children (ages 5- 19) in the county." (LFMP at 134). The Project provides

much-needed housing at affordable pricing points to meet the demand of the aging population, many of whom are, or will be, on fixed incomes.

Staff makes the following determinations regarding population change as a result of the rezoning.

Proposal: 248 new dwelling units

Countywide average household size: 2.65 persons per dwelling unit

NAHB/ACS average household size range: 1.5-2 persons per dwelling unit

Potential Population Increase: 372-496 persons

Staff concur with the notion that the Livable Frederick Master Plan encourages population growth in designated growth areas such as the Linganore Community Growth Area and that population projections support the need to direct new development to existing communities where infrastructural investments can be leveraged to manage the impacts of new employment, residential, and institutional uses.

Utilizing the National Association of Home Builders and American Community Survey household size estimations of between 1.5 (NAHB) and 2.0 (ACS) persons per household, it can be estimated that the net 248 new homes proposed in this Application could increase the County's residential population by up to 496 persons.

The County's population according to the 2020 Census was 271,717 persons, with more recent estimates indicating that the County is cresting 300,000 residents in 2025. The Metropolitan Washington Council of Governments (MWCOG) estimates Frederick County's population in 2050 to reach 428,000 persons. Past history has demonstrated that these estimates have been reasonably accurate. Using the assumption of household size based upon current trends – 2.65 persons per household – leaves the County with a projected dwelling unit deficit of approximately 59,300 units.

The County's aging population, along with a continuing trend of increasingly smaller households, indicates that the need for additional units may be greater if average household size moves downward. This analysis assumes a deficit of 78,500 dwelling units between 2020 and 2050. As of 2024, 29% of Frederick County residents were over the age of 55. Frederick County is expected to experience a 72.22% change in the population over the age of 60 from 47,708 in 2015 to 73,179 in 2025 and an anticipated jump to 82,165 in 2030. The proposed villa-style dwelling units are designed using universal design principles to accommodate residents of all ages, mobility levels, and life stages. These units typically include features such as single-level floor plans, wider doorways, and multilevel countertops to enhance accessibility and support aging in place.

As of December 2024, the countywide residential development pipeline stood at 14,715 dwellings. This total included both County and municipal pipeline data. The County's share stood at approximately 4,750 dwellings. If the existing pipeline units were to be completely built out between now and 2045, the number of additional dwellings needed to keep pace with population growth would stand at 13,985. Under this scenario, the County and its municipal partners would need to consider where and how those homes could be built to best sustain – and improve – livability in the community.

The Livable Frederick Master Plan established the need, through a key set of policies and goals, to shift some of the County's future growth away from suburbanized environments outside of our designated growth areas and into areas

that can be more readily served by public facilities, infrastructure, and services. A significant amount of the current residential pipeline (under County jurisdiction) does not meet this goal, so the actual number of dwellings needed to meet our anticipated population growth through 2045 may be higher than 13,985.

Within the Linganore Community Growth Area, where the subject property for this rezoning application is located, there are limited areas currently zoned for the type of low-density residential development proposed. Most remaining vacant lands zoned PUD are already committed to previously approved residential projects, such as the Cromwell PUD development. Other vacant areas in the vicinity lack both the appropriate zoning (Natural Resource) and supporting land use designations. While opportunities for increased residential density through redevelopment may exist in select locations within the Growth Area, the majority of properties have been recently developed and are therefore unlikely to support near-term redevelopment efforts.

Natural Features

The Site is currently undeveloped (other than for previous agricultural uses) and consists primarily of partially forested areas. The Site is characterized by areas of steep slopes and is predominantly underlain by Lower 1/3 Restricted soils, with mapped Wet Soils present in the western portion of the property and Flooding Soils identified in the southern portion. A small unnamed stream is located along the southwestern boundary of the Site within the area proposed for open space. Lake Linganore itself is located within 200 feet of the northwestern boundary of the Site.

Cultural Resources

The Linganore-New Market Area has some of the oldest extant buildings in Frederick County. The proposed rezoning of the Bell Farm PUD Site is not located within any surveyed historic property listed in the Maryland Inventory of Historic Places. However, the Site has been a historic farm since at least the late 1800s, passing through only three families (Price, Steel, and Bell) prior to being sold for development in the early 1980s. A small area of existing grave sites is located on the eastern portion of the property in an area dedicated to open space use. A technical report authored by Goodwin & Associates in May 2024 titled, "Historical Research and Geophysical Investigations at Price Family Cemetery, New Market, Frederick County, Maryland" provides detailed analysis of the historical research and field investigations into the family cemetery that included up to 18 interments during its active years.

Public Schools

There will be no impact on schools as the Project is proposed solely for age-restricted housing.

Water and Sewer

The Property carries a W-4/S-4 classification for water and for sewer service in the Frederick County Water and Sewerage Plan, approved by the County Council in March 2024. Access to the existing public water and sewer line mains exists in close proximity to the Site. The Applicant proposes that water and sewer service will be made available to the Site as part of developer-provided 12" water and 8" sewer lines that will be installed as part of the expansion of the Linganore Town Center property (North Land Bay) to the west. Water and sewer capacity is available on a first-come, first-served basis.

Water Service

Water is supplied to the Site from the New Design Water Treatment Plant. This plant has a permitted withdrawal

capacity of 16 million gallons/day (MGD) (average daily) and has a current average daily demand of approximately 6 MGD.

Sewer Service

Sewage treatment is provided by the Ballenger-McKinney wastewater treatment plant (WWTP), which has a permitted capacity of 15 MGD and currently discharges into the Monocacy River. In 2020, average daily treatment flow at the Ballenger-McKinney WWTP was 6.6 MGD.

Public Safety

The Site is situated approximately 3.4 miles from the New Market Fire Station and 5 miles from the Spring Ridge Fire Station. Additionally, a fire station is proposed on Gas House Pike near the Hamptons West neighborhood. DFRS indicates that the anticipated increase in households and population as a result of this rezoning will not significantly impact fire, rescue, and EMS services in the area. Police protection would be provided by the Frederick County Sheriff's Office and Maryland State Police.

Libraries

Residents of the proposed development would be served by the C. Burr Artz Public Library, located approximately eight miles from the Site in Downtown Frederick. In addition, the recently approved Cromwell Active Adult Community includes two public-use sites designated for a future library and senior center, which will serve as additional resources for residents of this community. These facilities will be constructed along Linganore Boulevard approximately 1.2 miles from the proposed Bell Farm PUD.

Parks

The proposed rezoning would not significantly impact existing park and recreation facilities, as the development proposes to include on-site community trails and a centrally-located Community Club Amenity Area. The nearest public park is Old National Pike District Park, located less than seven miles from the Site. Additionally, multiple walking paths and recreational amenities are available within the broader Lake Linganore PUD.

Transportation

Existing Site Access Characteristics

The Site is currently vacant land and has frontage along Yeagertown Road, a 2-way local roadway (one in each direction) with a north-south orientation. MD 144 is a two-lane roadway (one in each direction) with an east-west orientation. The area is also served by Boyers Mill Road to the north and east, Eaglehead Drive to the west and south, and Lake Linganore Boulevard, which provides connections west of the Town Center neighborhood.

Comprehensive Plan Map Designations for Adjoining Roads

Yeagertown Road is classified as a local road. The posted speed limit is 25 MPH within the vicinity of the Site.

MD 144 is classified as a major collector. The posted speed limit is 45 MPH.

Pedestrian and Bicycle Facilities

New sidewalks will be proposed on-site. The new sidewalks will maintain access to the proposed senior multifamily units. The typical section of Yeagertown Road is a paved width of 20 feet, with one 10-foot travel lane in each direction. Due to the environmental constraints along the roadway (steep grades along the road edges and dense vegetation) no shoulders or sidewalks are provided along the length of Yeagertown Road. Pedestrian connectivity on-site will be further explored at the Site Plan stage.

Traffic Impact Analysis (TIA) Highlights

Trip Generation:

AM Peak Hour: 50 trips

PM Peak Hour: 62 trips

Site Access

Access to the Site will be provided with a single full movement access point along Yeagertown Road. A secondary access point is proposed via Golden Shiner Street at the northwest corner of the Site, connecting to the future Linganore Town Center development.

Transportation Summary

The proposed rezoning and associated development would be expected to provide or coordinate necessary roadway improvements, or contribute a pro-rata share toward such improvements, in accordance with the Adequate Public Facilities Ordinance (APFO) approval process. Transportation network adequacy is anticipated to be achieved through a combination of planned infrastructure improvements and site access modifications. Notably, the County's Capital Improvement Program (CIP) includes a project entitled Yeagertown Road to upgrade the existing tar-and-chip roadway to accommodate future growth. This Project includes modifications to Boyers Mill Road, a minor arterial segment extending approximately 0.7 miles, with the remaining 1.1 miles to Old National Pike upgraded to local road standards.

Summary of Findings

§ 1-19-3.110.4 (A) (Approval Criteria for Zoning Map Amendments)

(1) Consistency with the comprehensive plan;

The Site is designated Low Density Residential on the current Comprehensive Plan Map which is consistent with the application of the PUD floating zone district. The proposed residential use of the Site would be appropriate in supporting the compact and efficient use of existing infrastructure and public services in the vicinity.

(2) Availability of current and planned public facilities;

The proposed uses on the Site will have no impact on schools, and will not significantly impact parks, public safety, or library facilities. Water is supplied by the New Design Water Treatment Plant. Sewer is treated by the Ballenger McKinney Wastewater Treatment Plant. Both systems currently have adequate treatment and supply capacity to

serve the proposed residential uses.

(3) Adequacy of existing and planned future transportation systems;

Existing planned projects, as well as improvements in the vicinity of the proposed rezoning Site, will provide adequate functionality to the transportation network in the Linganore Community Growth Area, while improving access to the North Land Bay of the Linganore Town Center development.

(4) Compatibility with existing and proposed development;

The proposed low density residential uses are compatible with the existing and planned mix of residential, institutional, employment, and commercial uses in the larger neighborhood surrounding the Site. The age-restricted character of the proposed 248 dwellings will provide additional opportunities for this growing segment of Frederick County's population.

(5) Population change; including availability and location of land zoned to meet the ten-year need for residential development;

The proposed rezoning would likely result in an increase of between 372 and 496 residents based upon an average household size of between 1.5 and 2.0 persons per household. County and national trends indicate that the rate of growth for people over the age of 55 continues to outpace the population as a whole. The need for additional housing units of all types remains strong in Frederick County for the foreseeable future

(6) The timing of development, planned future transportation systems and planned public facilities.

The Application indicates that completion of the Project would occur during a period of 3-5 years. Transportation network adequacy is anticipated to be achieved through a combination of planned infrastructure improvements and site access modifications. There is water/sewer infrastructure existing or nearby, so this would not constitute a significant impediment to the expedient development of the Site. Construction of the Linganore Public Library and Senior Center are expected to occur within the next 6-10 years. The Site will be subject to subsequent subdivision, site plan, and APFO review.

(7) Sensitive environmental resources have been identified and impacts to these resources are avoided or minimized to the maximum extent practicable.

The Concept Plan provided by the Applicant illustrates a developed community, within a designated Community Growth Area, that can be integrated into the Site and the local neighborhood with minimal impacts on sensitive environmental resources. Any applicable regulations regarding Environmental Site Design, FRO (including specimen trees), or other sensitive natural resources will be addressed at the time of subdivision and site plan review.

(8) Historic resources have been identified and impacts to these resources are avoided or minimized to the maximum extent practicable.

Any proposed development of the Site will be subject to the County's review for historical and archeological resources. Pre-development identification and documentation of the Price Family Cemetery is underway and will guide the County's response to future subdivision and site plan proposals.

§ 1-19-10.500.3. (Approval Criteria for Planned Development Districts)

(A) The proposed development is compact, employing design principles that result in efficient consumption of land, efficient extension of public infrastructure, and efficient provision of public facilities;

The Site will have a relatively compact development footprint for a Low Density Residential project. The residential housing blocks of single-family attached units are generally planned to occur beyond areas marked by steep slopes. The area has extensive existing infrastructure including water/sewer lines, school facilities, park facilities, and road improvements that would support the residential development of the Site and continued buildout of the Linganore Community Growth Area.

(B) The proposed development design and building siting are in accordance with the County Comprehensive Plan, and any applicable community and corridor plans;

The Application illustrates a conceptual layout of lots and buildings for the Site which appears to reflect similar patterns in the nearby neighborhoods within the Lake Linganore PUD. There is no current Community or Corridor Plan for this area.

(C) The proposed development is compatible with existing or anticipated surrounding land uses with regard to size, building scale, intensity, setbacks, and landscaping, or the proposal provides for mitigation of differences in appearance or scale through such means as setbacks, screening, landscaping; or other design features in accordance with the County Comprehensive Plan, and any applicable community or corridor plans;

Nothing proposed in this Application is out-of-character for recent development in the vicinity of this Site. The 'villa-style' attached dwellings minimize the impacts of building height in the vicinity. The subsequent site plan review for the Site would address detailed design issues such as parking, landscaping, screening, trail connections, building orientation, etc.

(D) The proposed development provides a safe and efficient arrangement of land use, buildings, infrastructure, and transportation circulation systems. Factors to be evaluated include: connections between existing and proposed community development patterns, extension of the street network; pedestrian connections to, from, and between buildings, parking areas, recreation, and open space;

The proposal to develop a linear pattern of development across the Site provided the opportunity for street connections to existing and planned roadways. The Golden Shiner Street connection will serve as a conduit for residents of the proposed development to the Linganore Town Center area. Pedestrian access will be provided to adjacent development while the internal trail and sidewalk system will serve to link Bell Farm PUD residents to an internal system of amenities and open spaces. A subsequent Site Development Plan review will evaluate the safety and efficiency of the arrangement of on-site buildings and infrastructure.

(E) The transportation system is or will be made adequate to serve the proposed development in addition to existing uses in the area. Factors to be evaluated include: roadway capacity and level of service, on-street parking impacts, access requirements, neighborhood impacts, projected construction schedule of planned improvements, pedestrian safety, and travel demand modeling;

Transportation network adequacy is anticipated to be achieved through a combination of planned infrastructure improvements and site access modifications.

(F) The proposed development provides design and building placement that optimizes walking, biking, and use of public transit. Factors to be evaluated include: extension of the street network; existing and proposed community development patterns; and pedestrian connections to, from, and between buildings, parking areas, recreation, and open space;

The Application does not include specific engineered layouts of the Site. The primary pedestrian access will occur along sidewalks internal to the Site that connect to the Linganore Town Center Development to the west along Golden Shiner Street. The internal trail network illustrated in the Concept Plan provides a connection to Site amenities including the centrally-located Community Club.

(G) Existing fire and emergency medical service facilities are or will be made adequate to serve the increased demand from the proposed development in addition to existing uses in the area. Factors to be evaluated include: response time, projected schedule of providing planned improvements, bridges, roads, and nature and type of available response apparatus;

The Site is situated approximately 3.4 miles from the New Market Fire Station and 5 miles from the Spring Ridge Fire Station. An additional fire station is proposed on Gas House Pike near the Hamptons West neighborhood. DFRS indicates that the anticipated increase in households and population as a result of this rezoning will not significantly impact fire, rescue, and EMS services in the area. Police protection would be provided by the Frederick County Sheriff's Office and Maryland State Police.

(H) Natural features of the Site have been adequately considered and utilized in the design of the proposed development. Factors to be evaluated include: the relationship of existing natural features to man-made features both on-site and in the immediate vicinity, natural features connectivity, energy efficient site design, use of environmental site design or low impact development techniques in accordance with Chapter 1-15.2 of the Frederick County Code;

Any natural features of the Site will be incorporated into the planned open space areas/green space in the PUD.

(I) The proposed mixture of land uses is consistent with the purpose and intent of the underlying County Comprehensive Plan land use designation(s), and any applicable community or corridor plans;

The Site is designated Low Density Residential which allows for the application of the PUD floating zone. The application of PUD zoning with a gross density of 3.29 dwellings/acre is consistent with the Low Density Residential plan designation and falls within the 3-6 dwelling/acre gross density range. No Community or Corridor Plan has been adopted for this growth area.

(J) Planned developments shall be served adequately by public facilities and services. Additionally, increased demand for public facilities, services, and utilities created by the proposed development (including without limitation water, sewer, transportation, parks and recreation, schools, fire and emergency services, libraries, and law enforcement) shall be evaluated as adequate or to be made adequate within established county standards.

Existing public infrastructural systems are adequate, or can be made adequate, to support the proposed development as described in this Application. If this rezoning Application is successful, the Site will be subject to subsequent subdivision, site plan, and APFO review.

(K) Sensitive environmental resources are protected to the maximum extent practicable.

The Concept Plan for the Site illustrates proposed areas of disturbance that largely avoid negative impacts on surrounding sensitive environmental features. The completed neighborhood would be sited to avoid steep slopes (>25%) and much of the forested acreage on the southern half of the property. No FEMA floodplain is directly impacted as a result of the development as illustrated in the Concept Plan provided by the Applicant. The County's Comprehensive Plan road alignment – applied to the Site decades ago and prior to any reasonable attempt at site design – is avoided in this development configuration through the use of an improved Yeagertown Road/Boyers Mill Road improvement, as well as utilization of infrastructural improvements implemented through the development of the Linganore Town Center project. The connection through the Linganore Town Center development to the west of the Site creates a different, but equally-functional, vehicular network improvement that will benefit projects beyond this Site.

(L) All efforts have been made to promote the protection, preservation, and integration of historic resources into the planned development through reuse, adaptive use, and rehabilitation.

No viable extant structures remain on the Site that could accommodate reasonable reuse or adaptive use. Efforts to document archeological resources, as well as the Price Family Cemetery, will continue as the Project moves forward for subdivision and site plan review.

§ 1-19-10.500.10. – Specific Development Standards within the Planned Development Districts

For a PUD that proposes to be age-restricted the following criteria shall be considered to determine whether the project or portion thereof may be approved for designation as an age-restricted community.

1. Active and passive recreational amenities.

The Project proposes to have a community club centrally-located on the Site. Walking trails are also proposed within the Site which will connect other open space and recreational amenities internal to the neighborhood. The Applicant's Justification Statement provides additional information regarding planned amenities and how they meet the requirements for active and passive open space and recreational amenities.

2. Availability, suitability and proximity of development to planned support services.

The nearest existing medical offices or facilities are located in Linganore Town Center, New Market, and Frederick. Commercial retail and retail services will be available in Linganore Town Center and along the Old National Pike corridor. The Linganore Branch Library and Senior Center projects will provide nearby support services when they are constructed along the western segment of Linganore Boulevard.

3. The amount of existing and approved age-restricted development in the county and in proximity to the proposed development.

Age-restricted communities such as Homewood Retirement Community, the Woodlands at Urbana, Knowledge Farm (Urbana), England Woods in New Market, and Bloomfields (north Frederick) are currently occupied or under planning and construction. Based upon existing demand for these types of homes and communities, and in consideration of Frederick County's heightened population growth among those aged 55 and older, this proposal appears reasonably feasible. Additionally, as Frederick County's older suburban communities age, the need for local age-targeted housing increases allowing for residents to remain within, or close by, their existing family, friends, and community support systems.

Planning Commission Review and Action

The Planning Commission shall make its recommendation to the County Council, basing its findings on the information presented at the hearing. Such findings shall be based upon:

- A review of the Approval Criteria as set forth in §1-19-3.110.4; and
- A finding that the Project adequately addressed the Planned Development District Approval Criteria for the Planned Unit Development (PUD) District as set forth in §1-19-10.500.

When approval criteria call for findings of consistency with the County's comprehensive plan, the Planning Commission shall consider the Livable Frederick Comprehensive Plan which includes the *Livable Frederick Master Plan* (2019), the *Comprehensive Plan Map* (Land Use Map), and other plan elements as adopted by the County Council.

§ 1-19-3.110.4. APPROVAL CRITERIA. (for Zoning Amendments)

(A) Approval or disapproval of a request for an individual zoning map amendment or floating zone reclassification shall be determined through review of several criteria. The Planning Commission and County Council review will include, but not be limited to:

- (1) Consistency with the **comprehensive plan**;
- (2) Availability of current and planned **public facilities**;
- (3) Adequacy of existing and planned future **transportation systems**;
- (4) **Compatibility** with existing and proposed development;
- (5) **Population change** including availability and location of land zoned to meet the ten-year need for residential development;
- (6) The **timing of development**, planned future transportation systems and planned public facilities;
- (7) **Sensitive environmental resources** have been identified and impacts to these resources are avoided or minimized to the maximum extent practicable; and
- (8) **Historic resources** have been identified and impacts to these resources are avoided or minimized to the maximum extent practicable.

§ 1-19-10.500.3. APPROVAL CRITERIA. (for Planned Development Districts)

The County Council may approve or disapprove a request for rezoning of property to a Planned Development District if persuaded that granting the request is appropriate and serves the public interest. The approval or disapproval of a request for the application will be determined through evaluation of several criteria to establish whether the proposed Project meets the purpose and intent of the zoning district. In addition to the requirements in § 1-19-3.110.4, the Planning Commission and County Council must find that the Project adequately addresses the following criteria:

- (A) **The proposed development is compact**, employing design principles that result in efficient consumption of land, efficient extension of public infrastructure, and efficient provision of public facilities;
- (B) The proposed development **design and building siting** are in accordance with the County

Comprehensive Plan, and any applicable community and corridor plans;

(C) The proposed development is **compatible with existing or anticipated surrounding land uses** with regard to size, building scale, intensity, setbacks, and landscaping, or the proposal provides for mitigation of differences in appearance or scale through such means as setbacks, screening, landscaping; or other design features in accordance with the County Comprehensive Plan, and any applicable community or corridor plans;

(D) The proposed development provides a **safe and efficient arrangement** of land use, buildings, infrastructure, and transportation circulation systems. Factors to be evaluated include: connections between existing and proposed community development patterns, extension of the street network; pedestrian connections to, from, and between buildings, parking areas, recreation, and open space;

(E) The **transportation system is or will be made adequate** to serve the proposed development in addition to existing and pipeline uses in the area. Factors to be evaluated include: roadway capacity, level of service and safety, on-street parking impacts, access requirements, neighborhood and natural resource impacts, projected construction schedule of planned improvements, pedestrian and bicycle safety, and results of travel demand modeling assessing the change in future daily travel volumes, with and without the proposed development;

(F) The proposed development provides **design and building placement that optimizes walking, biking, and use of public transit**. Factors to be evaluated include: extension of the street network; existing and proposed community development patterns; and pedestrian connections to, from, and between buildings, parking areas, recreation, and open space;

(G) Existing **fire and emergency medical service facilities** are or will be made adequate to serve the increased demand from the proposed development in addition to existing uses in the area. Factors to be evaluated include: response time, projected schedule of providing planned improvements, bridges, roads, and nature and type of available response apparatus;

(H) **Natural features of the site** have been adequately considered and protected in the design of the proposed development. Factors to be evaluated include: the relationship of existing natural features to man-made features both onsite and in the immediate vicinity, natural features connectivity, energy efficient site design, use of environmental site design or low impact development techniques in accordance with Chapter 1-15.2 of the Frederick County Code;

(I) The proposed **mixture of land uses** is consistent with the purpose and intent of the underlying County Comprehensive Plan land use designation(s), and any applicable community or corridor plans;

(J) Planned developments shall be **served adequately by public facilities and services**. Additionally, increased demand for public facilities, services, and utilities created by the proposed development (including without limitation water, sewer, transportation, parks and recreation, schools, fire and emergency services, libraries, and law enforcement) shall be evaluated as adequate or to be made adequate within established county standards;

(K) **Sensitive environmental resources are protected** to the maximum extent practicable; and

(L) All efforts have been made to promote the **protection, preservation, and integration of historic resources** into the planned development through reuse, adaptive use and rehabilitation.

The Planning Commission shall forward its recommendation to the County Council within 62 days of its first public hearing. A failure to make a recommendation within 62 days of the first public hearing shall be deemed as providing no recommendation on the request.

Options for Planning Commission Action

The Planning Commission may take any of the three following actions regarding this application:

1. Recommendation for Approval of the request as presented by the Applicant;
2. Recommendation for Approval of the request with Conditions;
3. Recommendation for Denial of the Applicant's request.

Proposed Conditions for Planning Commission Consideration

Should the Planning Commission choose to recommend approval of this application, the following conditions are provided for the Planning Commission's consideration:

1. The Applicant shall develop the Site with no more than 248 age-restricted dwelling units.
2. Covenants shall restrict 100% of the dwelling units in the Bell Farm PUD to be age-restricted per the Federal Fair Housing Act and the Housing for Older Persons Act of 1995. There shall be a further limitation on the minimum age of permanent residents being 19 years of age. These covenants shall be recorded prior to the recording of the first subdivision plat. The covenants shall be recorded and made part of the title for each dwelling unit. Every property owner within the age-restricted development (and HOA) shall be beneficiaries of the covenants with the ability to enforce them through administrative or judicial proceedings. These covenants are to be reviewed by the County Attorney's Office to ensure that the PUD zoning district is invalid if these covenants are not recorded and do not restrict age as proffered in a binding and enforceable manner. The required biannual federal surveys (24 cfr 100.307) shall be made available to the County for its review and records.
3. The Site shall be served by two road access points at Yeagertown Road, and at Golden Shiner Street, both to be constructed by the Applicant.



Concept Plan: Bell Farm PUD

Frederick County APPLICANT DISCLOSURE FORM

Note: While the application is pending, you must supplement this disclosure whenever there is a change in the information provided.

I. Property that is the subject of the application (Tax Map, Parcel, street address):

Tax Map 0079 / Parcel 0096 - 75.493 Acres +/-
6218 Yeagertown Road, New Market, Maryland 21774

II. Please identify all persons and entities who have any of the following interests in the land that is the subject of the application. (Include the holders of at least a 10% interest in the land):

A. Title owners: 6218 Yeagertown Road LLC

B. Contract purchasers: _____

C. Trustees (do not include trustees described in a mortgage or deed of trust):

D. Agents (including consultants, engineers, attorney) -Provide agent name and their firm. Additional agents hired after submission of the application must be provided to the County.

Bruce N. Dean, Esq. - McCurdy, Dean & Graditor, LLC- Attorney

Chris Smariga - Harris, Smariga & Associates, Inc. - Engineer

III. For each person or entity named in Part II above, indicate that person's or entity's status. If there is more than one person or entity who qualifies as an applicant, provide the name of the applicant that the information pertains to in the space provided:

An individual (Name: _____)

A partnership (Name: _____)

General partnership

Limited liability partnership
 Limited partnership
 Limited liability limited partnership
 Joint venture

Name all partners: _____

A corporation (Name: _____)

Identify all officers and directors by name and title:

Other business entity (Name: 6218 Yeagertown Road LLC)

Sole proprietorship
 An association
 Limited liability company

Name all owners/members/officers/directors:

Lantian Development, LLC is Sole Member

Robert Elliott is Manager

Receiver (Name: _____)

Trustee (Name: _____)

Guardian (Name: _____)

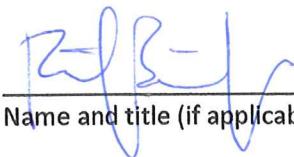
Personal representative (Name: _____)

Fiduciary (Name: _____)

Other representative (Specify: _____)

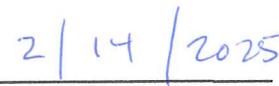
I hereby affirm under penalties of perjury and upon personal knowledge that the information provided herein is true. I also acknowledge that I understand that I have a duty to supplement the information provided herein should that information change while the application is pending.

Signature:



Name and title (if applicable)

Date:

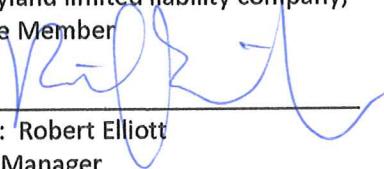


2/14/2025

Revised July 2018

6218 Yeagertown Road, LLC,
a Maryland limited liability company

By: Lantian Development, LLC,
a Maryland limited liability company,
its Sole Member



By: _____
Name: Robert Elliott
Title: Manager

JUSTIFICATION STATEMENT FOR AMENDMENT TO PHASE I PUD ZONING CLASSIFICATION

I. INTRODUCTION

6218 Yeagertown Road, LLC (the “Applicant”) is the owner and developer of 75.493 acres of land located at 6218 Yeagertown Road, New Market, Maryland 21774, and more particularly known as Parcel 0096 on Frederick County Tax Map 79 (the “Property”), which is located within the unincorporated community of Lake Linganore. As more particularly described below, this application is to amend the Property’s existing Phase I PUD Zoning classification, pursuant to Section 1-19-3.110 et. seq. and Section 19-10.500 et. seq. of the Frederick County Zoning Ordinance (the “Zoning Ordinance”), in order to establish an age-restricted community on the Property.

II. SUMMARY OF ZONING REQUEST

Frederick County (the “County”) previously applied the Planned Unit Development (“PUD”) zoning classification to the Property. Based on information and belief, the Property was incorporated into the Lake Linganore PUD as part of the 1973 PUD Concept Plan, but to the Applicant’s knowledge, it has not been the subject of an approved Preliminary Plan or Site Plan in the intervening years. As indicated in various County documents, the County has at times identified the Property as the “Resco” or “Resco Investments” property, with an approved density of 248 residential dwelling units. The Property is identified as part of the Lake Linganore PUD on the 1977 Frederick County Zoning Map, attached as **Exhibit A**.

The Applicant is filing this amendment to the current Phase I PUD zoning classification, in order to seek the designation of the property as an age-restricted community in accordance with the requirements of § 1-19-10.500.10 of the Zoning Ordinance. Furthermore, the establishment of an age-restricted community is governed by §1-20-7(D) of the County’s Adequate Public Facilities Ordinance (“APFO”). As the Property’s existing zoning approvals predate the County’s enactment of the APFO, it is the Applicant’s (and Frederick County Planning Staff’s) assumption that the County’s Phase I zoning approval did not include a designation of the Property as an age-restricted community, thus necessitating this application to amend the Phase I PUD zoning approval.

The Applicant intends to develop the Property with an age-restricted community containing approximately 248 Villa-style dwelling units, together with a Community Club Amenity area, as identified on the Concept Plan. No non-residential uses (other than open space and amenities) are being proposed for this PUD, given the somewhat remote nature of the Property as compared to the Linganore Town Center.

A small portion of the Property, containing approximately 1.72 acres and more particularly identified on **Exhibits E and F**, has mistakenly retained the Agricultural (A) zoning classification and was not zoned PUD, even though our surveying indicates that this has always been a part of the Property. However, as this Justification Statement indicates, the entire Property, including but not limited to this 1.72 acre portion, meets all of the requirements of the Zoning Ordinance for rezoning to PUD, and therefore as a part of this application, the Applicant requests that this 1.72

acre portion be rezoned from A to PUD. The Applicant is not requesting additional density for this small parcel.

Under the provisions of the current PUD section of the Zoning Ordinance (Section 1-19-10.500, which has been significantly amended since the Property was originally zoned PUD), the Phase I PUD approval procedure is the same as for zoning map amendments set forth in §§ 1-19-3.110.1 through 1-19-3.110.6. As amended by this application, the Phase I approval fully complies with the application requirements set forth in Section 1-19-10.500.5 of the Zoning Ordinance as set forth below.

III. PROPERTY DESCRIPTION AND EXISTING SITE CONDITIONS

A. Property Description

The Property is vacant land comprised of partially forested areas with no improvements. The topography of the Property is shown on **Exhibit H**. The Property fronts onto Yeagertown Road on the southeast side of the Property for an approximate distance of 1,456.11 linear feet. Opposite the Property on Yeagertown Road is the Clearview at New Market subdivision, consisting of approximately twenty residential single-family detached dwellings to the southeast, and with multiple single-family dwellings located on larger lots to the east which are zoned Agricultural and used for residential purposes. Quiet Cove Road runs east to west near the north boundary of the Property. Access to Yeagertown Road will be on the southeast corner of the Property. The Applicant proposes to develop the Property with an additional access connection in the northwest corner to provide connectivity to Golden Shiner Street, which is part of the future expansion of the Linganore Town Center. The Property is located within the Linganore Community Growth Area.

As indicated above, all but a tiny portion of the Property is currently zoned PUD, and the entire Property has a County Comprehensive Plan land use designation of Low Density Residential (LDR). The Property abuts undeveloped PUD lands to the west. Portions of the neighboring properties to the north, south, and east are zoned PUD, as well as R1 – Low Density Residential to the south, and with small pockets of Agricultural zoned land to the southeast and northeast. Most of the properties in the immediate vicinity of the Property are zoned PUD and have a land use designation of Low Density Residential. The following existing PUD communities are nearby: Summerfield to the southeast, Linganore Town Center to the west, Clearview at New Market to the south, Pinehurst to the northeast across Boyers Mill Road, Nightingale to the northwest before Lake Linganore, and Coldstream to the northwest across Lake Linganore. Additionally, the Gordon Mill and Casey (Cherry Run) projects are proposed for development to the northeast near Summerfield, and the Cromwell Active Adult Community PUD is approved for development to the southwest.

B. Existing Site Conditions

As per Section 1-19-10.500.5(A) of the Zoning Ordinance, the following existing site condition exhibits are included in this application.

1. Vicinity Map, attached as **Exhibit B**, delineates all properties and streets within 2,000 feet of the Property (Section 1-19-10.500.5(A)(1)).
2. Boundary Survey, attached as **Exhibit C**, (Section 1-19-10.500.5(A)(2)).

3. Transportation Map, attached as **Exhibit D**, (Section 1-19-10.500.5(A)(3)) indicates the location of the Property with respect to local, collector, and arterial streets, existing easements and rights-of-way on or abutting the Property, all existing bicycle and pedestrian facilities, and existing and planned transit facilities including routes and stops.

4. Land Use Map, attached as **Exhibit E**, and Zoning Map, attached as **Exhibit F**, show the type, location, acreage, and density of all existing land uses within a distance of 500 feet from the Property, the general street location and circulation pattern, and existing zoning and Comprehensive Plan designations (Section 1-19-10.500.5(A)(4)).

5. Aerial Photograph, attached as **Exhibit G**, (Section 1-19-10.500.5(A)(5)).

6. Floodsoils Exhibit, attached as **Exhibit H**, and the Concept Plan with WetSoil Buffer, attached as **Exhibit I**, shows the delineation of soil types, forests, floodplains, topography, and wetlands on the Property (Section 1-19-10.500.5(A)(6)).

7. Historical Exhibit, attached as **Exhibit J**, depicts the location of the cemetery on the Property. The Technical Report of the Historical Research and Geophysical Investigations at Price Family Cemetery, New Market, Frederick County, Maryland is attached as **Exhibit K**. The Property does not include any historical sites, buildings, or other objects listed on the National Register of Historical Places, Frederick County Register of Historic Places, or the Maryland Inventory of Historic Places.

IV. CONCEPT PLAN

The Applicant is proposing to construct an age-restricted community comprised of up to 248 villas (28' wide) together with an approximately one (1) acre community club amenity area, plus no less than 22 acres of open space, all as shown on the Concept Plan attached at **Exhibit L**. The amenities would include a clubhouse, community garden, community trails, and an outdoor recreation area. In addition, there are numerous opportunities for pathways and trails throughout the Property. The stream body buffer along the southern border of the Property affords an opportunity to integrate on-site open space with perimeter buffer areas. This design lends itself to providing a large number of the proposed dwellings to be located adjacent to or in near proximity to open space and amenity areas.

Pursuant to Section 1-19-10.500.6 of the Zoning Ordinance, a PUD development permits 3-6 dwelling units per acre for properties that are designated low-density residential by the Comprehensive Plan. With a gross acreage of 75.493 acres, this density range is 227-454. The County previously established a density of 248 dwelling units for the Property. The proposed 248 units have a gross density of 3.29 dwelling units per acre and a net density of 6.80 dwelling units per buildable acreage, consistent with the low-density residential plan designation.

The neighboring communities consist of single family homes, townhouses, and multifamily apartments and condominiums. For example, Linganore Town Center's 1240-dwelling units consist of 136 single family houses, 631 townhouses, and 322 multifamily apartments and 96 multifamily condominiums. Cromwell's 488-units age restricted community consists of 192 single family homes, 184 townhouses, and 112 multifamily units. Oakdale Village consists of single family homes, townhouses, and condominiums. The Summerfield, Pinehurst,

Nightingale, and Coldstream neighborhoods consist primarily of single family homes and some townhouse units.

The public roadway infrastructure immediately serving the Property consists primarily of Yeagertown Road. The Applicant proposes access to Yeagertown Road at the southeast corner of the Property. The Applicant anticipates conducting half-section widening and road layback where needed along the site's Yeagertown Road frontage. In addition, the Applicant will need to provide adequate sight distance at the proposed intersection location, which may include existing vegetation removal and grade adjustments to ensure proper sight distance necessary for a safe intersection based on vehicular design speed. The extent of improvements will be reviewed as a part of future subdivision plan reviews and approvals.

The Applicant proposes an additional access road in the northwest corner of the Property to connect to Golden Shiner Street in the neighboring Linganore Town Center, identified as Phase 3 North Land bay on the Linganore Town Center staff report. The new access road to be constructed by the Applicant will provide a second means of access for Linganore Town Center's 88 dwelling units currently proposed on a dead-end road system. The Linganore Town Center North land bay has already been mass graded, and a bridge has been constructed across Bells Branch and the flooding soils and FEMA floodplain in the neighboring Linganore Town Center. Future access to Eaglehead Drive and Meadow Road is planned through the Linganore Town Center development.

The Comprehensive Plan shows an arterial alignment through the Property that is unfeasible given the topography and is not respectful of sensitive natural features / resources. The conceptual Comprehensive Plan alignment proposes approximately 110' of vertical rise over approximately 400' or a grade that approaches 28%. In addition to the steep slope, the Comprehensive Plan alignment crosses Bells Branch at an area that contains flooding soils and a portion of FEMA floodplain. The Comprehensive Plan alignment was drawn without consideration of the natural features such as steep slopes, existing forested areas, sensitive resources, and natural hazards such as Bells Branch and its associated flooding soils.

V. PROPOSED PHASING PLAN

Section 1-19-10.500.5(D) requires a phasing plan to be submitted with a PUD application that describes the timing and sequence for dedication of public lands and development of public facilities and utilities. The Applicant propose to develop the Property over a three to five year period.

Water and sanitary sewer service will be provided through developer-funded design and construction of public water and sewer facilities consistent with Frederick County's "East County Water & Wastewater Master Plans". The Property is planned for public water and sewer service under the Frederick County Water and Sewerage Master Plan. The Property received a designation of W-5/Dev, S-5/Dev under a reclassification of multiple properties in the Linganore Community Growth Area as part of Case WS-00-40 in 2000. On March 19, 2024, the County Council approved reclassification of the Property to S-4 / W-4 – Concept Evaluation Phase in Case number WS-23-21. See the Water and Sewer Service Area Maps updated on June 25, 2024, attached as **Exhibit M** and **Exhibit N**.

A. Public Water Service:

The New Design Water Treatment Plant (NDWTP) provides water to this site. The NDWTP has a treatment capacity of 25 MGD but is only permitted to withdraw an average daily demand of 16.0 MGD from the Potomac River. The latest version of the County Master Water / Sewer Plan indicates an existing demand of 5.92 MGD. There is currently adequate capacity at the Water Treatment Plant.

The site is within the Zone 2 water pressure boundaries. The Applicant proposes that water and sewer service will be provided to the Property as part of future developer provided 12" water and 8" sewer lines that will be installed as part of an expansion of the Linganore Town Center property to the west. The Division of Water & Sewer Utilities has indicated that the 12" water line should be extended through the site as part of any future development to connect to other, existing water lines in the proximity of Boyers Mill Road to maintain functionality of the system in Pressure Zone 2. Future sewer service will function by gravity, and wastewater will be conducted to the northwestern corner of the property where it be transferred to the sewer lines within the Linganore Town Center property. See Exhibits O and P.

B. Sanitary Sewer Service:

The Ballenger McKinney Wastewater Treatment Plant provides sewer treatment for this site. The Ballenger McKinney WWTP's current design capacity is 15.0 MGD and the facility's three-year average flow from 2020 – 2023 was 6.6513 MGD. There is currently adequate capacity at the Wastewater Treatment Plant.

In addition to the developer provided 8" gravity connection to the existing sanitary sewer line that crosses through the site along Yeagertown Road, portions of the site that will drain north toward the Lake will discharge through a developer provided 8" gravity sanitary sewer line across the adjacent Oakdale Investments LLC Linganore Town Center townhouse site as shown on conceptual water and sanitary sewer extension plan.

The sewer will drain to two locations, 1) a gravity sewer close to Yeagertown Road, and 2) to a sewer area to the west on the Linganore Town Center property. See Exhibits O and P.

Pursuant to Zoning Ordinance Section 1-19-10.500.4, a pre-application conference was held with the County on February 8, 2024. A neighborhood meeting was held on June 25, 2024, at the New Market Grange. The formal record of this meeting is attached as Exhibit Q.

VI. REQUIREMENTS OF THE FREDERICK COUNTY ZONING ORDINANCE.

Section 1-19-3.110.4 of the Zoning Ordinance sets forth the general criteria which all requests for floating zone reclassification must meet, and it specifies that the Planning Commission and County Council shall consider 1) if a floating zone reclassification is consistent with the County's Comprehensive Plan; 2) availability of current and planned public facilities; adequacy of existing and planned future transportation systems; 3) compatibility with existing and proposed development; 4) population change, including availability and location of land zoned to meet the ten-year need for residential development; 5) the timing of development, planned future transportation systems and planned public facilities; 6) sensitive environmental resources have been identified and impacts to these resources are avoided or minimized to the maximum extent practicable; and 7) historic resources have been identified and impacts to these resources are

avoided or minimized to the maximum extent practicable. Section 1-19-10.500.3 contains the specific approval criteria applicable for rezoning of a property to a PUD.

However, it needs to be understood that that the vast majority of the Property (other than the 1.72 acre portion discussed previously, which adds no density to the project) already has PUD zoning; while the application addresses all of the approval criteria, the only change being requested, other than PUD zoning for the 1.72 acre portion, is for the project to be established as an age-restricted community pursuant to Section 1-19-500.10 of the Zoning Ordinance. No other changes to the existing, approved zoning or to the density previously established for the Property are requested.

With that said, the Applicant's proposed establishment of an age-restricted community on the Property satisfies each of these general and specific requirements as explained more fully below.

A. General Requirements of Section 1-19-3.110.4 of the Zoning Ordinance.

1. This application is consistent with the purpose and intent of the Frederick County comprehensive plan;

The Property previously received PUD approval and has long been designated for Low-Density Residential development. LDR is applied to properties within growth areas and where public water/sewer is available or planned. With a gross density of 3.29 dwelling units per acre and a net density of 6.80 dwelling units per buildable acreage, the Property is within the targeted density range of 3-6 dwellings, consistent with the County's smart growth policies. The Livable Fredrick Master Plan (the "LFMP") envisions development and redevelopment of lands centrally located to public facilities, which this project fulfills through its close proximity to numerous neighboring PUDs.

The Thematic Plan Diagram of the LFMP identifies Lake Linganore as a Retrofit District. Pages 40 and 47 of the LFMP. Retrofit Districts are one of the two types of districts within the Secondary Growth Sector "identified to provide a framework for the continued growth and development of these areas of the county." Page 47 of the LFMP. Retrofit Districts are "intended to support and improve existing suburbs to make suburban communities stronger by reinvesting in them with infill development and redevelopment that creates more opportunities to walk, shop, work and recreate closer to home." Page 47 of the LFMP. The proposed project provides coordinated funding and construction of sidewalks, the connection of nearby streets, and non-autocentric access as intended by a Retrofit District.

2. Availability of current and planned public facilities;

There will be no impact on schools as the proposed project is proposed for solely age-restricted housing.

The closest public park is Old National Pike District Park located under 7 miles to the east of the Property. The proposed project includes community trails and a recreation area.

The Applicant is actively working with the Lake Linganore Association to submit an application to join the association. There are multiple walking paths in the surrounding Lake Linganore PUD. The surrounding 10-mile area includes multiple schools (Oakdale Elementary, Middle, and High schools, New Market Elementary and Middle schools, Deer Crossing

Elementary, and Blue Heron Elementary) with recreational facilities. Additionally, the Gordon Mill project is providing a future middle school site, and the Casey property is providing a future elementary school site.

The recently approved Cromwell Active Adult Community includes a four-acre public use site for a library and senior center.

The County Council approved reclassification of the Property to S-4 / W-4 – Concept Evaluation Phase in Case number WS-23-21.

The Property is located 3.4 miles from the New Market Fire Station and 5 miles from the Spring Ridge Fire Station. Additionally, a fire station is proposed on Gas House Pike near the Hamptons West neighborhood.

The Project is served by the Frederick County Sheriff's Office and Maryland State Police.

3. Adequacy of existing and planned future transportation systems;

The Property has access to Interstate 70 from the New Market Interchange and the newly constructed Meadow Road Interchange. To the south of the project, Old National Pike/ MD 144 has undergone significant improvements in recent years during the Oakdale development. To the north, Boyer's Mill Road will be improved during the upcoming Calumet and Gordon Mill projects, including a new traffic signal at Boyer's Mill Road and Pinehurst Drive. The Calumet and Gordon Mill projects also include a future New Market Bypass connecting Boyers Mill Road to MD75, providing alternate travel routes.

The Applicant engaged Lenhart Traffic Consulting, Inc. to conduct a traffic study of the site. The Traffic Study is attached hereto as **Exhibit R**. The Applicant will propose improvements to Yeagertown Road as a part of future subdivision plan reviews and approvals.

4. This application is compatible with the existing and proposed development;

The area surrounding the Property includes existing and proposed PUD developments of Summerfield to the southeast, Linganore Town Center to the southwest, Clearview at New Market to the south, Pinehurst to the northeast across Boyers Mill Road, Nightingale to the northwest before Lake Linganore, and Coldstream to the northwest across Lake Linganore. Additionally, the Gordon Mill, Casey, and Calumet projects are proposed for development to the northeast near Summerfield.

5. Population change, including availability and location of land zoned to meet the ten-year need for residential development;

With the construction of the proposed 248 age-restricted dwelling units, the project will yield an estimated population increase between 1.5 persons per household (based on the NAHB rule of thumb) and 2.0 persons per household (American Community Survey average of households with a head of household 65 years or older), or 372 to 496 residents.

Pursuant to the U.S. Census Bureau, 2023 National Population Projections Tables: Main Series, the number of Americans ages 65 and older is projected to increase from 58 million in 2022 to 82 million by 2050 (a 47% increase), and the 65-and-older age group's share of the total population is projected to rise from 17% to 23%. The Frederick County Government website

reports that based on 205 U.S. Census data, Frederick County will experience a 72.22% change in individuals over the age of 60 years from 47,708 in 2015 to 73,179 in 2025 and 82,165 in 2030. Pursuant to the Advocates for the Aging of Frederick County reports that based on information from a 2022 American Community Survey, the total number of Seniors (age 65+) living in Frederick County is 40,796 or 14.9% of the total population of 273,829.

In 2024, 29% of residents of Frederick County are over the age of 55, and this group has grown by more than 63% from 2010 to 2023, far outpacing the county's overall growth of 22% during the same time frame. See Exhibits II-1 and II-2 from the Applicant's Market Study attached hereto as **Exhibit S**.

6. The timing of development, planned future transportation systems and planned public facilities;

The Property is to be served by public water and sewer and the County Council approved reclassification of the Property to S-4 / W-4 – Concept Evaluation Phase in Case number WS-23-21 on March 19, 2024. The Applicant proposes to develop the Property over a three to five-year period.

7. Sensitive environmental resources have been identified and impacts to these resources are avoided or minimized to the maximum extent practicable; and

The Property includes a small creek along the southwest boundary. There is no FEMA flood plain on the Property. The soils are predominantly Lower 1/3 Restricted, with areas of Flood Soils in the southern portion of the Property and Non-Restricted Soils on the western portion. The Property contains some steep slopes, which are predominantly located in the southern region of the Property, where open space is proposed.

The Applicant proposes a connection to the parcel to the northwest (Phase 3 North Land bay of Linganore Town Center PUD), where a bridge has already been constructed to cross the sensitive waterways, Bells Branch and the flooding soils and FEMA floodplain in the neighboring Linganore Town Center. Additional improvements are planned for Eaglehead Drive.

The Comprehensive Plan shows an arterial alignment through the Property that is unfeasible given the topography and is not respectful of sensitive natural features / resources. The conceptual Comprehensive Plan alignment proposes approximately 110' of vertical rise over approximately 400' or a grade that approaches 28%. In addition to the steep slope, the Comprehensive Plan alignment crosses Bells Branch at an area that contains flooding soils and a portion of FEMA floodplain. The Comprehensive Plan alignment was drawn without consideration of the natural features such as steep slopes, existing forested areas, sensitive resources, and natural hazards such as Bells Branch and its associated flooding soils. The Applicant's Concept Plan proposed alternate alignments that minimizes impacts to the sensitive environmental resources.

8. Historic resources have been identified and impacts to these resources are avoided or minimized to the maximum extent practicable.

The Applicant has taken necessary steps to preserve the small area of existing grave sites on the eastern portion of the Property.

B. Specific Requirements of Section 1-19-10.500.3 of the Zoning Ordinance.

1. The proposed development is compact, employing design principles that result in efficient consumption of land, efficient extension of public infrastructure, and efficient provision of public facilities;

As shown in the Concept Plan, residential uses are proposed for the northern portion of the Property, with the balance of the Property reserved for open space.

2. The proposed development design and building siting are in accordance with the County Comprehensive Plan, and any applicable community and corridor plans;

The County has not yet introduced a corridor plan for the region surrounding the Property. However, the design and building siting are consistent with the LFMP.

3. The proposed development is compatible with existing or anticipated surrounding land uses with regard to size, building scale, intensity, setbacks, and landscaping, or the proposal provides for mitigation of differences in appearance or scale through such means as setbacks, screening, landscaping; or other design features in accordance with the County Comprehensive Plan, and any applicable community or corridor plans;

The County has not yet introduced a corridor plan for the region surrounding the Property. However, the Comprehensive Land Use Plan primarily designates the surrounding area as Low-Density Residential. The proposed project will comply with the largely PUD communities surrounding Lake Linganore. As depicted in the Concept Plan, the design characteristics are comparable to those in the neighboring communities.

4. The proposed development provides a safe and efficient arrangement of land use, buildings, infrastructure, and transportation circulation systems. Factors to be evaluated include: connections between existing and proposed community development patterns, extension of the street network; pedestrian connections to, from, and between buildings, parking areas, recreation, and open space;

The project provides safe pedestrian connections on the Property and future vehicular and pedestrian connections to the Linganore Town Center to the northwest.

The design of the project will provide a safe and efficient arrangement of uses, buildings, infrastructure, and transportation circulation systems.

5. The transportation system is or will be made adequate to serve the proposed development in addition to existing and pipeline uses in the area. Factors to be evaluated include: roadway capacity, level of service and safety, on-street parking impacts, access requirements, neighborhood and natural resource impacts, projected construction schedule of planned improvements, pedestrian and bicycle safety, and results of travel demand modeling assessing the change in future daily travel volumes, with and without the proposed development;

See the Traffic Study attached hereto as **Exhibit R**. The transportation system is or will be made adequate, with any final improvements identified as part of the Adequate Public Facilities approval.

The Property has access to Interstate 70 from the New Market Interchange and the newly constructed Meadow Road Interchange. To the south of the project, Old National Pike/ MD 144 has undergone significant improvements in recent years during the Oakdale and Linganore Town Center development. To the north, Boyer's Mill Road will be improved during the upcoming Calumet and Gordon Mill projects. The Calumet and Gordon Mill projects also include a future New Market Bypass connecting Boyers Mill Road to MD75, providing alternate travel routes.

The proposed connection to Golden Shiner Street in the northwest portion of the Property would connect to the neighboring property (Phase 3 North Land bay of Linganore Town Center), providing connection to Eaglehead Dive and Meadow Road.

6. The proposed development provides design and building placement that optimizes walking, biking, and use of public transit. Factors to be evaluated include: extension of the street network; existing and proposed community development patterns; and pedestrian connections to, from, and between buildings, parking areas, recreation, and open space;

The New Market, Oakdale, and Lake Linganore communities are not currently served by public transit. The project will include sidewalks, biking and walking paths. Yeagertown Road is not slated to accommodate pedestrian uses; however, the proposed connection in the northwest portion of the Property would connect to the neighboring property (Linganore Town Center), slated for future development, at which time the property could connect to sidewalks and trails within that neighborhood.

7. Existing fire and emergency medical service facilities are or will be made adequate to serve the increased demand from the proposed development in addition to existing uses in the area. Factors to be evaluated include: response time, projected schedule of providing planned improvements, bridges, roads, and nature and type of available response apparatus;

The Property is located 3.4 miles from the New Market Fire Station and 5 miles from the Spring Ridge Fire Station. Additionally, a fire station is proposed on Gas House Pike near the Hamptons West neighborhood.

The Project is served by the Frederick County Sheriff's Office and Maryland State Police.

Additionally, a Frederick Primary Care Associates medical office building was recently constructed on Old National Pike/MD 144 as part of the Commercial South development of the Linganore Town Center.

8. Natural features of the site have been adequately considered and protected in the design of the proposed development. Factors to be evaluated include: the relationship of existing natural features to man-made features both on-site and in the immediate vicinity, natural features connectivity, energy efficient site design, use of environmental site design or low impact development techniques in accordance with Chapter 1-15.2 of the Frederick County Code;

The Comprehensive Plan shows an arterial alignment through the Property that is unfeasible given the topography and is not respectful of sensitive natural features / resources. The conceptual Comprehensive Plan alignment proposes approximately 110' of vertical rise over approximately 400' or a grade that approaches 28%. In addition to the steep slope, the Comprehensive Plan alignment crosses Bells Branch at an area that contains flooding soils and a

portion of FEMA floodplain. The Comprehensive Plan alignment was drawn without consideration of the natural features such as steep slopes, existing forested areas, sensitive resources, and natural hazards such as Bells Branch and its associated flooding soils. The Applicant's Concept Plan proposed alternate alignments that minimizes impacts to the sensitive environmental resources.

9. *The proposed mixture of land uses is consistent with the purpose and intent of the underlying County Comprehensive Plan land use designation(s), and any applicable community or corridor plans;*

The proposed age-restricted community, consisting of residential and recreational uses, is an efficient use of land and efficient extension of public facilities under § 1-19-10.500.1 of the Zoning Ordinance because the property is surrounded on three sides by the growing communities of Lake Linganore, Oakdale, and New Market. The development of the project will promote continuity among the neighboring PUD communities while protecting the natural features of the nearby Lake Linganore.

10. *Planned developments shall be served adequately by public facilities and services. Additionally, increased demand for public facilities, services, and utilities created by the proposed development (including without limitation water, sewer, transportation, parks and recreation, schools, fire and emergency services, libraries, and law enforcement) shall be evaluated as adequate or to be made adequate within established county standards;*

See VI.A.2. and VI.B.7. above.

11. *Sensitive environmental resources are protected to the maximum extent practicable; and*

See VI.A.7. above.

12. *All efforts have been made to promote the protection, preservation, and integration of historic resources into the planned development through reuse, adaptive use and rehabilitation.*

See VI.A.8. above.

C. Specific Development Standards for PUD.

In addition to the general criteria of Section 1-19-3.110.4 and specific criteria of Section 1-19-10.500.3, Section 1-19-10.500.10 of the Zoning Ordinance contains approval criteria applicable for designation of a project or a portion thereof as an age restricted community.

1. *Active and passive recreational amenities;*

The project will comply with the amenities required pursuant to Section § 1-20-7 (D)(5) of the APFO, which includes the following:

(a) A trail system, walking paths, and sidewalks for pedestrian accessibility;

(b) A clubhouse/multi-purpose building(s) or equivalent space sized at 20 square feet for every dwelling unit. A minimum of 1,500 sq. ft. must be provided. The maximum square footage required shall be 20,000 square feet;

(c) Active recreational open space (for the purpose of providing amenities, including but not limited to, a swimming pool, tennis courts, chip and putt course, bocce courts, horseshoe pits, and/or similar active recreational amenities at a rate of 1/3 acre per 100 dwelling units. A minimum of 1 acre must be provided. A single large-scale amenity, such as a golf course, may not be proposed as the sole means to satisfy this requirement. Only the physical structure (i.e. footprint) of the clubhouse/multi-purpose building(s), not the parking area(s), will be considered in determining the area of active recreational open space;

(d) Passive recreational space, including but not limited to, picnic areas, gazebos, pocket parks and/or other similar passive recreational amenities; and

(e) An appropriate phasing schedule in each phase of development to meet the needs of the residents.

The project proposes a one-acre Community Club Amenity Area in the center of the project, which will include a clubhouse, satisfying the requirements of Section 1-20-7 (D)(5)(b), as well as a community garden, community trails, and recreation area, pursuant to Section 1-20-7 (D)(5)(a),(c), and(d), along the exterior of the villas. The Applicant will provide a final list of amenities during the final site development plan approval process.

2. Availability, suitability and proximity of the development to planned support services; and

The Property is well situated between the Town of New Market, Linganore Town Center, and the Monocacy Boulevard/ Liberty Road area, all of which offer commercial services, such as retail and medical offices. In particular, a Frederick Primary Care Associates and Weis Grocery Store are under construction on the nearby Old National Pike as part of the Commercial South development of the Linganore Town Center.

3. The amount of existing and approved age-restricted development in the county and in proximity to the proposed development.

Multiple age-restricted communities, such as Homewood Retirement Community, a small section of the Ballenger Run PUD, and the Woodlands at Urbana, exist in Frederick County; however, most of these neighborhoods have been completed. The County Council most recently approved rezoning the Knowledge Farms project in March 2024, which proposes five age-restricted apartment buildings, an assisted living facility, and a row of villas in Urbana. The Knowledge Farms project is capped at 150 assisted living beds and 147 age-restricted housing units.

The County Planning Commission approved a preliminary subdivision plan of 488 units for the Cromwell Active Adult Community in October 2023, including 192 single-family detached units, 184 townhomes, and 112 multifamily attached units. The Bloomfields project in the City of Frederick is under construction and received preliminary plan approval for 1,359 total units. England Woods in New Market is approved for 537 units. The Woodlands in Urbana is approved for 31 additional units, Foxfield section 6 is approved for 148 units, and Jefferson Village is approved for 47 townhomes or villas.

With proximity to health care, retail, and a wide range of amenities, Frederick County continues to be an attractive destination for individuals 55 years and older. The growing Lake

Linganore and New Market communities further enhance the area's appeal. Despite the pending projects, there is an inadequate pipeline of age-restricted developments for the projected population of Frederick.

VII. CONCLUSION

This request meets all of the general and specific requirements of the Zoning Ordinance for the approval of this Amendment to the Phase I PUD Approval, and the requirements for age-restricted communities in the APFO. The Applicant requests approval of this amendment and designation of the Property as an Age-Restricted Community.

As such, this Application requests confirmation that the proposed development conforms to the requirements of the APFO and that the program of amenities and other activities for older persons is to be encumbered by restrictive covenants that meet the requirements of Section 1-20-7 of the APFO.

LAKE LINGANORE



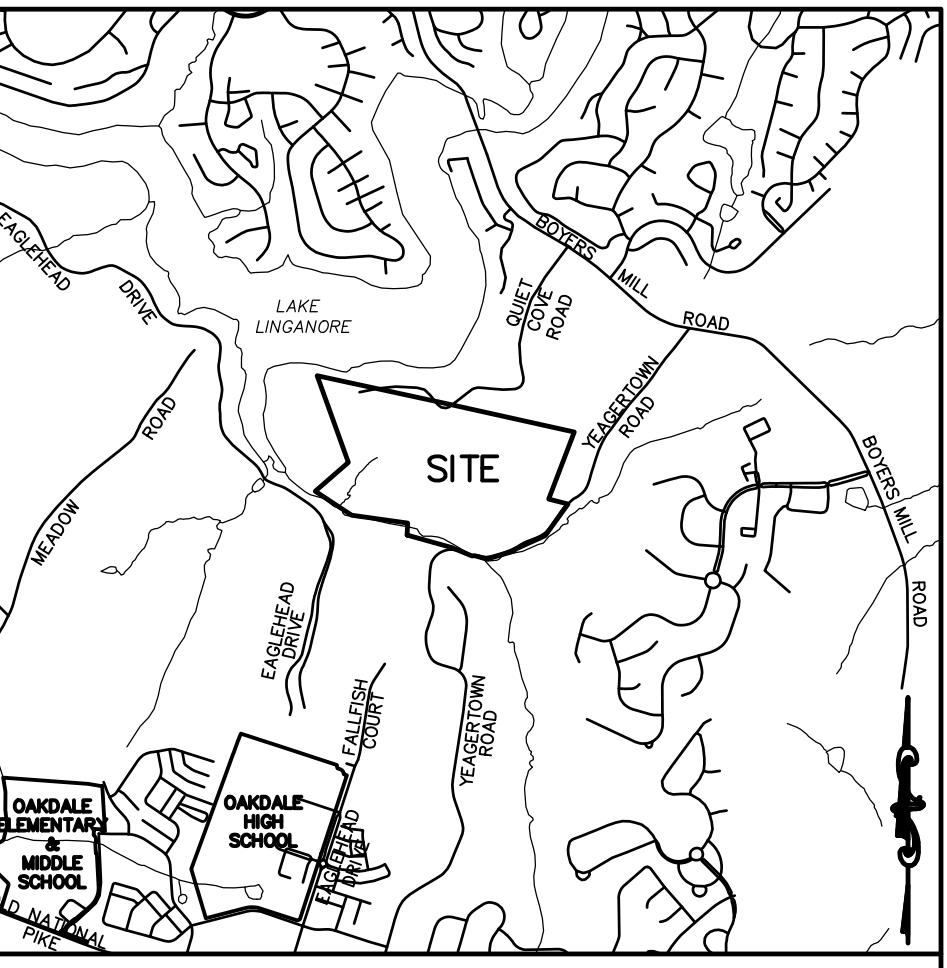
COMPARATIVE ANALYSIS:

PROJECT GROSS DENSITY: 248 UNITS/75.493 ACRES = 3.29 GROSS DENSITY

PROJECT NET DENSITY: 248 UNITS / 36.47 PROJECT BUILDABLE ACREAGE = 6.80 NET DENSITY

NET DENSITY EXCLUDES:

- FEMA FLOODPLAIN & BUFFER
- PRIORITY FOREST CONSERVATION AND FORESTATION AREAS
- WETLANDS AND WETLAND BUFFERS
- PERENNIAL/INTERMITTENT STREAMS & SETBACKS
- STREAMS & ZONES ASSOCIATED WITH HYDROLOGICAL FEATURES AND/OR ERODIBLE SOILS
- NONRESIDENTIAL COMPONENTS (I.E. COMMERCIAL AREAS)
- ROADWAYS AND OTHER LAND PROPOSED TO BE DEDICATED FOR PUBLIC PURPOSE



VICINITY MAP
TAX MAP #79, PARCEL 96
TAX ID #09-231137

HARRIS SMARIGA <small>PLANNERS ENGINEERS SURVEYORS</small> <small>125 CARRIAGE STREET SUITE 100 FREDERICK, MARYLAND 21701 P: 301.652.4496 F: 301.652.4906 www.harrissmariga.com</small>
<small>REVISIONS:</small>

TABULATION:
28' "VILLA" - 248

**EXHIBIT L
CONCEPT PLAN**
SCALE: 1"=100'

TRAFFIC IMPACT ANALYSIS
FOR
BELL FARM PROPERTY

Prepared by:

LENHART TRAFFIC CONSULTING, INC.
TRAFFIC ENGINEERING & TRANSPORTATION PLANNING

January 29, 2025



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- B Level of Service Worksheets
- C Background Developments

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Section 1 Introduction

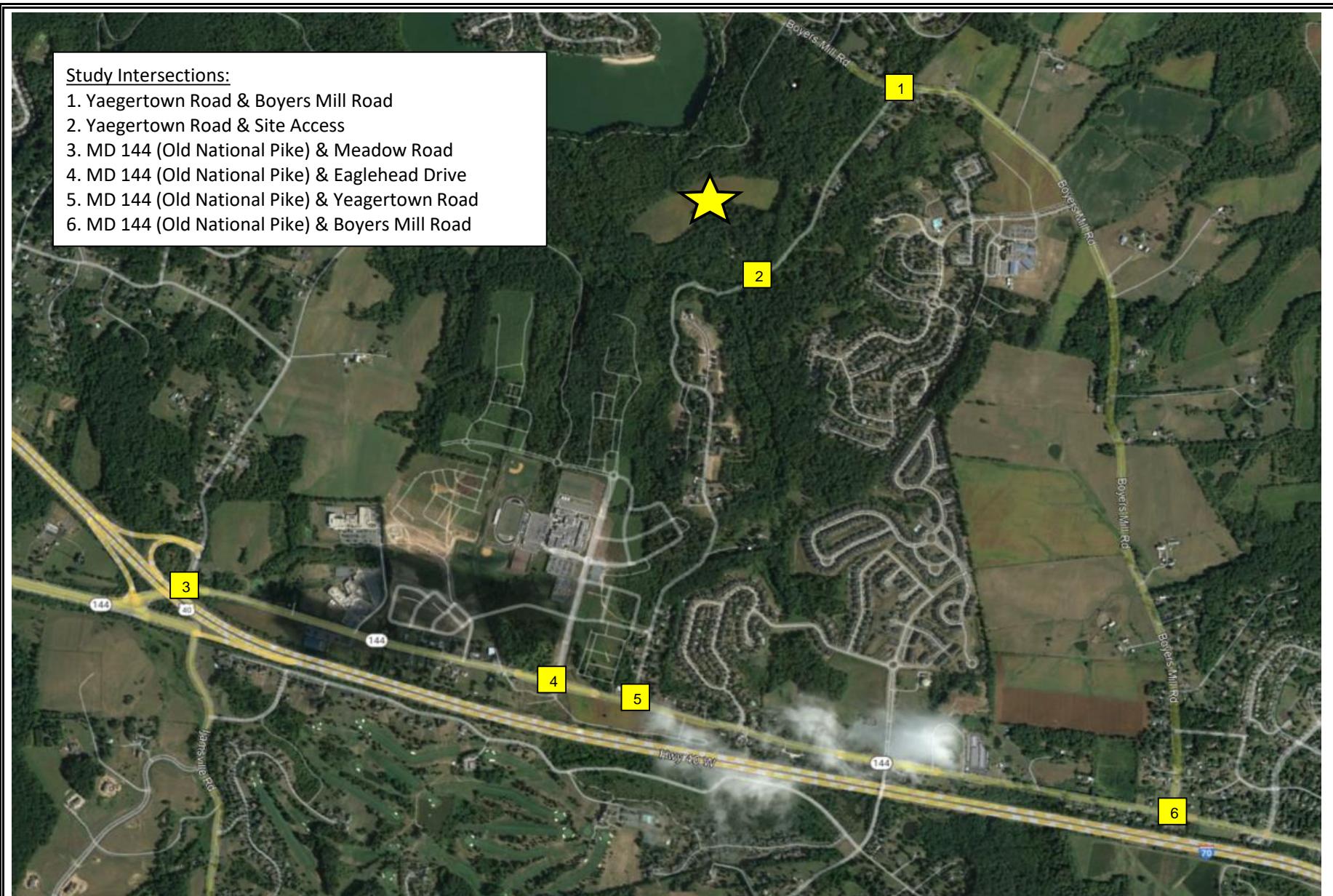
1.1 Project Description

This Traffic Impact Analysis (TIA) was prepared for the development of the Bell Farm Property located in New Market, Maryland. A site location map is provided on **Exhibit 1**.

The Bell Farm Property is proposed to be developed with up to 248 senior multifamily units. Access to the site will be provided with a single full movement access point along Yeagerstown Road. A concept site plan has been provided in Appendix A.

1.2 Scope of Study

This Traffic Impact Study has been prepared in accordance with Frederick County's Adequate Public Facilities Ordinance (APFO) and SHA Guidelines. Scoping documents and correspondence have been included in Appendix A detailing the scope of work for the development.



Traffic Impact Analysis

 LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146

Site Location
Map

 - Location of Site

Exhibit
1

Section 2 Existing Conditions

2.1 Description of Road Network

The key roads in the study area are:

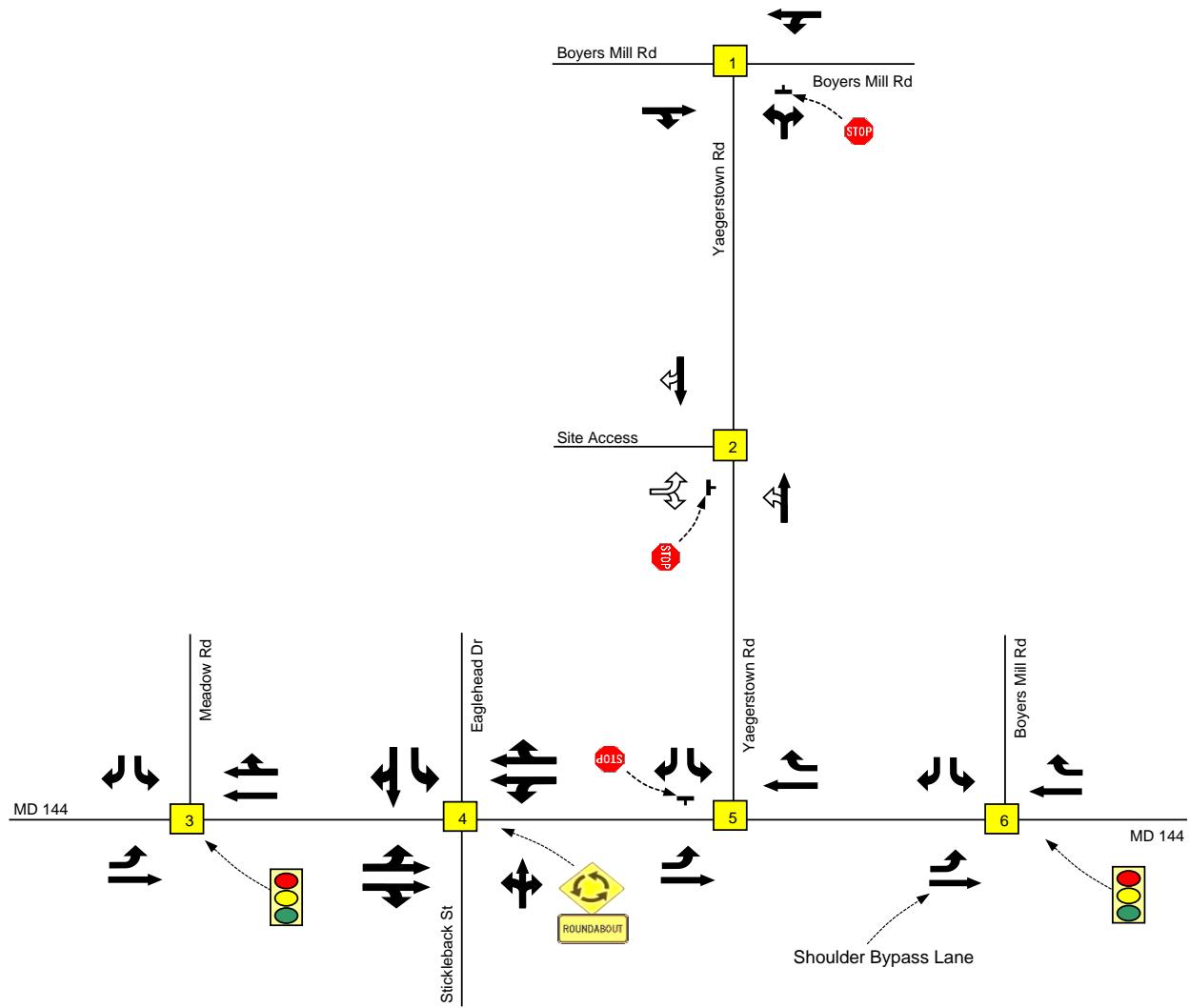
- Yeagerstown Road is a two-lane roadway (one in each direction) with a north-south orientation and is classified as a local road. The posted speed limit is 25 MPH within the vicinity of the site.
- MD 144 is a two-lane roadway (one in each direction) with an east-west orientation. MD 144 is classified as a major collector. The posted speed limit is 45 MPH.

2.2 Lane Configurations

The Lane Use & Traffic Control Devices are shown on **Exhibit 2**.

2.3 Existing Traffic Counts

Peak hour traffic counts were collected and the resulting existing peak hour traffic volumes are shown on **Exhibit 3**.

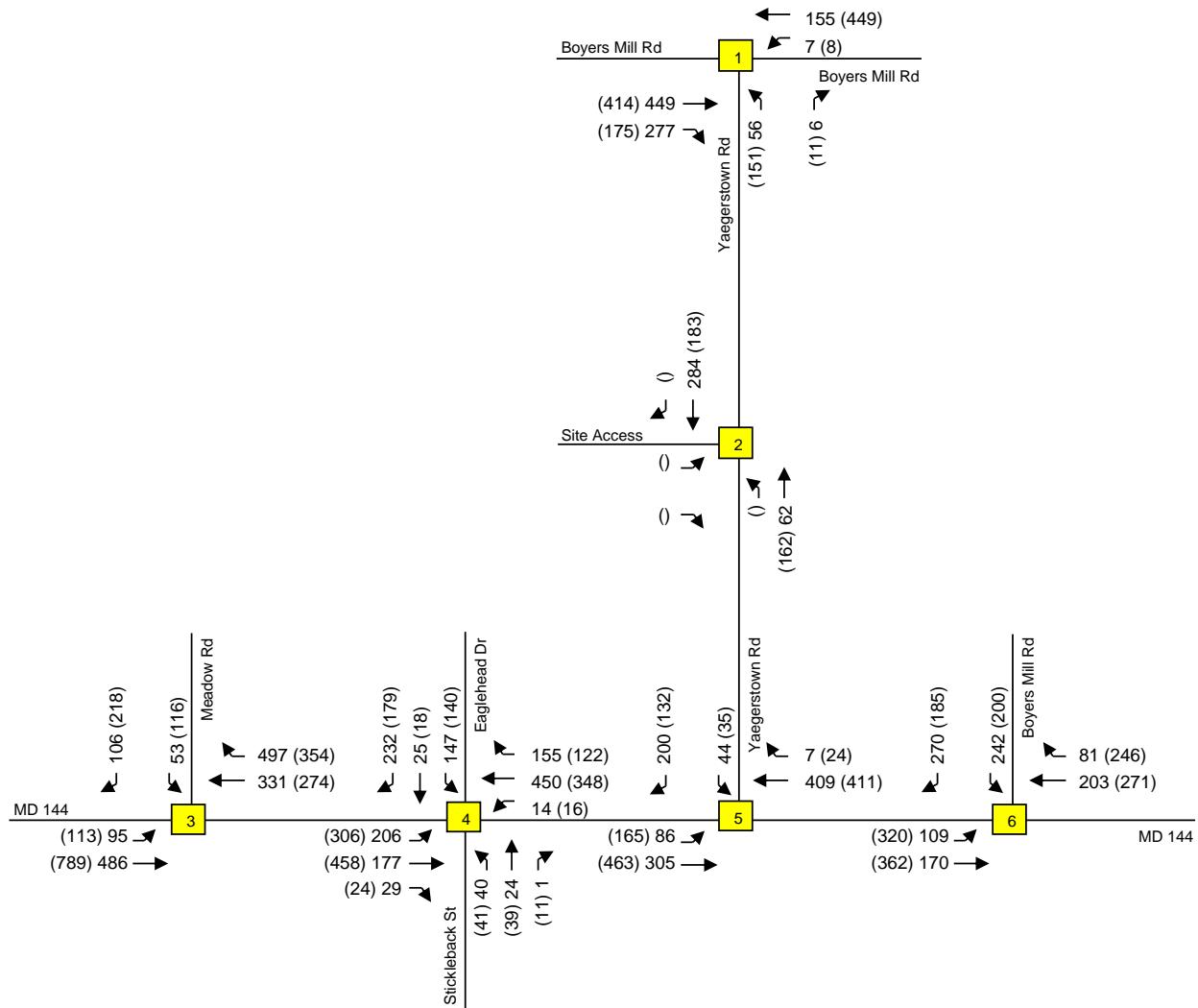


Traffic Impact Analysis

**Lane Use &
Traffic Control Devices**

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

**Exhibit
2**



Traffic Impact Analysis

Existing
Peak Hour Volumes

**Exhibit
3**

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Section 3 Background Conditions

3.1 Annual Growth

Per the scoping agreement, a 1% growth was applied for 8 years in order to account for growth in the vicinity of the site. The resulting volumes are shown on **Exhibit 4**.

3.2 Approved Background Developments

The following background developments were included, per the scoping agreement:

- Eaglehead
- Oakdale Village
- Aubudon Terrace
- Meadows
- Pinehurst
- Westwinds (Woodlands Preserve)
- New Market Retail Center
- Intercoastal
- Marley Commons
- Preston/Mains
- 105/113 West Main
- Calumet
- Cromwell

Individual background development trip generation and assignments are included in Appendix C. The combined trips associated with the background developments are shown on **Exhibit 5**.

In addition to the above background developments, the following CIP/CTP or other traffic improvements have been included in the analyses:

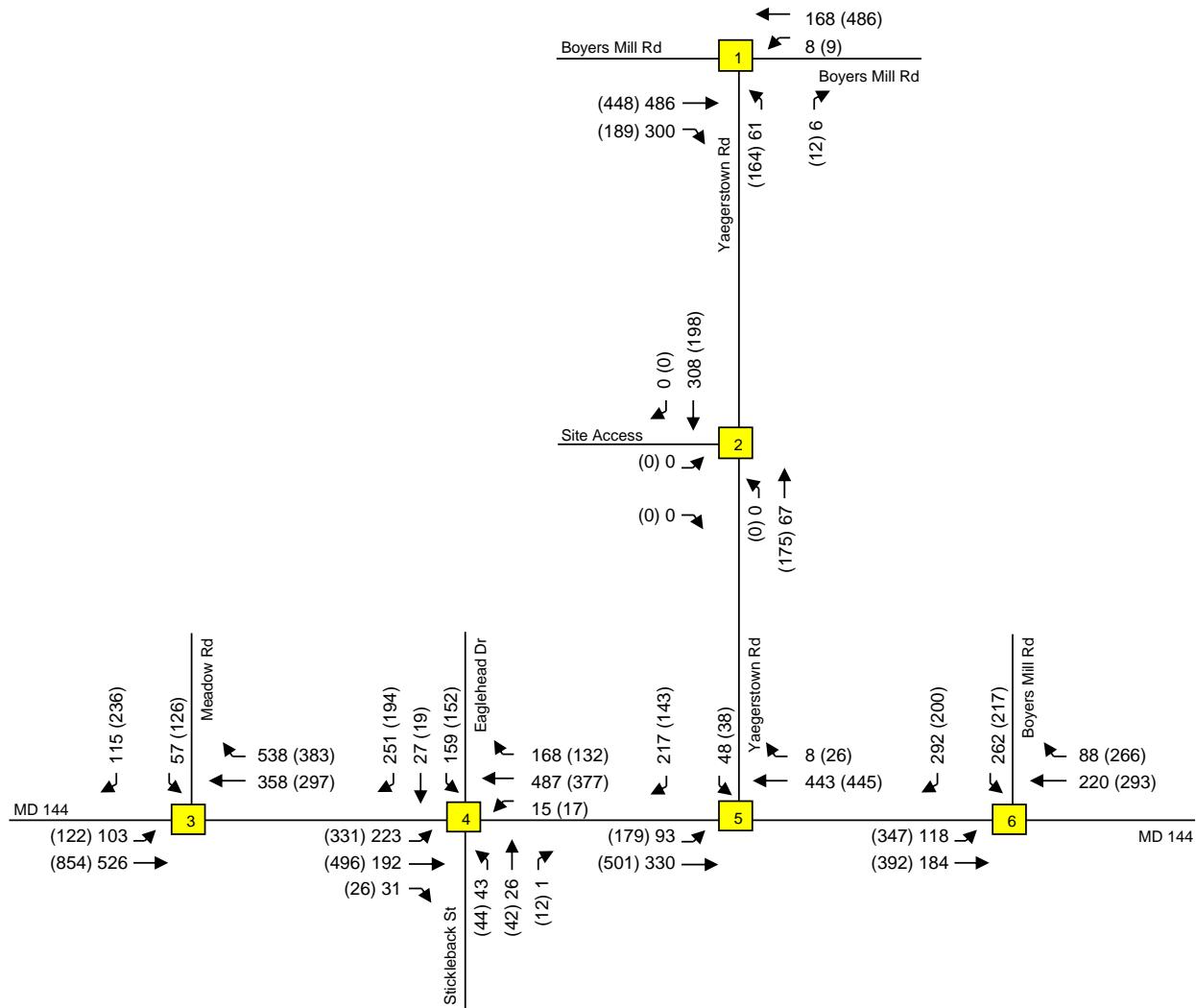
- Lake Linganore Boulevard from LTC Town Center to Meadow Road Interchange
- Boyers Mill Road Widening from Lake Linganore Bridge to Finn Drive
- Right turn lane from EB Gas House Pike onto SB Boyers Mill Road
- Traffic Signal at Finn Drive and Boyers Mill Road
- Double left turn lane NB on Mussetter Road from Old National Pike
- New Market Bypass from Boyers Mill Road to MD 75

Diversions due to the Lake Linganore Boulevard extension are shown on **Exhibit 6a** and diversions due to the New Market Bypass are shown on **Exhibit 6b**.

3.3 Background Traffic Volumes

The background peak hour volumes are shown on **Exhibit 7** and combine the base peak hour volumes with the trips generated by the background developments and diversions due to planned roadway improvements.

1%	Growth Rate
8	Years of Growth
1.083	Total Growth



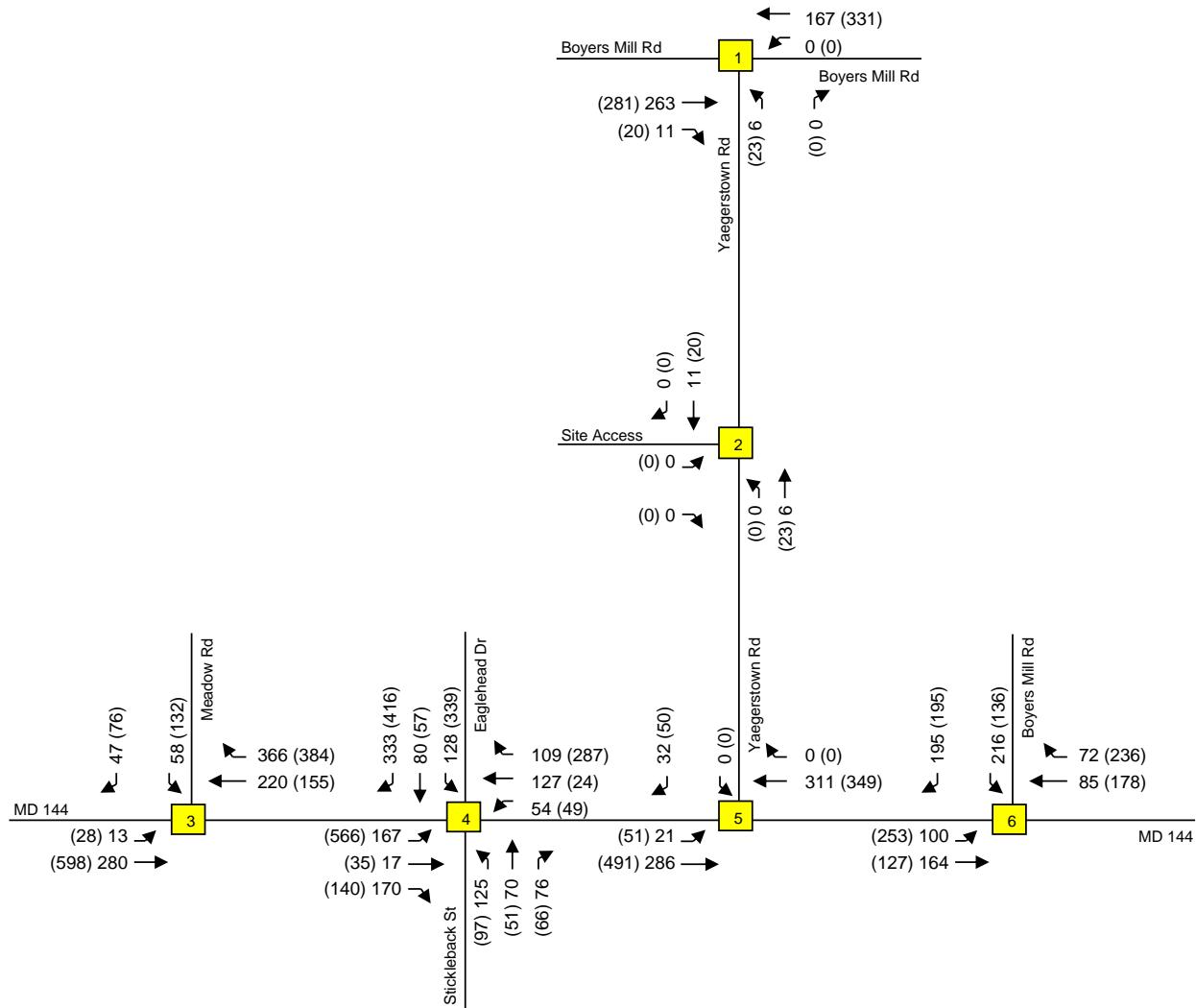
Traffic Impact Analysis

Base Peak Hour Volumes

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Exhibit
4



Traffic Impact Analysis

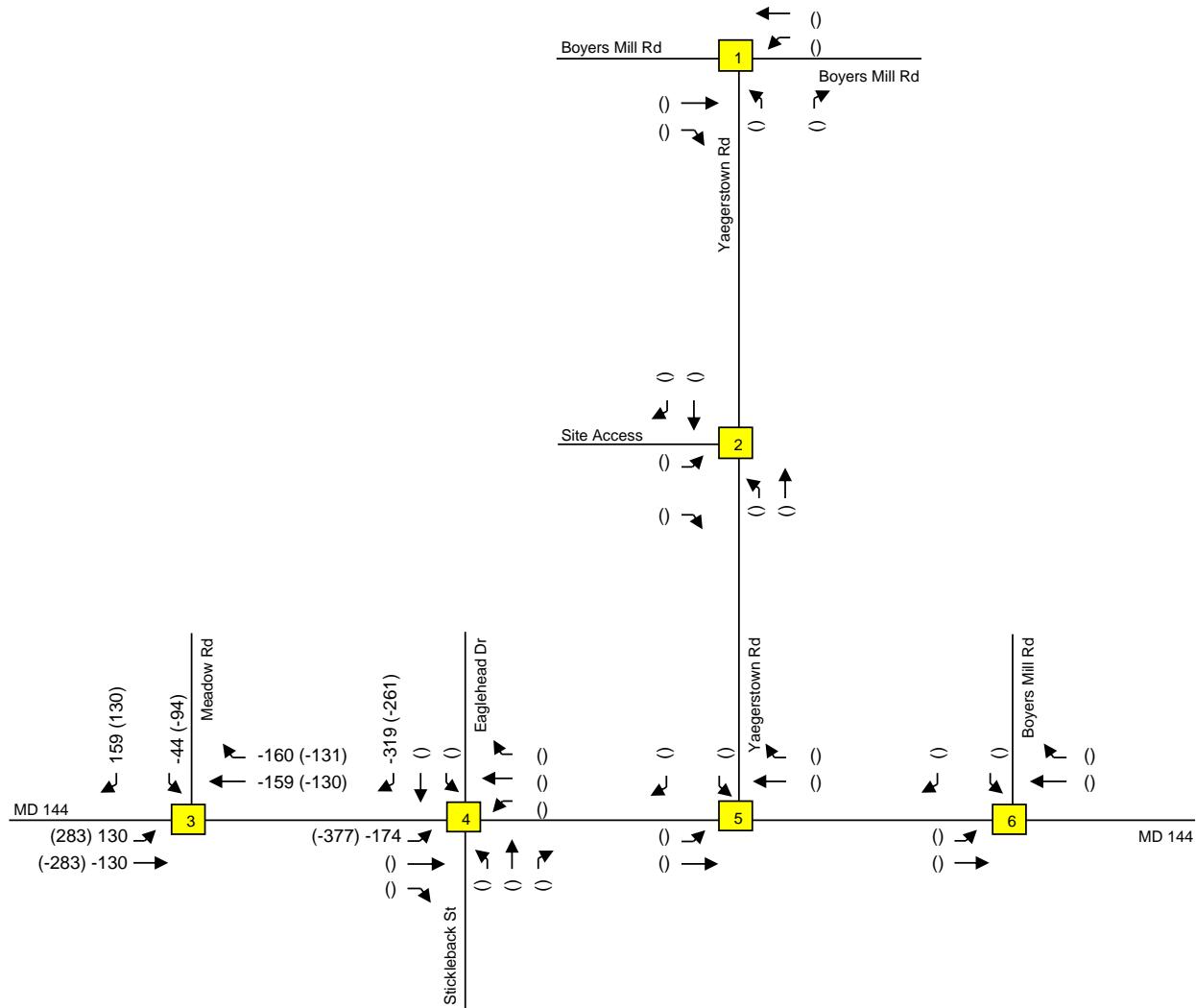
Combined Background
Development Trips

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Exhibit
5

Note: Diversions due to the completion of the Lake Linganore Boulevard Extension were obtained from the December 2022 Gordon Mill TIA.



Traffic Impact Analysis

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Diversions Due to Lake Linganore Blvd Extension

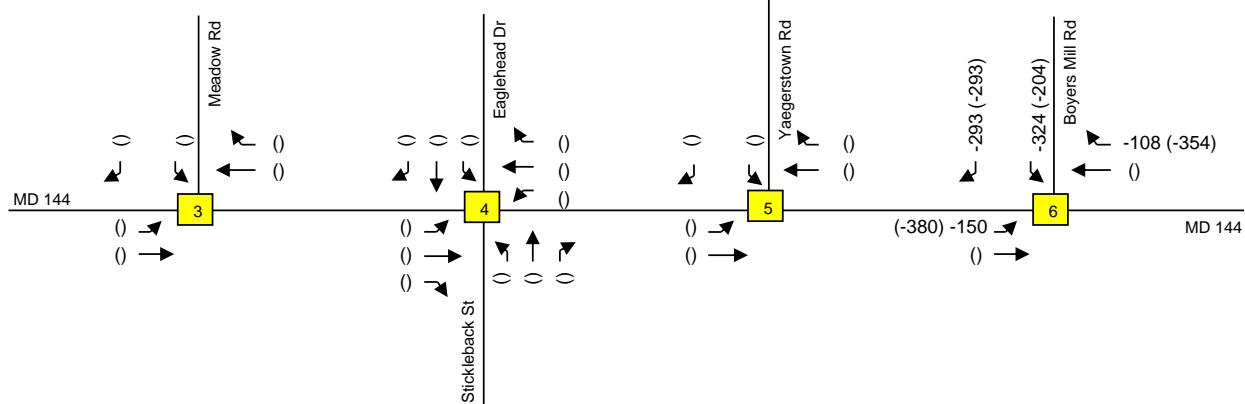
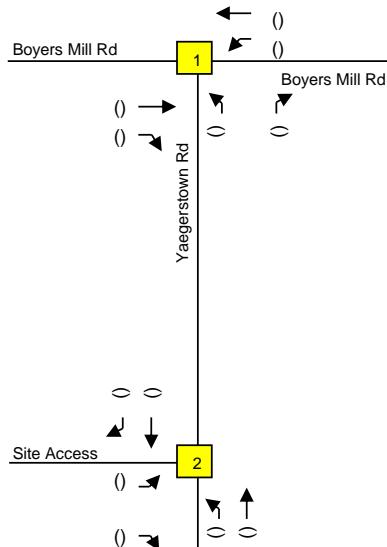
Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
6a**

Notes: The following diversions were applied to the base peak hour volumes (Exhibit 4) and the trips associated with the background developments (Exhibit 5a)

1. It is assumed that 75% of southbound volume at MD 144 & Boyers Mill Road will bypass to utilize the New Market Bypass. Trips destined west along MD 144 will divert to Mussetter Road, rejoining the study network between Intersections 5 and 6. Trips destined east along MD 144 will divert to use the bypass to reach MD 75, exiting the study network between Intersections 1 and 6.

2. It is assumed that 75% of trips destined north along Boyers Mill Road (eastbound lefts and westbound rights at Intersection 6) will divert to utilize the bypass. The diverting eastbound lefts will turn at Mussetter Road, thus exiting the study network between Intersections 5 and 6. The diverting westbound rights will use the bypass via MD 75, entering the study network between Intersections 1 and 6.



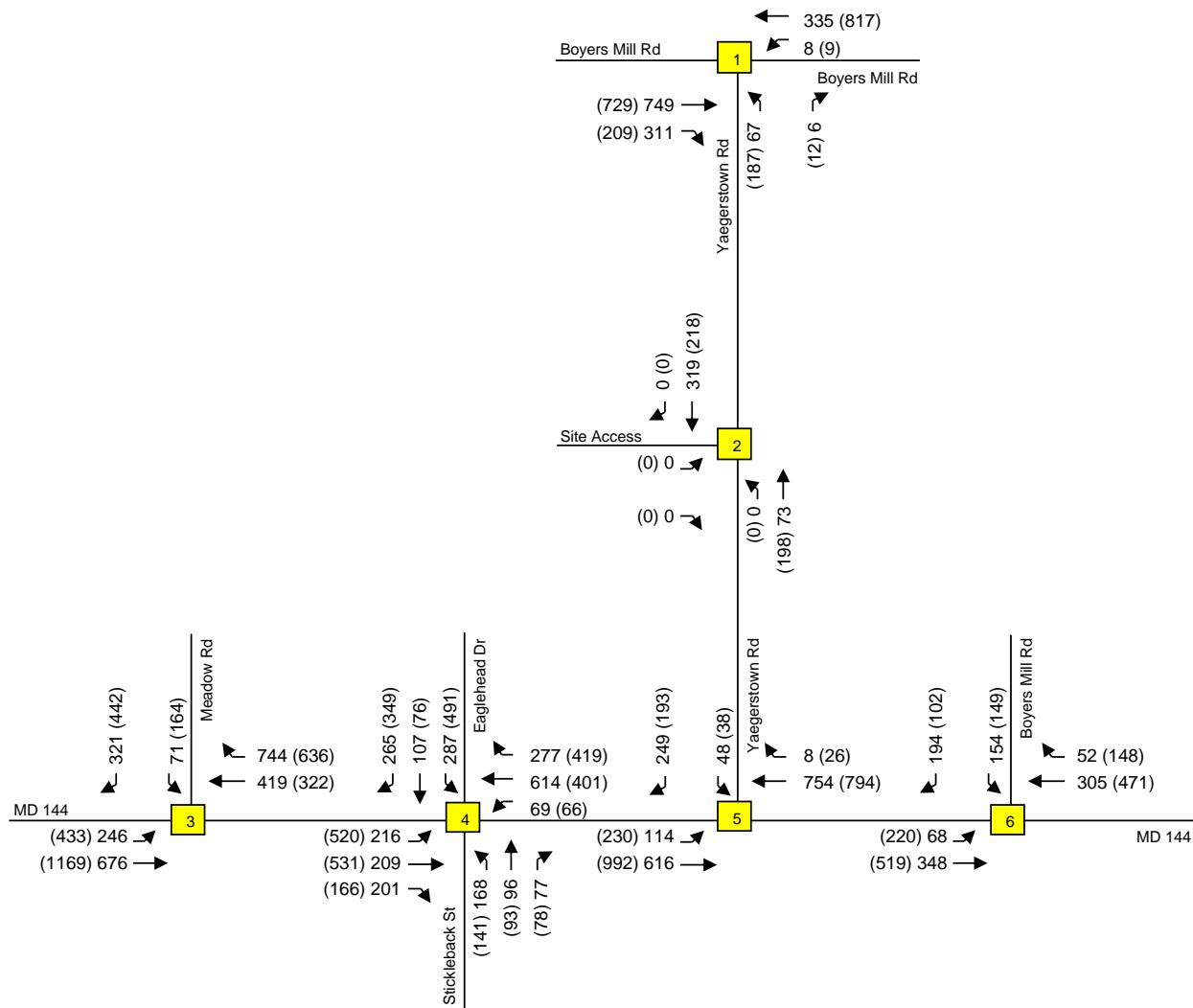
Traffic Impact Analysis

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Diversions Due to New Market Bypass

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
6b**



Traffic Impact Analysis

Background Peak Hour Volumes

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Exhibit
7

Section 4 Projected Conditions with Site

4.1 Site Trip Generation

The Bell Farm Property is proposed to be developed with up to 248 senior multifamily units.

Exhibit 8 shows the trip generation for the site. The trip generation rates were obtained from the ITE Trip Generation Manual, 11th Edition.

4.2 Site Trip Distribution & Trip Assignment

The trip distribution and assignment for the site is shown on **Exhibit 9**.

4.3 Total Traffic Volumes

The Total Peak Hour Volumes are shown on **Exhibit 10**.

4.4 Projected Level of Service

The total traffic volumes were evaluated using the HCM methodology as required in the scoping agreement. The results of the HCM analyses are shown on **Exhibit 11a**. The study intersections were also evaluated using the CLV methodology, with the results shown on **Exhibit 11b**.

Based on the results of the HCM and CLV evaluations, each study intersection will meet the APFO requirements of Frederick County and TIS requirements of MDOT SHA, with the exception of MD 144 & Eaglehead Drive:

- The intersections with movements exceeding LOS “D” using the HCM methodology, the intersections of Boyers Mill Road & Yeagerstown Road and MD 144 & Yeagerstown Road are stop-controlled intersections in which the minor, stop-controlled approach exceeds LOS “D” while the mainline uncontrolled movements operate with LOS “A”. The proposed development adds fewer than 30 peak hour trips to the stop-controlled movements at these intersections. The Frederick County APFO states that “where the site generated volume on a stop-controlled approach would be 30 vehicles per hour or less, any LOS problem that may exist is considered to be negligible and an adequacy finding and mitigation would not normally be required.” As such, mitigation should not be required for these intersections.
- Each study intersection operates with LOS “D” or better when analyzed using the CLV methodology, thereby meeting the requirements of MDOT SHA.
- The intersection of MD 144 & Eaglehead Drive/Stickleback Street was

analyzed using Sidra software as required in the Frederick County APFO. The results of the analysis indicate that while the northbound approach operates in excess of 1.0 during the evening peak hour, the development adds very little traffic through the intersection, and no volume, specifically, to the northbound approach. The v/c ratio of this approach increases by only 0.01 from background to total conditions, and by only 0.01 at each of the other legs of the intersection. Under background conditions, 3,331 vehicles enter the roundabout during the evening peak hour. The proposed development adds only 28 additional vehicles, or an increase of 0.8%. This should be considered a negligible impact on the operation of the intersection and therefore mitigation should not be required.

In general, the proposed development increases volume on the road network by a negligible amount compared to the background conditions, which include the existing traffic volumes and trips associated with all the nearby approved developments. Due to the large quantity of approved background development trips (shown on Exhibit 5), the level of service for several movements at the study intersections degrade significantly from existing to background conditions. Relative to the degradation in level of service from existing to background conditions, the degradation from background conditions to total conditions (the impact of the proposed development on the study network) is minimal. This indicates that the proposed development has little impact on the study intersections, and that any excessive delays are due to the large quantity of background development volume, rather than the proposed development.

SimTraffic simulation software (and Sidra for the roundabout intersection of MD 144 & Eaglehead Drive/Stickleback Street) was used to evaluate the 95th percentile queues at each study intersection. The results of the queuing analyses are shown on **Exhibit 12**. The results of the queuing analyses show that 95th percentile queues at each intersection do not impact adjacent intersections, and that the proposed development has minimal impact on the queue lengths.

4.5 Other Considerations

Per the scoping agreement, Frederick County Staff requested the following additional analyses:

- crash history at Yeagerstown Road & Boyers Mill Road
- safety review of Yeagerstown Road between MD 144 & Boyers Mill Road
- sight distance evaluation of the following intersections:
 - Yeagerstown Road & Site Access
 - Boyers Mill Road & Yeagerstown Road

Crash History at Boyers Mill Road & Yeagerstown Road

Crash data at this intersection was provided by MDOT SHA for the previous three years. The crash data shows that only three total crashes have occurred at the intersection over the previous three years, and there is no discernible pattern to the crashes. The crash data is provided in Appendix A.

Safety Review of Yeagerstown Road

As discussed in Section 2, Yeagerstown Road is a two-lane roadway designated as a local road, providing local connections to MD 144 and Boyers Mill Road.

The typical section of Yeagerstown Road is a paved width of 20 feet, with one 10-foot travel lane in each direction. Due to the environmental constraints along the roadway (steep grades along the road edges and dense vegetation) no shoulders are provided along the length of Yeagerstown Road. However, guard rails and reduced speed warnings at horizontal curves are provided at various locations to improve safety along the roadway. These safety features are shown on **Exhibit 13**, which provides a line diagram of Yeagerstown Road.

Crash data along Yeagerstown was provided by MDOT SHA for the previous three years. The crash data shows that only seven total crashes have occurred along the roadway over the previous three years. There is no discernible pattern to the crashes as they all occur at different locations along the roadway. The crash data is provided in Appendix A.

Sight Distance Evaluation of Yeagerstown Road & Site Access

The location of the proposed site access along Yeagerstown Road is shown on Exhibit 1 and the concept site plan included in Appendix A. Yeagerstown Road has a 25 MPH posted speed limit within the vicinity of the proposed site access location. The *AASHTO Green Book (A Policy on Geometric Design of Highways and Streets)* provides the standards for intersection sight distance. For a roadway with a 25 MPH posted speed limit, the required intersection sight distance for a left-turn from stop is 280 feet. For a right-turn from stop, the required intersection sight distance is 240 feet. It should be noted that AASHTO Green Book contains guidance on intersection sight distance in Chapter 9.5.1, and states that, “*If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions.*” Given this discussion, AASHTO

recommends that intersection stopping sight distance should meet or exceed the stopping sight distance requirements so that drivers have sufficient sight distance to anticipate and avoid collisions. Based on the roadway geometry of Yeagerstown Road at the proposed site access location, the site access can be designed such that the intersection sight distance exceeds the stopping sight distance of Yeagerstown Road and can therefore operate safely in regard to sight distance. To achieve this sight distance, it may be necessary for the development to clear vegetation and cut earth along the property frontage.

Sight Distance Evaluation of Boyers Mill Road & Yeagerstown Road

Boyers Mill Road has a 35 MPH posted speed limit within the vicinity of the the intersection with Yeagerstown Road. The *AASHTO Green Book (A Policy on Geometric Design of Highways and Streets)* provides the standards for intersection sight distance. For a roadway with a 35 MPH posted speed limit, the intersection sight distance requirement for a left-turn from stop is 390 feet. For a right-turn from stop, the required intersection sight distance is 335 feet. Sight distance to the north along Boyers Mill Road (looking left from Yeagerstown Road) is measured in excess of 400 feet to the horizontal curve, thus exceeding the intersection sight distance requirement. Sight distance to the south along Boyers Mill Road (looking right from Yeagerstown Road) is measured at approximately 290 feet. It should be noted that the stopping sight distance requirement for a roadway with a 35 MPH speed limit is 250 feet. The sight distance to the south along Boyers Mill Road exceeds the stopping sight distance requirement and, based on the guidance of the *AASHTO Green Book*, therefore allows drivers sufficient sight distance to anticipate and avoid collisions.

This intersection is part of Frederick County's Boyers Mill Road Improvement Project, which focuses on improving the safety of the road corridor to meet the increasing traffic demands in the area. With the improvements proposed at the intersection of Boyers Mill Road & Yeagerstown Road as part of this project, which includes increasing the paved width of Boyers Mill Road, the vehicular safety of this intersection should be improved upon the existing conditions.

Trip Generation Rates

Senior Adult Housing - Multifamily (ITE-252, Units)

Trip Distribution (In/Out)

Morning Trips = 0.20 x Units	34/66
Evening Trips = 0.25 x Units	56/44

Trip Generation Totals

	248 units	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Senior Adult Housing - Multifamily (ITE-252, Units)		17	33	50	35	27	62

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition

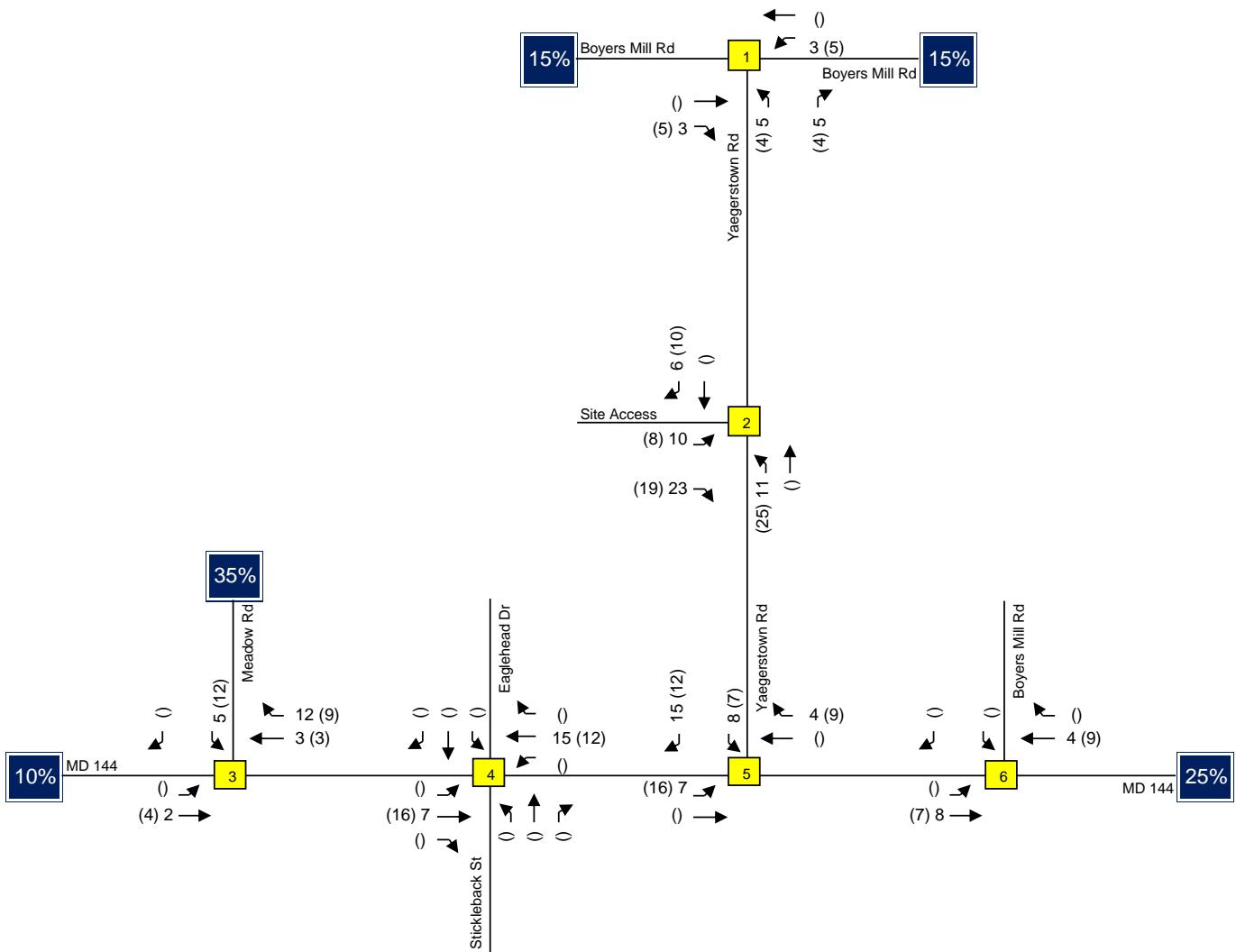
Traffic Impact Analysis

Lenhart Traffic Consulting, Inc.

Traffic Engineering & Transportation Planning

Trip Generation for
Site

**Exhibit
8**



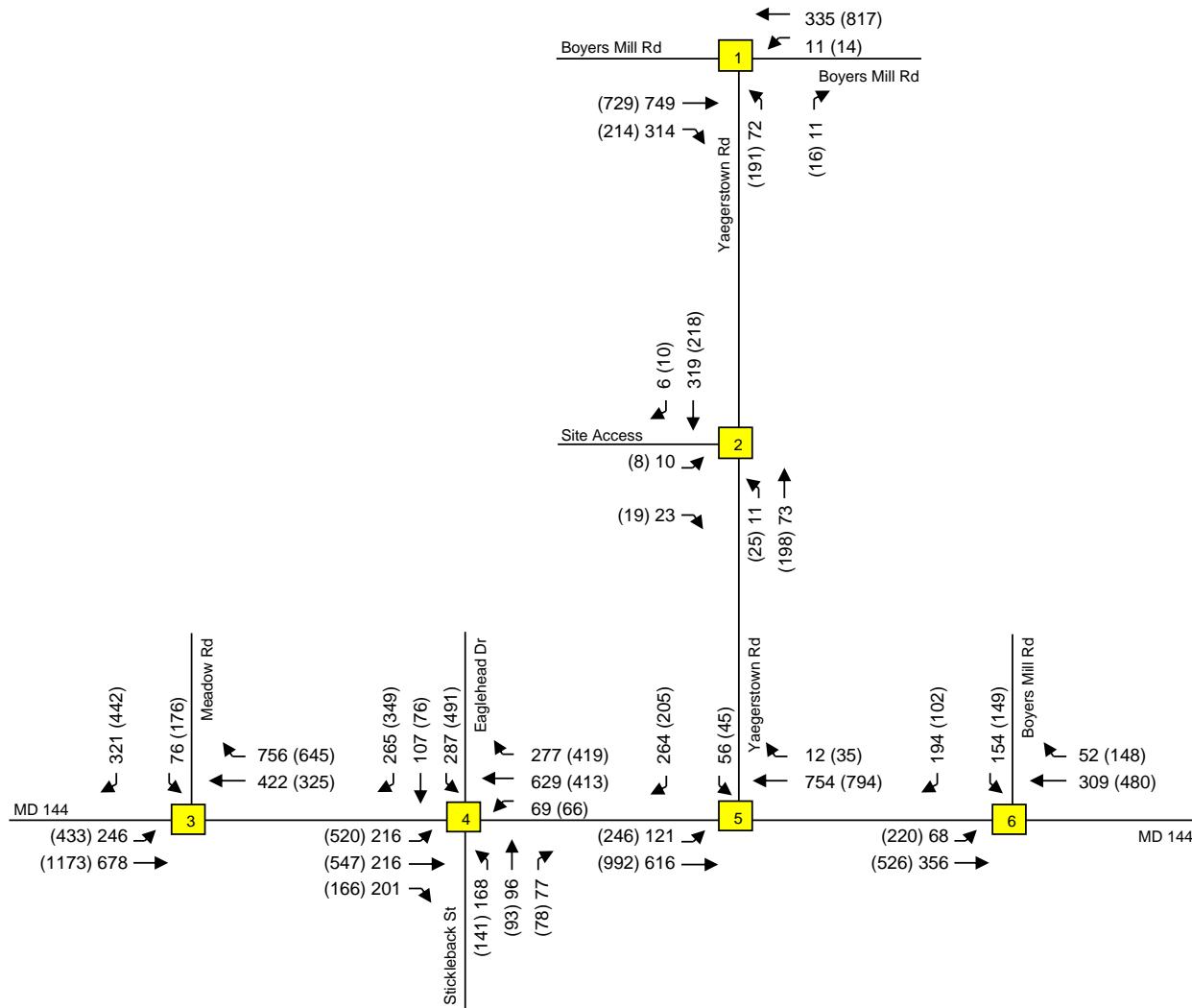
Traffic Impact Analysis

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

**Trip Assignment
for Site**

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
9**



Traffic Impact Analysis

**Total
Peak Hour Volumes**

**Exhibit
10**

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Highway Capacity Manual (HCM) Level-of-Service Results

Morning Peak Hour	Existing Delay	Background Delay	Total Delay
1). Yeagertown Road & Boyers Mill Road Westbound Approach Northbound Approach	A / 1.3 A / 0.5 C / 17.7	A / 2.4 A / 0.5 E / 45.0	A / 2.8 A / 0.6 E / 48.6
2). Yeagertown Road & Site Access Eastbound Approach Northbound Approach	N/A	N/A	A / 1.0 B / 10.9 A / 1.1
3). MD 144 & Meadow Road Eastbound Approach Westbound Approach Southbound Approach	A / 8.4 A / 4.9 B / 10.8 A / 9.2	B / 12.3 A / 6.2 B / 16.8 B / 13.1	B / 12.5 A / 6.3 B / 17.0 B / 13.4
4). MD 144 & Eaglehead Drive (v/c ratio) Eastbound Approach Westbound Approach Northbound Approach Southbound Approach	A / 0.33 A / 0.21 A / 0.33 A / 0.09 A / 0.30	B / 0.66 A / 0.39 B / 0.62 B / 0.52 B / 0.66	B / 0.71 A / 0.41 B / 0.63 B / 0.53 C / 0.71
5). MD 144 & Yeagertown Road Eastbound Approach Southbound Approach	A / 4.3 A / 1.9 C / 15.5	B / 9.1 A / 1.6 F / 51.1	B / 12.1 A / 1.7 F / 65.2
6). MD 144 & Boyers Mill Road Eastbound Approach Westbound Approach Southbound Approach	A / 7.5 A / 7.6 A / 7.5 A / 7.3	A / 7.7 A / 7.8 A / 7.4 A / 8.0	A / 7.8 A / 7.9 A / 7.4 A / 8.0
Evening Peak Hour	Existing Delay	Background Delay	Total Delay
1). Yeagertown Road & Boyers Mill Road Westbound Approach Northbound Approach	B / 6.0 A / 0.3 E / 44.3	F / 76.4 A / 0.4 F / >200	F / 85.3 A / 0.6 F / >200
2). Yeagertown Road & Site Access Eastbound Approach Northbound Approach	N/A	N/A	A / 1.1 B / 10.5 A / 1.0
3). MD 144 & Meadow Road Eastbound Approach Westbound Approach Southbound Approach	B / 10.3 A / 9.1 B / 11.9 B / 10.7	C / 20.9 C / 22.9 B / 17.8 C / 20.4	C / 21.5 C / 23.7 B / 18.0 C / 21.5
4). MD 144 & Eaglehead Drive (v/c ratio) Eastbound Approach Westbound Approach Northbound Approach Southbound Approach	A / 0.38 A / 0.38 A / 0.29 A / 0.17 A / 0.21	E / 1.07 E / 0.92 C / 0.75 F / 1.07 C / 0.79	E / 1.08 E / 0.93 C / 0.76 F / 1.08 C / 0.80
5). MD 144 & Yeagertown Road Eastbound Approach Southbound Approach	A / 3.6 A / 2.4 C / 18.0	F / 64.9 A / 2.3 F / >200	F / 101 A / 2.5 F / >200
6). MD 144 & Boyers Mill Road Eastbound Approach Westbound Approach Southbound Approach	A / 8.9 A / 8.8 A / 6.4 B / 12.2	A / 8.1 A / 7.9 A / 5.8 B / 14.0	A / 8.2 A / 7.9 A / 6.4 B / 13.7

Notes: 1. The intersection of MD 144 & Eaglehead Drive is a roundabout and as such the LOS (based on average delay) and v/c ratio are reported.

2. It is assumed that due to the large quantity of background traffic volume and major roadway improvements (Lake Linganore Blvd Extension and New Market Bypass), the traffic signal timings at the signalized intersections will be modified. The analysis of the background and total conditions at the signalized intersections uses modified signal timings to better accommodate the significant changes in traffic.

Traffic Impact Analysis	Results of HCM Level-of-Service Analyses	Exhibit 11a
 LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Critical Lane Volume (CLV) Level-of-Service Results

Morning Peak Hour	Existing CLV	Background CLV	Total CLV
1). Yeagertown Road & Boyers Mill Road	A / 795	B / 1141	C / 1157
2). Yeagertown Road & Site Access	N/A	N/A	A / 369
3). MD 144 & Meadow Road	A / 603	A / 961	A / 970
4). MD 144 & Eaglehead Drive	N/A	N/A	N/A
5). MD 144 & Yeagertown Road	A / 609	B / 1003	B / 1018
6). MD 144 & Boyers Mill Road	A / 507	A / 527	A / 531
Evening Peak Hour	Existing CLV	Background CLV	Total CLV
1). Yeagertown Road & Boyers Mill Road	A / 759	B / 1146	C / 1164
2). Yeagertown Road & Site Access	N/A	N/A	A / 280
3). MD 144 & Meadow Road	A / 905	D / 1333	D / 1349
4). MD 144 & Eaglehead Drive	N/A	N/A	N/A
5). MD 144 & Yeagertown Road	A / 611	B / 1062	B / 1085
6). MD 144 & Boyers Mill Road	A / 804	A / 840	A / 849

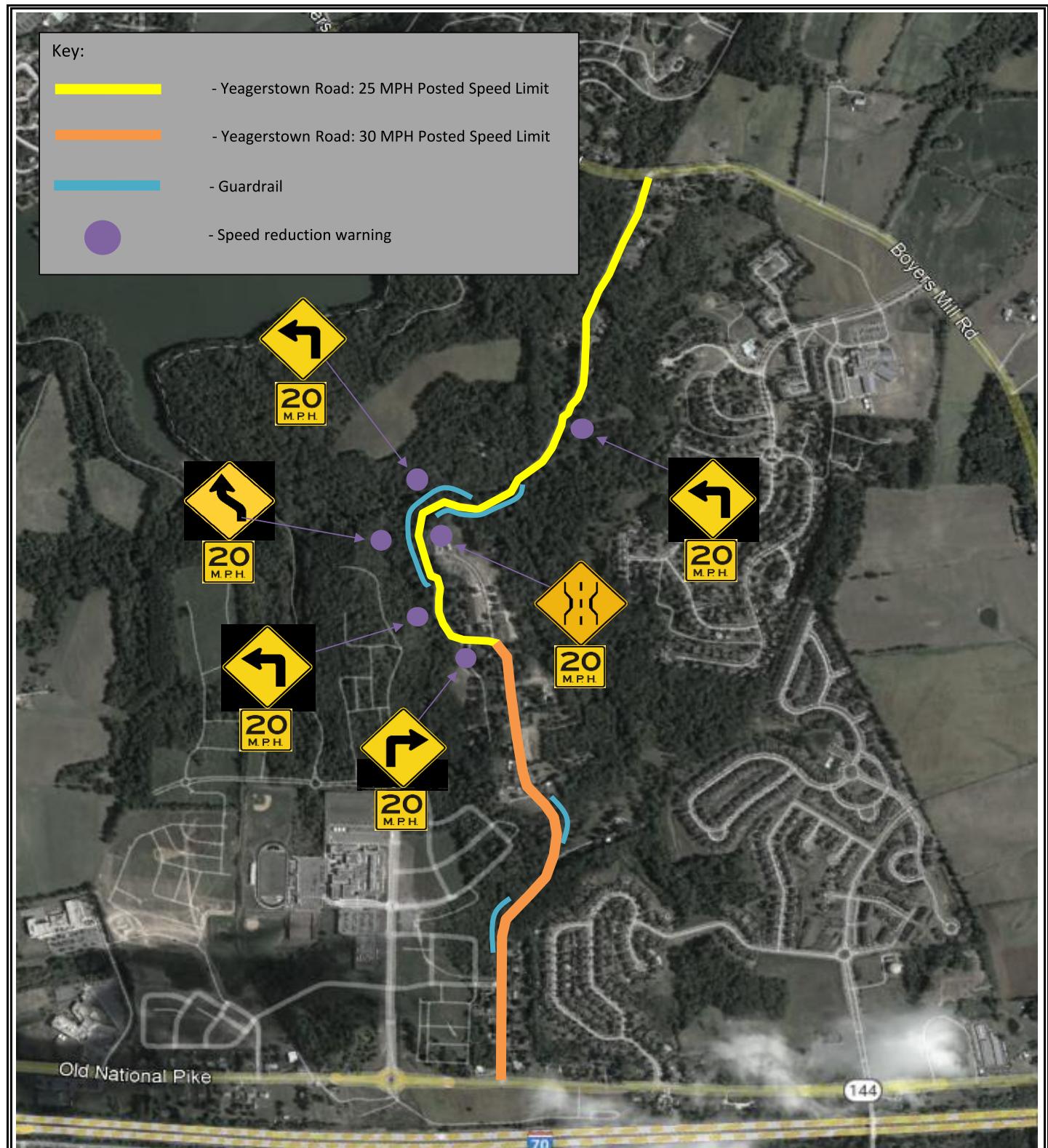
Traffic Impact Analysis	Results of CLV Level-of-Service Analyses	Exhibit 11a
 LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

SimTraffic 95th Percentile Queueing Analysis Results

Morning Peak Hour	Available Storage	Background Queue	Total Queue
1). Yeagertown Road & Boyers Mill Road Westbound Left/Through Northbound Left/Right		195 feet 131 feet	123 feet 165 feet
2). Yeagertown Road & Site Access Eastbound Left/Right Northbound Left/Through		N/A	44 feet 22 feet
3). MD 144 & Meadow Road Eastbound Left Eastbound Through Westbound Through/Right Southbound Left Southbound Right		125 feet 187 feet 234 feet 86 feet 194 feet	125 feet 184 feet 272 feet 92 feet 199 feet
4). MD 144 & Eaglehead Drive Eastbound Approach Westbound Approach Northbound Approach Southbound Approach		49 feet 146 feet 81 feet 120 feet	53 feet 152 feet 84 feet 141 feet
5). MD 144 & Yeagertown Road Eastbound Left Southbound Left/Right	250 feet	75 feet 213 feet	80 feet 360 feet
6). MD 144 & Boyers Mill Road Eastbound Left Southbound Left/Right	125 feet	68 feet 104 feet	63 feet 91 feet
Evening Peak Hour	Available Storage	Background Queue	Total Queue
1). Yeagertown Road & Boyers Mill Road Westbound Left/Through Northbound Left/Right		192 feet 539 feet	271 feet 551 feet
2). Yeagertown Road & Site Access Eastbound Left/Right Northbound Left/Through		N/A	43 feet 36 feet
3). MD 144 & Meadow Road Eastbound Left Eastbound Through Westbound Through/Right Southbound Left Southbound Right		386 feet 499 feet 196 feet 162 feet 287 feet	331 feet 445 feet 205 feet 161 feet 286 feet
4). MD 144 & Eaglehead Drive Eastbound Approach Westbound Approach Northbound Approach Southbound Approach		468 feet 185 feet 420 feet 263 feet	500 feet 192 feet 447 feet 269 feet
5). MD 144 & Yeagertown Road Eastbound Left Southbound Left/Right	250 feet	137 feet 444 feet	167 feet 374 feet
6). MD 144 & Boyers Mill Road Eastbound Left Southbound Left/Right	125 feet	125 feet 139 feet	125 feet 147 feet

Note: For approaches with multiple lanes, the longest queue is reported.

Traffic Impact Analysis	Results of SimTraffic 95th Percentile Queueing Analyses	Exhibit 12
 LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		



Traffic Impact Analysis

**Yeagerstown Road
Line Diagram**

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
13**

Section 5 Conclusions / Recommendations

5.1 Results of Analysis

This Traffic Impact Analysis (TIA) was prepared for the development of the Bell Farm Property located in New Market, Maryland. The Bell Farm Property is proposed to be developed with up to 248 senior multifamily units. Access to the site will be provided with a single full movement access point along Yeagerstown Road.

Based on the analyses contained in this report:

- The results of the HCM analyses indicate that each study intersection will operate with LOS “D” or better with the exception of the intersections of Boyers Mill Road & Yeagerstown Road and MD 144 & Yeagerstown Road. However, the proposed development adds fewer than 30 peak hour trips to the stop-controlled movements at these intersections and is therefore considered a negligible impact, satisfying the requirements of the Frederick County APFO.
- The results of the CLV analyses indicate that each study intersection will operate with LOS “D” or better, thereby meeting the TIS requirements of MDOT SHA.
- The intersection of MD 144 & Eaglehead Drive was analyzed using Sidra roundabout software to determine the v/c ratio, as required in the Frederick County APFO. The results indicate that while the roundabout does not operate with an adequate v/c ratio during the evening peak hour, the proposed development has very little impact on the roundabout and mitigation should not be required.
 - The proposed development does not add any traffic volume to the northbound approach, the approach with the greatest v/c ratio. The v/c ratio increases by only 0.01 from background to total conditions.
 - The proposed development increases the volume entering the roundabout by only 0.8% from background to total conditions.
- The results of the 95th percentile queuing analyses indicate that the 95th percentile queues at each of the study intersections will not impact adjacent intersections and that the proposed development has minimal impact on queuing in the road network.

In conclusion, based on the information contained in the report, the site will satisfy Frederick County and MDOT SHA Guidelines and will have minimal impact on the study intersections.

Appendix A

Supplemental Information Turning Movement Counts



Frederick County
Division of Planning and Permitting
Department of Development Review

**TIA Final Scoping Proposal
Bell Farm Development
(N275774)**

- 1) LOCATION: 6218 Yeagertown Road, South side of Quite Cove Road
- 2) EXISTING USE: Vacant, agricultural
- 3) PROPOSED USE:
 - Up to 260 Senior Adult Housing - Multifamily (ITE LUC 252)
- 4) TRIP REDUCTION: Not Applicable
- 5) CIP/CTP ASSUMED IMPROVEMENTS:
 - Lake Linganore Boulevard from LTC Town Center to Meadow Road interchange
 - Boyers Mill Road Widening from Lake Linganore Bridge to Finn Drive
 - Right turn lane from EB Gas House Pike onto SB Boyers Mill Road
- 6) OTHER IMPROVEMENTS:
 - Traffic Signal at Finn Drive and Boyers Mill Road
 - Double left turn lane NB on Mussetter Road from ONP
 - New Market Bypass from Boyers Mill Road to MD 75
- 7) EXISTING TRAFFIC: Collecting 13-hours turning movement counts on a typical weekday at each of the study intersections to establish current traffic levels. Traffic counts less than two years old may be used or older counts can be factored with 3% annual growth.
- 8) CRASH HISTORY: A summary of historical crash data for the following study intersection:
 - Yeagertown at Boyers Mill Road

Crash data shall be obtained from Maryland State Highway Administration (SHA) records and relevant database. Crash rates shall be calculated and intersections with crash rate higher than or equal to 1 crash/MEV shall be identified as a priority for safety improvement and mitigation.
- 9) BACKGROUND GROWTH & DEVELOPMENT: Approval of adequate public facilities per County guidelines for 260 residential units is 8 years per code section (1-20-8). Assume 1% through traffic growth per year or as otherwise justified based on a review of 10 years of historic growth. The pipeline Development shall be as follows:
 - Eaglehead (Alpine, Hamptons West, Hamptons East, Town Center, Westridge, Woodridge, Eaglestream, Nightingale, Aspen)
 - Oakdale Village – remaining commercial lot (4000 SF daycare)

- Audubon Terrace – 21 TH
- Meadows – 32 DU
- Pinehurst – 157 DU
- Westwinds (Woodlands Preserve) - 73 SFA
- New Market Retail Center - Unbuilt Commercial Retail
- Intercoastal – Revised numbers as used in New Market Retail
- Marley Commons – 11 SFH (likely to be constructed in the next year or two)
- Preston/Mains – 76 SFD & 74 SFA
- 105/113 West Main – 27 TH, 7,375 SF restaurant, 1.540 SF office/professional use
- Calumet - 455 SFHs and 470 TH (start construction next year with a projected build out by 3032)
- Cromwell – 488 age-restricted residential units (pending approval)

Note: Pipeline development may be phased with project phases. Use approved Gordon Mill 2022 TIA for background trip distribution.

10) TRIP GENERATION: Apply 11th edition ITE Trip Generation Manual to proposed uses identified above. The site will generate 52 AM and 65 PM peak hour trips.

11) TRIP DISTRIBUTION:

- I-70 west of Meadow Road – 35%
- MD 144 west of Meadow – 10%
- I-70 east of MD 75 – 20%
- Old National Pike east of MD 75 – 5%
- Boyers Mill Road east of Yeagertown Road – 15%
- Boyers Mill Road west of Yeagertown Road – 15%

12) ANALYSIS: Applying the Highway Capacity Manual 6th edition methodology for the weekday AM and PM peak hour scenarios using Synchro software with providing the developed Synchro reports and models.

- Study intersections:
 - i. Yeagertown Road & Boyers Mill Road
 - ii. Yeagertown Road & Site Access
 - iii. MD 144 (Old National Pike) & Yeagertown Road
 - iv. MD 144 (Old National Pike) & Eaglehead Drive
 - v. MD 144 (Old National Pike) & Meadow Road
 - vi. MD 144 (Old National Pike) & Boyers Mills Road
- Queuing Analysis per SHA procedures and supplemented by SimTraffic results.

13) Safety Considerations

- Provide a safety review including but not limited to (grades, roadway section, width, adequacy, traffic barrier, crash analysis)
 - i. Yeagertown Road from ONP to Boyers Mill Road

- Provide intersection sight distance review for:
 - i. Sight access at Yeagertown Road
 - ii. Yeagertown Road at Boyers Mill Road

*Escrow contributions may extend beyond study area

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Transportation Engineering Supervisor

Frederick County Government

Division of Planning and Permitting

30 North Market Street,

Frederick, MD 21701

717-387-3235 phone

301-600-1645 facsimile

MMishler@FrederickCountyMD.gov

Weekday Morning Peak Hour (6:30 am - 9:30 am)																					
Yeagertown Road Northbound					N/A Southbound				Boyers Mill Road Eastbound				Boyers Mill Road Westbound								
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0	3	0	0	0	0			0	0	92	31	0	0	0	13	0	0	139		
6:45-7:00	0	2	0	0	0	0			0	0	95	39	0	0	0	20	0	0	156		
7:00-7:15	0	8	0	0	0	0			0	0	98	98	0	0	3	21	0	0	228		
7:15-7:30	0	14	1	0	0	0			0	0	104	82	0	0	0	30	0	0	231		
7:30-7:45	0	19	1	0	0	0			0	0	124	39	0	0	3	46	0	0	232		
7:45-8:00	0	15	4	0	0	0			0	0	123	58	0	0	1	58	0	0	259		
8:00-8:15	0	21	1	0	0	0			0	0	98	24	0	0	2	44	0	0	190		
8:15-8:30	0	19	4	0	0	0			0	0	115	44	0	0	1	46	0	0	229		
8:30-8:45	0	19	6	0	0	0			0	0	122	29	0	0	6	71	0	0	253		
8:45-9:00	0	20	3	0	0	0			0	0	48	16	0	0	4	65	0	0	156		
9:00-9:15	0	22	3	0	0	0			0	0	79	25	0	0	2	45	0	0	176		
9:15-9:30	0	10	1	0	0	0			0	0	61	21	0	0	1	31	0	0	125		
Hourly Totals																					
6:30-7:30	0	27	0	1	0	0	0	0	0	0	389	250	0	0	3	84	0	0	754		
6:45-7:45	0	43	0	2	0	0	0	0	0	0	421	258	0	0	6	117	0	0	847		
7:00-8:00	0	56	0	6	0	0	0	0	0	0	449	277	0	0	7	155	0	0	950		
7:15-8:15	0	69	0	7	0	0	0	0	0	0	449	203	0	0	6	178	0	0	912		
7:30-8:30	0	74	0	10	0	0	0	0	0	0	460	165	0	0	7	194	0	0	910		
7:45-8:45	0	74	0	15	0	0	0	0	0	0	458	155	0	0	10	219	0	0	931		
8:00-9:00	0	79	0	14	0	0	0	0	0	0	383	113	0	0	13	226	0	0	828		
8:15-9:15	0	80	0	16	0	0	0	0	0	0	364	114	0	0	13	227	0	0	814		
8:30-9:30	0	71	0	13	0	0	0	0	0	0	310	91	0	0	13	212	0	0	710		
AM Peak Hour		Northbound				Southbound				Eastbound				Westbound							
7:00-8:00	0	56	0	6	0	0	0	0	0	0	449	277	0	0	7	155	0	0	950		
Weekday Evening Peak Hour (4 pm - 7 pm)																					
Yeagertown Road Northbound					N/A Southbound				Boyers Mill Road Eastbound				Boyers Mill Road Westbound								
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	31	3	0	0	0			0	0	78	48	0	0	2	108	0	0	270		
4:15-4:30	0	37	5	0	0	0			0	0	48	41	0	0	2	104	0	0	237		
4:30-4:45	0	35	5	0	0	0			0	0	66	31	0	0	3	101	0	0	241		
4:45-5:00	0	36	5	0	0	0			0	0	111	47	0	0	2	97	0	0	298		
5:00-5:15	0	42	1	0	0	0			0	0	117	43	0	0	2	105	0	0	310		
5:15-5:30	0	36	3	0	0	0			0	0	103	34	0	0	3	131	0	0	310		
5:30-5:45	0	37	2	0	0	0			0	0	83	51	0	0	1	116	0	0	290		
5:45-6:00	0	40	2	0	0	0			0	0	52	34	0	0	1	103	0	0	232		
6:00-6:15	0	37	2	0	1	0			0	0	57	32	0	0	1	89	0	0	219		
6:15-6:30	0	28	1	0	0	0			0	0	52	36	0	0	2	69	0	0	188		
6:30-6:45	0	32	3	0	0	0			0	0	52	38	0	0	2	108	0	0	235		
6:45-7:00	0	34	2	0	0	0			0	0	50	28	0	0	2	99	0	0	215		
Hourly Totals																					
4:00-5:00	0	139	0	18	0	0	0	0	0	0	303	167	0	0	9	410	0	0	1046		
4:15-5:15	0	150	0	16	0	0	0	0	0	0	342	162	0	0	9	407	0	0	1086		
4:30-5:30	0	149	0	14	0	0	0	0	0	0	397	155	0	0	10	434	0	0	1159		
4:45-5:45	0	151	0	11	0	0	0	0	0	0	414	175	0	0	8	449	0	0	1208		
5:00-6:00	0	155	0	8	0	0	0	0	0	0	355	162	0	0	7	455	0	0	1142		
5:15-6:15	0	150	0	9	0	1	0	0	0	0	295	151	0	0	6	439	0	0	1051		
5:30-6:30	0	142	0	7	0	1	0	0	0	0	244	153	0	0	5	377	0	0	929		
5:45-6:45	0	137	0	8	0	1	0	0	0	0	213	140	0	0	6	369	0	0	874		
6:00-7:00	0	131	0	8	0	1	0	0	0	0	211	134	0	0	7	365	0	0	857		
PM Peak Hour		Northbound				Southbound				Eastbound				Westbound							
4:45-5:45	0	151	0	11	0	0	0	0	0	0	414	175	0	0	8	449	0	0	1208		
Peak Hour Turning Movement Count																	Intersection: Boyers Mill Road & Yeagertown Road Weather: Clear Count by: CountCAM - DSS Count Day/Date: Wednesday, September 27, 2023 County: Frederick				
LENHART TRAFFIC CONSULTING, INC.																					

Weekday Morning Peak Hour (6:30 am - 9:30 am)																					
N/A Northbound					Meadow Road Southbound					MD 144 Eastbound					MD 144 Westbound						
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0			0	0	0	8	22	0	0	0	4	48	0	0	0	39	60	0	181	
6:45-7:00	0			0	0	0	11	8	0	0	0	14	82	0	0	0	40	64	0	219	
7:00-7:15	0			0	0	0	25	19	0	0	0	13	153	0	0	0	71	76	0	357	
7:15-7:30	0			0	0	0	19	28	0	0	0	19	160	0	0	0	91	131	0	448	
7:30-7:45	0			0	0	0	11	21	0	0	0	19	96	0	0	0	67	124	0	338	
7:45-8:00	0			0	0	0	10	26	0	0	0	33	134	0	0	0	94	126	0	423	
8:00-8:15	0			0	0	0	13	31	0	0	0	24	96	0	0	0	79	116	0	359	
8:15-8:30	0			0	0	0	10	29	0	0	0	24	116	0	0	0	54	92	0	325	
8:30-8:45	0			0	0	0	11	31	0	0	0	29	104	0	0	0	63	93	0	331	
8:45-9:00	0			0	0	0	15	29	0	0	0	20	102	0	0	0	109	103	0	378	
9:00-9:15	0			0	0	0	7	14	0	0	0	18	92	0	0	0	81	84	0	296	
9:15-9:30	0			0	0	0	9	18	0	0	0	13	76	0	0	0	61	73	0	250	
Hourly Totals																					
6:30-7:30	0	0	0	0	0	0	63	0	77	0	0	50	443	0	0	0	0	241	331	0	1205
6:45-7:45	0	0	0	0	0	0	66	0	76	0	0	65	491	0	0	0	0	269	395	0	1362
7:00-8:00	0	0	0	0	0	0	65	0	94	0	0	84	543	0	0	0	0	323	457	0	1566
7:15-8:15	0	0	0	0	0	0	53	0	106	0	0	95	486	0	0	0	0	331	497	0	1568
7:30-8:30	0	0	0	0	0	0	44	0	107	0	0	100	442	0	0	0	0	294	458	0	1445
7:45-8:45	0	0	0	0	0	0	44	0	117	0	0	110	450	0	0	0	0	290	427	0	1438
8:00-9:00	0	0	0	0	0	0	49	0	120	0	0	97	418	0	0	0	0	305	404	0	1393
8:15-9:15	0	0	0	0	0	0	43	0	103	0	0	91	414	0	0	0	0	307	372	0	1330
8:30-9:30	0	0	0	0	0	0	42	0	92	0	0	80	374	0	0	0	0	314	353	0	1255
AM	Northbound				Southbound					Eastbound					Westbound						
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:15-8:15	0	0	0	0	0	0	53	0	106	0	0	95	486	0	0	0	0	331	497	0	1568
Weekday Evening Peak Hour (4 pm - 7 pm)																					
N/A Northbound					Meadow Road Southbound					MD 144 Eastbound					MD 144 Westbound						
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0			0	0	0	25	49	0	0	0	27	149	0	0	0	93	85	0	428	
4:15-4:30	0			0	0	0	22	54	0	0	0	33	167	0	0	0	89	118	0	483	
4:30-4:45	0			0	0	0	26	42	0	0	0	30	174	0	0	0	85	93	0	450	
4:45-5:00	0			0	0	0	29	56	0	0	0	27	202	0	0	0	76	79	0	469	
5:00-5:15	0			0	0	0	30	51	0	0	0	31	200	0	0	0	57	89	0	458	
5:15-5:30	0			0	0	0	31	69	0	0	0	25	213	0	0	0	56	93	0	487	
5:30-5:45	0			0	0	0	41	43	0	0	0	20	170	0	0	0	69	79	0	422	
5:45-6:00	0			0	0	0	27	51	0	0	0	19	176	0	0	0	74	94	0	441	
6:00-6:15	0			0	0	0	28	48	0	0	0	20	143	0	0	0	59	90	0	389	
6:15-6:30	0			0	0	0	28	46	0	0	0	11	159	0	0	0	37	90	0	371	
6:30-6:45	0			0	0	0	22	39	0	0	0	13	141	0	0	0	60	97	0	372	
6:45-7:00	0			0	0	0	19	28	0	0	0	15	123	0	0	0	82	76	0	343	
Hourly Totals																					
4:00-5:00	0	0	0	0	0	0	102	0	201	0	0	117	692	0	0	0	0	343	375	0	1830
4:15-5:15	0	0	0	0	0	0	107	0	203	0	0	121	743	0	0	0	0	307	379	0	1860
4:30-5:30	0	0	0	0	0	0	116	0	218	0	0	113	789	0	0	0	0	274	354	0	1864
4:45-5:45	0	0	0	0	0	0	131	0	219	0	0	103	785	0	0	0	0	258	340	0	1836
5:00-6:00	0	0	0	0	0	0	129	0	214	0	0	95	759	0	0	0	0	256	355	0	1808
5:15-6:15	0	0	0	0	0	0	127	0	211	0	0	84	702	0	0	0	0	258	356	0	1739
5:30-6:30	0	0	0	0	0	0	124	0	188	0	0	70	648	0	0	0	0	239	353	0	1623
5:45-6:45	0	0	0	0	0	0	105	0	184	0	0	63	619	0	0	0	0	230	371	0	1573
6:00-7:00	0	0	0	0	0	0	97	0	161	0	0	59	566	0	0	0	0	238	353	0	1475
PM	Northbound				Southbound					Eastbound					Westbound						
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:30-5:30	0	0	0	0	0	0	116	0	218	0	0	113	789	0	0	0	0	274	354	0	1864
Peak Hour Turning Movement Count																					
LENHART TRAFFIC CONSULTING, INC.																					

Weekday Morning Peak Hour (6:30 am - 9:30 am)																					
Silverside Street Northbound						Eaglehead Road Southbound					MD 144 Eastbound					MD 144 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0	8	4	3	0	0	13	1	33	0	0	27	17	7	0	0	3	59	4	0	179
6:45-7:00	0	16	6	0	0	0	15	3	21	0	0	46	23	4	0	0	4	56	24	0	218
7:00-7:15	0	6	7	0	0	0	41	12	47	0	0	93	20	10	0	0	4	78	71	0	389
7:15-7:30	0	8	12	0	0	0	56	5	99	0	0	75	56	6	0	0	4	104	69	0	494
7:30-7:45	0	12	0	0	0	0	21	3	46	0	0	15	50	4	0	0	3	127	4	1	285
7:45-8:00	0	14	5	1	0	0	29	5	40	0	0	23	51	9	0	0	3	141	11	0	332
8:00-8:15	0	13	3	1	0	0	26	6	38	0	0	26	59	12	0	0	3	123	10	0	320
8:15-8:30	0	8	2	1	0	0	24	2	38	1	0	27	72	7	0	0	1	89	12	0	283
8:30-8:45	0	6	2	2	0	0	18	3	39	0	0	16	61	7	0	0	1	122	18	0	295
8:45-9:00	0	12	7	5	0	0	26	4	43	1	0	40	57	15	0	0	2	93	18	0	322
9:00-9:15	0	11	3	0	0	0	25	6	28	0	0	53	51	6	0	0	1	81	9	0	274
9:15-9:30	0	13	2	1	0	0	11	4	35	0	0	25	46	11	1	0	3	72	11	3	234
Hourly Totals																					
6:30-7:30	0	38	29	3	0	0	125	21	200	0	0	241	116	27	0	0	15	297	168	0	1280
6:45-7:45	0	42	25	0	0	0	133	23	213	0	0	229	149	24	0	0	15	365	168	1	1387
7:00-8:00	0	40	24	1	0	0	147	25	232	0	0	206	177	29	0	0	14	450	155	1	1501
7:15-8:15	0	47	20	2	0	0	132	19	223	0	0	139	216	31	0	0	13	495	94	1	1432
7:30-8:30	0	47	10	3	0	0	100	16	162	1	0	91	232	32	0	0	10	480	37	1	1222
7:45-8:45	0	41	12	5	0	0	97	16	155	1	0	92	243	35	0	0	8	475	51	0	1231
8:00-9:00	0	39	14	9	0	0	94	15	158	2	0	109	249	41	0	0	7	427	58	0	1222
8:15-9:15	0	37	14	8	0	0	93	15	148	2	0	136	241	35	0	0	5	385	57	0	1176
8:30-9:30	0	42	14	8	0	0	80	17	145	1	0	134	215	39	1	0	7	368	56	3	1130
AM						Southbound					Eastbound					Westbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:00-8:00	0	40	24	1	0	0	147	25	232	0	0	206	177	29	0	0	14	450	155	0	1501
Weekday Evening Peak Hour (4 pm - 7 pm)																					
Silverside Street Northbound						Eaglehead Road Southbound					MD 144 Eastbound					MD 144 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	8	7	0	0	0	34	5	43	0	0	47	108	9	0	0	0	89	17	0	367
4:15-4:30	0	6	9	1	2	0	39	5	48	0	0	59	107	6	0	0	3	98	22	3	403
4:30-4:45	0	11	8	3	4	0	42	2	49	0	0	65	103	6	0	0	3	78	24	0	394
4:45-5:00	0	10	13	0	0	0	36	6	44	0	0	88	110	3	0	0	2	83	30	2	425
5:00-5:15	0	11	7	3	0	0	41	4	52	0	0	78	125	4	0	0	8	90	32	0	455
5:15-5:30	0	9	11	5	0	0	21	6	34	0	0	75	120	11	0	0	3	97	36	3	428
5:30-5:45	0	9	7	1	0	0	22	4	32	1	0	65	107	6	0	0	4	96	38	2	391
5:45-6:00	0	4	6	1	0	0	34	5	53	0	0	83	101	4	0	0	3	92	31	1	417
6:00-6:15	0	7	8	0	0	1	18	5	55	4	0	70	68	9	0	0	2	80	30	7	353
6:15-6:30	0	8	5	2	0	0	17	2	42	0	0	68	73	6	0	0	4	72	32	7	331
6:30-6:45	0	4	4	0	0	0	39	3	76	0	0	78	92	4	0	0	4	65	29	6	398
6:45-7:00	0	7	9	1	0	0	24	3	58	0	0	57	61	7	0	0	5	58	31	1	321
Hourly Totals																					
4:00-5:00	0	35	37	4	6	0	151	18	184	0	0	259	428	24	0	0	8	348	93	5	1600
4:15-5:15	0	38	37	7	6	0	158	17	193	0	0	290	445	19	0	0	16	349	108	5	1688
4:30-5:30	0	41	39	11	4	0	140	18	179	0	0	306	458	24	0	0	16	348	122	5	1711
4:45-5:45	0	39	38	9	0	0	120	20	162	1	0	306	462	24	0	0	17	366	136	7	1707
5:00-6:00	0	33	31	10	0	0	118	19	171	1	0	301	453	25	0	0	18	375	137	6	1698
5:15-6:15	0	29	32	7	0	1	95	20	174	5	0	293	396	30	0	0	12	365	135	13	1607
5:30-6:30	0	28	26	4	0	1	91	16	182	5	0	286	349	25	0	0	13	340	131	17	1514
5:45-6:45	0	23	23	3	0	1	108	15	226	4	0	299	334	23	0	0	13	309	122	21	1524
6:00-7:00	0	26	26	3	0	1	98	13	231	4	0	273	294	26	0	0	15	275	122	21	1428
PM						Southbound					Eastbound					Westbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:30-5:30	0	41	39	11	4	0	140	18	179	0	0	306	458	24	0	0	16	348	122	0	1711
Peak Hour Turning Movement Count																					
LENHART TRAFFIC CONSULTING, INC.																					

Weekday Morning Peak Hour (6:30 am - 9:30 am)																							
N/A Northbound					Yeagertown Road Southbound					MD 144 Eastbound					MD 144 Westbound								
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total		
6:30-6:45	0				0	0	16	22	0	0	0	2	32	0	0	0	46	0	0	0	118		
6:45-7:00	0				1	0	6	31	0	0	0	5	32	0	0	0	59	0	0	0	133		
7:00-7:15	0				0	0	8	40	0	0	0	8	48	0	0	0	112	0	0	0	216		
7:15-7:30	0				0	0	22	67	0	0	0	33	81	0	0	0	114	2	0	0	319		
7:30-7:45	0				0	0	7	45	0	0	0	8	64	0	0	0	94	0	0	0	218		
7:45-8:00	0				0	0	5	48	1	0	0	23	82	0	0	0	105	2	0	0	265		
8:00-8:15	0				0	0	10	40	0	0	0	22	78	0	0	0	96	3	0	0	249		
8:15-8:30	0				0	0	7	38	0	0	0	18	86	0	0	0	67	2	0	0	218		
8:30-8:45	0				0	0	12	39	0	0	0	19	67	0	0	0	98	4	0	0	239		
8:45-9:00	0				0	0	5	18	0	0	0	22	57	0	0	0	92	4	0	0	198		
9:00-9:15	0				0	0	6	19	0	0	0	19	62	0	0	0	77	4	0	0	187		
9:15-9:30	0				0	0	5	24	0	0	0	9	49	0	0	0	61	1	0	0	149		
Hourly Totals																							
6:30-7:30	0	0	0	0	1	0	52	0	160	0	0	48	193	0	0	0	0	331	2	0	787		
6:45-7:45	0	0	0	0	1	0	43	0	183	0	0	54	225	0	0	0	0	379	2	0	887		
7:00-8:00	0	0	0	0	0	0	42	0	200	1	0	72	275	0	0	0	0	425	4	0	1019		
7:15-8:15	0	0	0	0	0	0	44	0	200	1	0	86	305	0	0	0	0	409	7	0	1052		
7:30-8:30	0	0	0	0	0	0	29	0	171	1	0	71	310	0	0	0	0	362	7	0	951		
7:45-8:45	0	0	0	0	0	0	34	0	165	1	0	82	313	0	0	0	0	366	11	0	972		
8:00-9:00	0	0	0	0	0	0	34	0	135	0	0	81	288	0	0	0	0	353	13	0	904		
8:15-9:15	0	0	0	0	0	0	30	0	114	0	0	78	272	0	0	0	0	334	14	0	842		
8:30-9:30	0	0	0	0	0	0	28	0	100	0	0	69	235	0	0	0	0	328	13	0	773		
AM		Northbound					Southbound					Eastbound					Westbound						
Peak Hour		U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total	
7:15-8:15		0	0	0	0	0	0	44	0	200	0	0	86	305	0	0	0	0	409	7	0	1052	
Weekday Evening Peak Hour (4 pm - 7 pm)																							
N/A Northbound					Yeagertown Road Southbound					MD 144 Eastbound					MD 144 Westbound								
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total		
4:00-4:15	0				0	0	6	29	0	0	42	100	0	0	0	0	79	7	0	0	263		
4:15-4:30	0				0	0	6	34	0	0	38	104	0	0	0	0	87	4	0	0	273		
4:30-4:45	0				0	0	5	28	0	0	43	116	0	0	0	0	84	4	0	0	280		
4:45-5:00	0				0	0	4	21	0	0	45	98	0	0	0	0	98	5	0	0	271		
5:00-5:15	0				0	0	11	35	0	0	44	136	0	0	0	0	98	6	0	0	330		
5:15-5:30	0				0	0	8	36	0	0	34	132	0	0	0	0	101	5	0	0	316		
5:30-5:45	0				0	0	6	37	0	0	43	97	0	0	0	0	106	6	0	0	295		
5:45-6:00	0				0	0	10	24	0	0	44	98	0	0	0	0	106	7	0	0	289		
6:00-6:15	0				0	1	11	26	0	0	33	64	0	0	0	0	87	8	0	0	230		
6:15-6:30	0			1	0	5	25	0	0	28	68	0	0	0	0	83	3	0	0	212			
6:30-6:45	0			0	0	2	20	0	0	46	103	0	0	0	0	80	2	0	0	253			
6:45-7:00	0			0	0	1	23	0	0	63	27	0	0	0	0	72	2	0	0	188			
Hourly Totals																							
4:00-5:00	0	0	0	0	0	0	21	0	112	0	0	168	418	0	0	0	0	348	20	0	0	1087	
4:15-5:15	0	0	0	0	0	0	26	0	118	0	0	170	454	0	0	0	0	367	19	0	0	1154	
4:30-5:30	0	0	0	0	0	0	28	0	120	0	0	166	482	0	0	0	0	381	20	0	0	1197	
4:45-5:45	0	0	0	0	0	0	29	0	129	0	0	166	463	0	0	0	0	403	22	0	0	1212	
5:00-6:00	0	0	0	0	0	0	35	0	132	0	0	165	463	0	0	0	0	411	24	0	0	1230	
5:15-6:15	0	0	0	0	0	1	35	0	123	0	0	154	391	0	0	0	0	400	26	0	0	1130	
5:30-6:30	0	0	0	0	1	1	32	0	112	0	0	148	327	0	0	0	0	382	24	0	0	1027	
5:45-6:45	0	0	0	0	1	1	28	0	95	0	0	151	333	0	0	0	0	356	20	0	0	985	
6:00-7:00	0	0	0	1	1	19	0	94	0	0	170	262	0	0	0	0	322	15	0	0	884		
PM		Northbound					Southbound					Eastbound					Westbound						
Peak Hour		U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total	
5:00-6:00		0	0	0	0	0	0	35	0	132	0	0	165	463	0	0	0	0	411	24	0	0	1230
Peak Hour Turning Movement Count							Intersection: MD 144 & Yeagertown Road Weather: Clear Count by: CountCAM - DSS Count Day/Date: Wednesday, September 27, 2023 County: Frederick																
																							

Weekday Morning Peak Hour (6:30 am - 9:30 am)																					
N/A Northbound						Boyers Mill Road Southbound					MD 144 Eastbound					MD 144 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0	0	0	0	0	0	42	0	53	0	0	12	23	0	0	0	0	26	6	0	162
6:45-7:00	0	0	0	0	0	0	60	0	60	0	0	8	18	0	0	0	0	32	5	0	183
7:00-7:15	0	0	1	0	0	0	60	0	71	0	0	20	22	0	0	0	0	32	2	0	208
7:15-7:30	0	0	0	0	0	0	60	0	62	0	0	27	43	0	0	0	0	46	10	0	248
7:30-7:45	0	0	1	1	0	0	61	0	64	0	0	29	43	0	0	0	0	60	22	0	281
7:45-8:00	0	0	0	0	0	0	70	0	77	0	0	30	44	0	0	0	0	44	22	0	287
8:00-8:15	0	0	0	0	0	0	51	0	67	0	0	23	40	0	0	0	0	53	27	0	261
8:15-8:30	0	0	0	0	0	0	46	0	53	0	0	39	38	0	0	0	0	35	22	0	233
8:30-8:45	0	0	0	0	0	0	60	0	62	0	0	32	54	0	0	0	0	51	29	0	288
8:45-9:00	0	0	0	0	0	0	43	0	53	0	0	31	33	0	0	0	0	43	26	0	229
9:00-9:15	0	0	0	0	0	0	27	0	47	0	0	18	38	0	0	0	0	34	14	0	178
9:15-9:30	0	0	0	0	0	0	41	0	36	0	0	17	34	0	0	0	0	28	10	0	166
Hourly Totals																					
6:30-7:30	0	0	1	0	0	0	222	0	246	0	0	67	106	0	0	0	0	136	23	0	801
6:45-7:45	0	0	2	1	0	0	241	0	257	0	0	84	126	0	0	0	0	170	39	0	920
7:00-8:00	0	0	2	1	0	0	251	0	274	0	0	106	152	0	0	0	0	182	56	0	1024
7:15-8:15	0	0	1	1	0	0	242	0	270	0	0	109	170	0	0	0	0	203	81	0	1077
7:30-8:30	0	0	1	1	0	0	228	0	261	0	0	121	165	0	0	0	0	192	93	0	1062
7:45-8:45	0	0	0	0	0	0	227	0	259	0	0	124	176	0	0	0	0	183	100	0	1069
8:00-9:00	0	0	0	0	0	0	200	0	235	0	0	125	165	0	0	0	0	182	104	0	1011
8:15-9:15	0	0	0	0	0	0	176	0	215	0	0	120	163	0	0	0	0	163	91	0	928
8:30-9:30	0	0	0	0	0	0	171	0	198	0	0	98	159	0	0	0	0	156	79	0	861
AM						Northbound					Southbound					Eastbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:15-8:15	0	0	1	1	0	0	242	0	270	0	0	109	170	0	0	0	0	203	81	0	1077
Weekday Evening Peak Hour (4 pm - 7 pm)																					
N/A Northbound						Boyers Mill Road Southbound					MD 144 Eastbound					MD 144 Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	0	0	0	0	0	43	0	34	0	0	67	47	0	0	0	0	53	44	0	288
4:15-4:30	0	0	0	0	0	0	35	0	37	0	0	81	75	0	0	0	1	51	49	0	329
4:30-4:45	0	0	0	0	0	0	45	0	41	0	0	44	74	0	0	0	0	73	57	0	334
4:45-5:00	0	0	0	0	0	0	52	0	42	0	0	93	75	0	0	0	0	52	48	0	362
5:00-5:15	0	0	0	0	0	0	53	0	55	0	0	78	94	0	0	0	0	73	53	0	406
5:15-5:30	0	0	0	0	0	0	68	0	45	0	0	81	112	0	0	0	0	70	80	0	456
5:30-5:45	0	0	0	0	0	0	27	0	43	0	0	68	81	0	0	0	0	76	65	0	360
5:45-6:00	0	0	0	0	0	0	37	0	38	0	0	61	69	0	0	0	0	75	54	0	334
6:00-6:15	0	0	0	0	0	1	31	0	42	0	0	49	68	0	0	0	0	45	54	0	290
6:15-6:30	0	0	0	0	0	0	35	0	34	0	0	53	51	0	0	0	0	46	49	0	268
6:30-6:45	0	0	0	0	0	0	38	0	27	0	0	66	54	0	0	0	0	55	63	0	303
6:45-7:00	0	0	0	0	0	0	31	0	32	0	0	56	54	0	0	0	0	54	58	0	285
Hourly Totals																					
4:00-5:00	0	0	0	0	0	0	175	0	154	0	0	285	271	0	0	0	1	229	198	0	1313
4:15-5:15	0	0	0	0	0	0	185	0	175	0	0	296	318	0	0	0	1	249	207	0	1431
4:30-5:30	0	0	0	0	0	0	218	0	183	0	0	296	355	0	0	0	0	268	238	0	1558
4:45-5:45	0	0	0	0	0	0	200	0	185	0	0	320	362	0	0	0	0	271	246	0	1584
5:00-6:00	0	0	0	0	0	0	185	0	181	0	0	288	356	0	0	0	0	294	252	0	1556
5:15-6:15	0	0	0	0	0	1	163	0	168	0	0	259	330	0	0	0	0	266	253	0	1440
5:30-6:30	0	0	0	0	0	1	130	0	157	0	0	231	269	0	0	0	0	242	222	0	1252
5:45-6:45	0	0	0	0	0	1	141	0	141	0	0	229	242	0	0	0	0	221	220	0	1195
6:00-7:00	0	0	0	0	0	1	135	0	135	0	0	224	227	0	0	0	0	200	224	0	1146
PM						Northbound					Southbound					Eastbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:45-5:45	0	0	0	0	0	0	200	0	185	0	0	320	362	0	0	0	0	271	246	0	1584
Peak Hour Turning Movement Count																			Intersection: MD 144 & Boyers Mill Road		
																			Weather: Clear		
																			Count by: CountCAM - DSS		
																			Count Day/Date: Wednesday, September 27, 2023		
																			County: Frederick		

Office of Traffic and Safety
Traffic Development & Support Division

Consultant Accident Data/Analysis Request Form

Request Date: December 6, 2023

Note: date set automatically

Location:

County: Frederick
 Route: Boyers Mill Road (CO 412)
 at Yeagerstown Road (CO 455)
 from
 Town/Place: New Market
 Log Mile: N/A
 to

Purpose Needed:

<input type="checkbox"/> Signal Study	<input type="checkbox"/> Surface Evaluation	<input type="checkbox"/> Pavement Marking Study
<input type="checkbox"/> Sign Study	<input type="checkbox"/> Lighting Study	<input checked="" type="checkbox"/> General Traffic Study
<input type="checkbox"/> Other (Explain)		

Originally Requested By: Mark Mishler (Frederick County)

When Needed: As soon as possible

Work Requested:

<input checked="" type="checkbox"/> Accident Summary	<input type="checkbox"/> Accident History	<input type="checkbox"/> Accident Rates
<input type="checkbox"/> Study Worksheet	<input checked="" type="checkbox"/> Intersection/Line Diagram	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> One Year	<input type="checkbox"/> Two Years	
<input checked="" type="checkbox"/> Three Years	<input type="checkbox"/> Combined Years	
<input type="checkbox"/> Specific Date(s)		to

Additional Instructions or Remarks:

Requested by: Robert Engel	Title: Traffic Engineer
Consultant Firm: Lenhart Traffic Consulting	Phone: 410-216-3333
Street Address: 645 B&A Blvd, #214	Cell Phone:
City: Severna Park State: MD Zip: 21146	Fax: 443-782-2288 Email: rengel@lenharttraffic.com
Consultant Subcontractor:	Phone:

Please indicate map coordinates of location to be studied.

GIS 39.243329, 77.174568 MD General Hwy. Grid Map C10A

Purpose/Need: Support to Traffic Impact Study being conducted in Frederick County.

Send to: Traffic Development & Support Division,
 7491 Connelley Drive Hanover, Maryland 21076
 Phone: (410) 787-5844 Fax: (410) 582-9469 Email: wmacleod@sha.state.md.us



Crash Data Requests:

1. Yaegertown Road & Boyers Mill Road
2. Yaegertown Road, between Boyers Mill Road and MD 144 (Old National Pike)

Traffic Impact Analysis



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Crash Data
Map

**Exhibit
1**



Location: BOYERS MILL RD @ YEAGERSTOWN RD

Logmiles: 1.94 At 0 Radius: 250 ft.

County: Frederick, D7

Period: January 01, 2020 To December 31, 2022

Note:

YEAR >>	2020	2021	2022	Total
Fatal	0	0	0	0
No. Killed	0	0	0	0
Injury	0	0	0	0
No. Injured	0	0	0	0
Prop. Damage	2	0	1	3
Total Crashes	2	0	1	3
Severity Index	2	0	1	Avg 1
Opposite Dir.	0	0	0	0
Rear End	1	0	0	1
Sideswipe	0	0	0	0
Left Turn	0	0	0	0
Angle	0	0	1	1
Pedestrian	0	0	0	0
Parked Veh.	0	0	0	0
Fixed Object	0	0	0	0
Other	1	0	0	1
U-Turn	0	0	0	0
Backing	0	0	0	0
Animal	0	0	0	0
Railroad	0	0	0	0
Fire / Expl.	0	0	0	0
Overtake	0	0	0	0
Truck Related	0	0	0	0
Night Time	1	0	0	1
Wet Surface	1	0	0	1
Alcohol	0	0	0	0
Intersection	2	0	1	3
Total Vehicles	3	0	2	5
Total Trucks	0	0	0	0
Truck %	0.0	0.0	0.0	0.0
Comments:				
40 of 124				

Location: BOYERS MILL RD @ YEAGERSTOWN RD

Logmiles: 1.94 At 0 Radius: 250 ft.

County: Frederick, D7

Period: January 1, 2020 To December 31, 2022

Note:

SEVERITY	FATAL	INJURY	P-DAMAGE	TOTAL	DAY OF THE WEEK								
					SUN	MON	TUE	WED	THU	FRI	SAT	UNK	
Accidents	0		3	3									
Veh Occ							2		1				
Pedestrian					AVG Severity Index: 1								
MONTH OF THE YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK
	1							1				1	
TIME	12	01	02	03	04	05	06	07	08	09	10	11	UNK
AM:									1				
PM:										1		2	
VEHICLE TYPE				SURFACE	MOVEMENTS								
Motorcycle/Moped	Tractor Trailer			1 Wet	NORTH		SOUTH		EAST		WEST		
4 Passenger Vehicle	Passenger Bus			2 Dry	LF	ST	RT	LF	ST	RT	LF	ST	RT
1 Sport Utility Veh	School Bus			Sno/Ice	2						1		
Pick-Up Truck	Emergency Veh			Mud									
Trucks (2+3 axles)	1 Other Types			Other	OTHER MOVEMENTS								
PROBABLE CAUSES						COLLISION TYPES		FATAL	INJURY	PROP	TOTAL		
Influence of Drugs	Improper Lane Change					Opposite Dir	Related:						
Influence of Alcohol	Improper Backing						UnRelated:						
Influence of Medication	Improper Passing					Rear End	Related:						
Influence of Combined Subst.	Improper Signal						UnRelated:						
Physical/Mental Difficulty	Improper Parking					Sideswipe	Related:						
Fell Asleep/Fainted, etc.	Passenger Interfere/Obstruct.						UnRelated:						
2 Fail to give full Attention	Illegally in Roadway					Left Turn	Related:						
Lic. Restr. Non-compliance	Bicycle Violation						UnRelated:						
Fail to Drive in Single Lane	Clothing Not Visible					Angle	Related:						
Improper Right Turn on Red	Sleet, Hail, Freezing Rain						UnRelated:						
Fail to Yield Right-of-way	Severe Crosswinds					Pedestrian	Related:						
Fail to Obey Stop Sign	Rain, Snow						UnRelated:						
1 Fail to Obey Traffic Signal	Animal					Parked Vehicle	Related:						
Fail to Obey Other Control	Vision Obstruction						UnRelated:						
Fail to Keep Right of Center	Vehicle Defect					Other Collision	Related:						
Fail to Stop for School Bus	Wet						UnRelated:						
Wrong Way on One Way	Icy or Snow Covered					F	Bridge	01					
Exceeded Speed Limit	Debris or Obstruction					I	Building	02					
Operator Using Cell Phone	Ruts, Holes or Bumps					X	Culvert/Ditch	03					
Stopping in Lane Roadway	Road Under Construction					E	Curb	04					
Too Fast for Conditions	Traffic Control Device Inop.					D	Guardrail/Barrier	05					
Followed too Closely	Shoulders Low, Soft or High						Embankment	06					
Improper Turn	Other or Unknown					O	Fence	07					
WEATHER	ILLUMINATION			TOTALS		B	Light Pole	08					
2 Clear / Cloudy	2 Day			20-22	3	J	Sign Pole	09					
Foggy	Dawn/Dusk					E	Other Pole	10					
1 Raining	Dark - Lights On					C	Tree/Shrubbery	11					
Snow / Sleet	1 Dark - No Lights					T	Contr. Barrier	12					
Other	Other					S	Crash Attenuator	13					
							Other Fixed Object						

Location: BOYERS MILL RD @ YEAGERSTOWN RD Logmiles: 1.94 At 0 Radius: 250 ft.

County: Frederick, D7 Period: January 01, 2020 To December 31, 2022

Note:

MilePt	Int Rel	Date	Severity	Time	Light	Surface	Alc Rel	FixObj	Collision	Movement			Probable Cause
										V1	V2		
CO412													
1.940	<input type="checkbox"/>	02112020	Property	07A	Day	Wet			RREND	WS	WL		Fail to give full attention
1.940	<input type="checkbox"/>	08032022	Property	05P	Day	Dry			ANGLE	NS	ES		Fail to obey traffic signal
CO455													
0.000	<input type="checkbox"/>	12222020	Property	10P	Night	Dry			OTHER	NS	--		Fail to give full attention

Fixed Object: 01 = Bridge 02 = Building 03 = Culvert/Ditch 04 = Curb 05 = Guardrail/Barrier 06 = Embankment 07 = Fence
 08 = Light Pole 09 = Sign Post 10 = Other Pole 11 = Tree/Shrubbery 12 = Construction Barrier 13 = Crash Attenuator

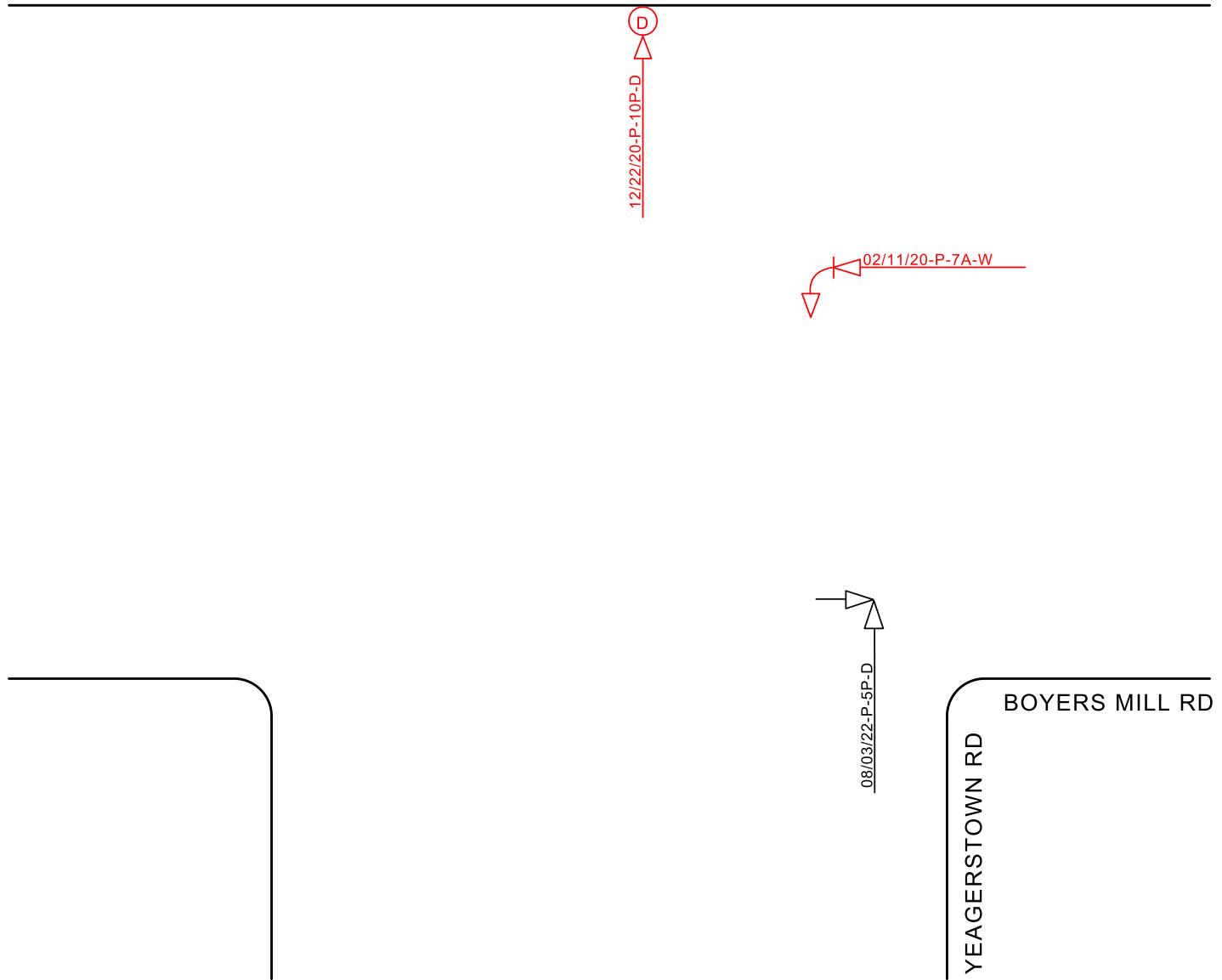


Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: Boyers Mill Rd @ Yeagerstown Rd
County: FREDERICK
Study Period: 01/01/2020 to 12/31/2022
Analyst: Robert L. Booker, Jr. Date: 12/12/2023



BOYERS MILL RD





Traffic Impact Analysis



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Crash Data Map

**Exhibit
1**

Location: YEAGERSTOWN~BOYERSMILL-OLDNATIONALPIKE

Logmiles: From 0 To 1.82 Length: 1.82

County: Frederick, D7

Period: January 01, 2020 To December 31, 2022

Note:

YEAR >>	2020	2021	2022	Total
Fatal	0	0	0	0
No. Killed	0	0	0	0
Injury	0	0	1	1
No. Injured	0	0	1	1
Prop. Damage	1	3	2	6
Total Crashes	1	3	3	7
Severity Index	1	3	6	Avg 3
Opposite Dir.	0	0	0	0
Rear End	0	0	0	0
Sideswipe	0	0	0	0
Left Turn	0	0	0	0
Angle	0	0	1	1
Pedestrian	0	0	0	0
Parked Veh.	0	0	0	0
Fixed Object	0	0	0	0
Other	1	3	2	6
U-Turn	0	0	0	0
Backing	0	0	0	0
Animal	0	0	0	0
Railroad	0	0	0	0
Fire / Expl.	0	0	0	0
Overtake	0	1	1	2
Truck Related	0	1	0	1
Night Time	1	0	0	1
Wet Surface	0	0	1	1
Alcohol	0	0	0	0
Intersection	1	0	1	2
Total Vehicles	1	3	4	8
Total Trucks	0	1	0	1
Truck %	0.0	33.3	0.0	12.5
Comments:				

Location: YEAGERSTOWN~BOYERSMILL-OLDNATIONALPIKE

Logmiles: From 0 To 1.82 Length: 1.82

County: Frederick, D7

Period: January 1, 2020 To December 31, 2022

Note:

SEVERITY		FATAL	INJURY	P-DAMAGE	TOTAL	DAY OF THE WEEK							
Accidents		1		6	7	SUN	MON	TUE	WED	THU	FRI	SAT	UNK
Veh Occ		1				1	2	1	2		1		
Pedestrian				AVG Severity Index: 3									
MONTH OF THE YEAR													
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	UNK	CONDITION
1			2				1	1		1	1		Normal: 6
AM:													Alcohol: 2
PM:													Other: 2
TIME													
12	01	02	03	04	05	06	07	08	09	10	11	UNK	VEHICLES INVOLVED PER ACCIDENT
						3	2			1			1 2 3 4 5 6+ UNK TOTAL
										1			6 1 8
VEHICLE TYPE					SURFACE	MOVEMENTS							
Motorcycle/Moped		Tractor Trailer			1 Wet	NORTH		SOUTH		EAST		WEST	
6 Passenger Vehicle		Passenger Bus			3 Dry	LF	ST	RT	LF	ST	RT	LF	ST
Sport Utility Veh		School Bus			1 Sno/Ice		1			1		1	RT
1 Pick-Up Truck		Emergency Veh			Mud								
1 Trucks (2+3 axles)		6 Other Types			2 Other								OTHER MOVEMENTS 5
PROBABLE CAUSES													
Influence of Drugs					Improper Lane Change			COLLISION TYPES			FATAL	INJURY	PROP
Influence of Alcohol					Improper Backing			Related:					TOTAL
Influence of Medication					Improper Passing			Opposite Dir					
Influence of Combined Subst.					Improper Signal			Related:					
Physical/Mental Difficulty					Improper Parking			UnRelated:					
Fell Asleep/Fainted, etc.					Passenger Interfere/Obstruct.			Rear End					
2 Fail to give full Attention					Illegally in Roadway			Related:					
Lic. Restr. Non-compliance					Bicycle Violation			UnRelated:					
1 Fail to Drive in Single Lane					Clothing Not Visible			Sideswipe					
Improper Right Turn on Red					Sleet, Hail, Freezing Rain			Related:					
1 Fail to Yield Right-of-way					Severe Crosswinds			UnRelated:					
Fail to Obey Stop Sign					Rain, Snow			Left Turn					
Fail to Obey Traffic Signal					Animal			Related:			1	1	
Fail to Obey Other Control					Vision Obstruction			Angle					
Fail to Keep Right of Center					Vehicle Defect			Related:					
Fail to Stop for School Bus					Wet			Pedestrian					
Wrong Way on One Way					Icy or Snow Covered			Related:					
Exceeded Speed Limit					Debris or Obstruction			UnRelated:					
Operator Using Cell Phone					Ruts, Holes or Bumps			Parked Vehicle					
Stopping in Lane Roadway					Road Under Construction			Related:					
2 Too Fast for Conditions					Traffic Control Device Inop.			UnRelated:			1	1	
Followed too Closely					Shoulders Low, Soft or High			Other Collision					
Improper Turn					1 Other or Unknown			Related:			1	4	5
								F	Bridge	01			
								I	Building	02			
								X	Culvert/Ditch	03			
								E	Curb	04			
								D	Guardrail/Barrier	05			
									Embankment	06			
								O	Fence	07			
								B	Light Pole	08			
								J	Sign Pole	09			
								E	Other Pole	10			
								C	Tree/Shrubbery	11			
								T	Contr. Barrier	12			
								S	Crash Attenuator	13			
									Other Fixed Object				

Location: YEAGERSTOWN~BOYERSMILL-OLDNATIONALPIKE Logmiles: From 0 To 1.82 Length: 1.82

County: Frederick, D7 Period: January 01, 2020 To December 31, 2022

Note:

MilePt	Int Rel	Date	Severity	Time	Light	Surface	Alc Rel	FixObj	Collision	Movement		
										V1	V2	Probable Cause
CO455												
0.000	<input type="checkbox"/>	12222020	Property	10P	Night	Dry			OTHER	NS	--	Fail to give full attention
0.000		11292021	Property	10A	Day	Dry			OTHER	SS	--	Too fast for conditions
0.020		09192022	Property	06A					OTHER	SS	--	Other or Unknown
0.820		02142021	Property	07A	Day	Ice			OTHER	SS	--	Too fast for conditions
1.000		04212021	Property	06A	Day	Dry			OTHER	Nu	--	Fail to give full attention
1.000		08122022	1 Injured	07A	Day				OTHER	SS	--	Fail to drive in single lane
1.820	<input type="checkbox"/>	04062022	Property	06A	Day	Wet			ANGLE	ER	SS	Fail to yield right-of-way

Fixed Object: 01 = Bridge 02 = Building 03 = Culvert/Ditch 04 = Curb 05 = Guardrail/Barrier 06 = Embankment 07 = Fence
 08 = Light Pole 09 = Sign Post 10 = Other Pole 11 = Tree/Shrubbery 12 = Construction Barrier 13 = Crash Attenuator



Office of Traffic & Safety
Traffic Development & Support Division
Crash Analysis Safety Team

Location: Yeagerstown Rd ~ Boyers Mill Rd to Old National Pike
County: FREDERICK
Study Period: 01/01/2020 to 12/31/2022
Analyst: Robert L. Booker, Jr. Date: 12/12/2023

LM .00 CO 412 BOYERS MILL RD

LM .00-OFFRD-11/29/2021-P-10A-D

LM .02-OFFRD-09/19/2022-P-6A-L

— LM .00-OFFRD-12/22/2020-P-10P-D-N
—

12/12/2023



LM .65 UU STRUC #F0906 STREAM

LM .82-OFFRD-02/14/2021-P-7A-1

1

LM 1.00-OT-08/12/2022-1I-7A-C

— LM 1.00-OT-04/21/2021-P-6A-D

LM 1.82 CO 1317 OLD NATIONAL PIKE

LM 1.82-ANG-04/06/2022-P-6A-W

→

template 06-27-06

F - Fatalities	SS - Sideswipe	FO - Fixed Object	OFFRD - Off Road	00 - Not Applicable	08 - Light Support Pole	N - Night
I - Injury	PARKD - Parked Vehicle	OOBJ - Other Object	RUNWY - Downhill Runaway	01 - Bridge or Overpass	09 - Sign Support Pole	X - Alcohol
P - Property Damage	PED - Pedestrian	OT - Overturn	FIRE - Explosion Fire	02 - Building	10 - Other Pole	D - Dry Surface
OD - Opposite Direction	BIKE - Bicycle	SPILL - Spilled Cargo	BCKNG - Backing	03 - Culvert or Ditch	11 - Tree Shrubbery	W - Wet Surface
LT - Left Turn	PEDAL - Other Pedalcycle	JCKKNF - Jackknife	UTURN - U-Turn	04 - Curb	12 - Construction Barrier	I - Icy Surface
RE - Rear End	CONVY - Other Conveyance	SPRDTD - Units Separated	OTHR - Other	05 - Guardrail or Barrier	13 - Crash Attenuator	S - Snowy Surface
ANG - Angle	ANIML - Animal	NCOLL - Other Non Collision	UNK - Unknown	06 - Embankment	88 - Other	
				07 - Fence	99 - Unknown	

Appendix B

Level of Service (LOS) Worksheets

HCM Unsignalized Intersection Capacity Analysis
1: Yeagertown Road & Boyers Mill Road

Bell Farm Property
AM Existing



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	449	277	7	155	56	6
Future Volume (Veh/h)	449	277	7	155	56	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	488	301	8	168	61	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume		789		822	638	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		789		822	638	
tC, single (s)		4.1		6.4	6.2	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		99		82	99	
cM capacity (veh/h)		831		340	476	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	789	176	68			
Volume Left	0	8	61			
Volume Right	301	0	7			
cSH	1700	831	350			
Volume to Capacity	0.46	0.01	0.19			
Queue Length 95th (ft)	0	1	18			
Control Delay (s)	0.0	0.5	17.7			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.5	17.7			
Approach LOS			C			
Intersection Summary						
Average Delay		1.3				
Intersection Capacity Utilization		50.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
2: Yeagertown Road & Site Access

Bell Farm Property
AM Existing

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	62	284	0
Future Volume (Veh/h)	0	0	0	62	284	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	67	309	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	376	309	309			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	376	309	309			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	625	731	1252			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	67	309			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1252	1700			
Volume to Capacity	0.00	0.00	0.18			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		18.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
3: MD 144 & Meadow Road

Bell Farm Property
AM Existing



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑↑		↑	↑
Traffic Volume (vph)	95	486	331	497	53	106
Future Volume (vph)	95	486	331	497	53	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Fr _t	1.00	1.00	0.91		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	3221		1770	1583
Flt Permitted	0.22	1.00	1.00		0.95	1.00
Satd. Flow (perm)	409	1863	3221		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	528	360	540	58	115
RTOR Reduction (vph)	0	0	355	0	0	65
Lane Group Flow (vph)	103	528	545	0	58	50
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases	4					
Actuated Green, G (s)	23.9	23.9	13.7		7.1	17.3
Effective Green, g (s)	23.9	23.9	13.7		7.1	17.3
Actuated g/C Ratio	0.60	0.60	0.34		0.18	0.43
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	438	1113	1103		314	684
v/s Ratio Prot	0.03	c0.28	0.17		c0.03	0.03
v/s Ratio Perm	0.11					
v/c Ratio	0.24	0.47	0.49		0.18	0.07
Uniform Delay, d1	4.7	4.5	10.4		14.0	6.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.3	0.4		0.3	0.0
Delay (s)	5.0	4.8	10.8		14.3	6.7
Level of Service	A	A	B		B	A
Approach Delay (s)		4.9	10.8		9.2	
Approach LOS		A	B		A	
Intersection Summary						
HCM 2000 Control Delay			8.4	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			40.0	Sum of lost time (s)		13.5
Intersection Capacity Utilization			45.8%	ICU Level of Service		A
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: MD 144 & Yeagertown Road

Bell Farm Property
AM Existing

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	305	409	7	44	200
Future Volume (Veh/h)	86	305	409	7	44	200
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	93	332	445	8	48	217
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)				2		
Median type	None	None				
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	453			963	445	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	453			963	445	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	92			82	65	
cM capacity (veh/h)	1108			260	613	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	93	332	445	8	265	
Volume Left	93	0	0	0	48	
Volume Right	0	0	0	8	217	
cSH	1108	1700	1700	1700	749	
Volume to Capacity	0.08	0.20	0.26	0.00	0.35	
Queue Length 95th (ft)	7	0	0	0	40	
Control Delay (s)	8.5	0.0	0.0	0.0	15.5	
Lane LOS	A			C		
Approach Delay (s)	1.9		0.0		15.5	
Approach LOS				C		
Intersection Summary						
Average Delay		4.3				
Intersection Capacity Utilization		40.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
6: MD 144 & Boyers Mill Road

Bell Farm Property
AM Existing



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	109	170	203	81	242	270
Future Volume (vph)	109	170	203	81	242	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.62	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1155	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	185	221	88	263	293
RTOR Reduction (vph)	0	0	0	58	0	176
Lane Group Flow (vph)	118	185	221	30	263	117
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	10.6	10.6	10.6	10.6	11.1	11.1
Effective Green, g (s)	10.6	10.6	10.6	10.6	11.1	11.1
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	398	643	643	546	639	572
v/s Ratio Prot		0.10	c0.12		c0.15	
v/s Ratio Perm	0.10			0.02		0.07
v/c Ratio	0.30	0.29	0.34	0.06	0.41	0.21
Uniform Delay, d1	7.3	7.3	7.5	6.7	7.4	6.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	0.3	0.0	0.4	0.2
Delay (s)	7.7	7.6	7.8	6.8	7.8	6.9
Level of Service	A	A	A	A	A	A
Approach Delay (s)		7.6	7.5		7.3	
Approach LOS		A	A		A	
Intersection Summary						
HCM 2000 Control Delay			7.5	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.38			
Actuated Cycle Length (s)			30.7	Sum of lost time (s)		9.0
Intersection Capacity Utilization			43.7%	ICU Level of Service		A
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Yeagertown Road & Boyers Mill Road

Bell Farm Property
AM Background



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	749	311	8	335	67	6
Future Volume (Veh/h)	749	311	8	335	67	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	814	338	9	364	73	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume		1152		1365	983	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1152		1365	983	
tC, single (s)		4.1		6.4	6.2	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		99		54	98	
cM capacity (veh/h)		606		160	302	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1152	373	80			
Volume Left	0	9	73			
Volume Right	338	0	7			
cSH	1700	606	167			
Volume to Capacity	0.68	0.01	0.48			
Queue Length 95th (ft)	0	1	57			
Control Delay (s)	0.0	0.5	45.0			
Lane LOS		A	E			
Approach Delay (s)	0.0	0.5	45.0			
Approach LOS			E			
Intersection Summary						
Average Delay		2.4				
Intersection Capacity Utilization		69.1%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
2: Yeagertown Road & Site Access

Bell Farm Property
AM Background

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	73	319	0
Future Volume (Veh/h)	0	0	0	73	319	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	79	347	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	426	347	347			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	426	347	347			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	585	696	1212			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	79	347			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1212	1700			
Volume to Capacity	0.00	0.00	0.20			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		20.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
3: MD 144 & Meadow Road

Bell Farm Property
AM Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑↑		↑	↑
Traffic Volume (vph)	246	676	419	744	71	321
Future Volume (vph)	246	676	419	744	71	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Fr _t	1.00	1.00	0.90		1.00	0.85
Fl _t Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	3199		1770	1583
Fl _t Permitted	0.14	1.00	1.00		0.95	1.00
Satd. Flow (perm)	256	1863	3199		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	267	735	455	809	77	349
RTOR Reduction (vph)	0	0	371	0	0	150
Lane Group Flow (vph)	267	735	893	0	77	199
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases	4					
Actuated Green, G (s)	43.1	43.1	24.6		9.1	27.6
Effective Green, g (s)	43.1	43.1	24.6		9.1	27.6
Actuated g/C Ratio	0.70	0.70	0.40		0.15	0.45
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	526	1312	1285		263	713
v/s Ratio Prot	0.12	c0.39	c0.28		0.04	c0.13
v/s Ratio Perm	0.24					
v/c Ratio	0.51	0.56	0.69		0.29	0.28
Uniform Delay, d ₁	8.7	4.4	15.2		23.2	10.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	0.8	0.6	1.6		0.6	0.2
Delay (s)	9.5	5.0	16.8		23.8	10.8
Level of Service	A	A	B		C	B
Approach Delay (s)		6.2	16.8		13.1	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			12.3	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			61.2	Sum of lost time (s)		13.5
Intersection Capacity Utilization			64.6%	ICU Level of Service		C
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: MD 144 & Yeagertown Road

Bell Farm Property
AM Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	114	616	754	8	48	249
Future Volume (Veh/h)	114	616	754	8	48	249
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	124	670	820	9	52	271
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)				2		
Median type	None	None				
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	829			1738	820	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	829			1738	820	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	85			36	28	
cM capacity (veh/h)	803			81	375	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	124	670	820	9	323	
Volume Left	124	0	0	0	52	
Volume Right	0	0	0	9	271	
cSH	803	1700	1700	1700	377	
Volume to Capacity	0.15	0.39	0.48	0.01	0.86	
Queue Length 95th (ft)	14	0	0	0	204	
Control Delay (s)	10.3	0.0	0.0	0.0	51.1	
Lane LOS	B				F	
Approach Delay (s)	1.6		0.0		51.1	
Approach LOS					F	
Intersection Summary						
Average Delay			9.1			
Intersection Capacity Utilization		61.8%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
6: MD 144 & Boyers Mill Road

Bell Farm Property
AM Background

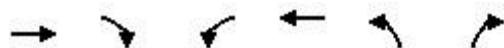


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	68	348	305	52	154	194
Future Volume (vph)	68	348	305	52	154	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Fl _t Permitted	0.56	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1044	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	378	332	57	167	211
RTOR Reduction (vph)	0	0	0	35	0	142
Lane Group Flow (vph)	74	378	332	22	167	69
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	12.5	12.5	12.5	12.5	10.4	10.4
Effective Green, g (s)	12.5	12.5	12.5	12.5	10.4	10.4
Actuated g/C Ratio	0.39	0.39	0.39	0.39	0.33	0.33
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	409	730	730	620	577	516
v/s Ratio Prot		c0.20	0.18		c0.09	
v/s Ratio Perm	0.07			0.01		0.04
v/c Ratio	0.18	0.52	0.45	0.04	0.29	0.13
Uniform Delay, d ₁	6.3	7.4	7.2	6.0	8.0	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	0.2	0.6	0.5	0.0	0.3	0.1
Delay (s)	6.6	8.0	7.6	6.0	8.3	7.7
Level of Service	A	A	A	A	A	A
Approach Delay (s)		7.8	7.4		8.0	
Approach LOS		A	A		A	
Intersection Summary						
HCM 2000 Control Delay			7.7	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.41			
Actuated Cycle Length (s)		31.9		Sum of lost time (s)		9.0
Intersection Capacity Utilization		44.2%		ICU Level of Service		A
Analysis Period (min)		15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Yeagertown Road & Boyers Mill Road

Bell Farm Property
AM Total



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	749	314	11	335	72	11
Future Volume (Veh/h)	749	314	11	335	72	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	814	341	12	364	78	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume		1155		1372	984	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1155		1372	984	
tC, single (s)		4.1		6.4	6.2	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		98		50	96	
cM capacity (veh/h)		605		158	301	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1155	376	90			
Volume Left	0	12	78			
Volume Right	341	0	12			
cSH	1700	605	168			
Volume to Capacity	0.68	0.02	0.53			
Queue Length 95th (ft)	0	2	68			
Control Delay (s)	0.0	0.6	48.6			
Lane LOS		A	E			
Approach Delay (s)	0.0	0.6	48.6			
Approach LOS			E			
Intersection Summary						
Average Delay		2.8				
Intersection Capacity Utilization		69.9%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
2: Yeagertown Road & Site Access

Bell Farm Property
AM Total

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	23	11	73	319	6
Future Volume (Veh/h)	10	23	11	73	319	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	25	12	79	347	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	454	350	354			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	454	350	354			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	96	99			
cM capacity (veh/h)	559	693	1205			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	36	91	354			
Volume Left	11	12	0			
Volume Right	25	0	7			
cSH	646	1205	1700			
Volume to Capacity	0.06	0.01	0.21			
Queue Length 95th (ft)	4	1	0			
Control Delay (s)	10.9	1.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.9	1.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		27.2%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
3: MD 144 & Meadow Road

Bell Farm Property
AM Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑↑		↑	↑
Traffic Volume (vph)	246	678	422	756	76	321
Future Volume (vph)	246	678	422	756	76	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Fr _t	1.00	1.00	0.90		1.00	0.85
Fl _t Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	3199		1770	1583
Fl _t Permitted	0.14	1.00	1.00		0.95	1.00
Satd. Flow (perm)	253	1863	3199		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	267	737	459	822	83	349
RTOR Reduction (vph)	0	0	376	0	0	148
Lane Group Flow (vph)	267	737	905	0	83	201
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases	4					
Actuated Green, G (s)	43.4	43.4	24.9		9.3	27.8
Effective Green, g (s)	43.4	43.4	24.9		9.3	27.8
Actuated g/C Ratio	0.70	0.70	0.40		0.15	0.45
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	522	1310	1291		266	713
v/s Ratio Prot	0.12	c0.40	c0.28		0.05	c0.13
v/s Ratio Perm	0.24					
v/c Ratio	0.51	0.56	0.70		0.31	0.28
Uniform Delay, d ₁	9.1	4.5	15.3		23.3	10.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	0.8	0.6	1.7		0.7	0.2
Delay (s)	9.9	5.0	17.0		24.0	10.9
Level of Service	A	A	B		C	B
Approach Delay (s)		6.3	17.0		13.4	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			12.5	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			61.7	Sum of lost time (s)		13.5
Intersection Capacity Utilization			65.1%	ICU Level of Service		C
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: MD 144 & Yeagertown Road

Bell Farm Property
AM Total

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	121	616	754	12	56	264
Future Volume (Veh/h)	121	616	754	12	56	264
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	132	670	820	13	61	287
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)				2		
Median type	None	None				
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	833			1754	820	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	833			1754	820	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	83			22	23	
cM capacity (veh/h)	800			78	375	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	132	670	820	13	348	
Volume Left	132	0	0	0	61	
Volume Right	0	0	0	13	287	
cSH	800	1700	1700	1700	373	
Volume to Capacity	0.17	0.39	0.48	0.01	0.93	
Queue Length 95th (ft)	15	0	0	0	250	
Control Delay (s)	10.4	0.0	0.0	0.0	65.2	
Lane LOS	B				F	
Approach Delay (s)	1.7		0.0		65.2	
Approach LOS					F	
Intersection Summary						
Average Delay		12.1				
Intersection Capacity Utilization		62.7%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
6: MD 144 & Boyers Mill Road

Bell Farm Property
AM Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	68	356	309	52	154	194
Future Volume (vph)	68	356	309	52	154	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Fl _t Permitted	0.56	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1040	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	387	336	57	167	211
RTOR Reduction (vph)	0	0	0	35	0	142
Lane Group Flow (vph)	74	387	336	22	167	69
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	12.7	12.7	12.7	12.7	10.5	10.5
Effective Green, g (s)	12.7	12.7	12.7	12.7	10.5	10.5
Actuated g/C Ratio	0.39	0.39	0.39	0.39	0.33	0.33
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	410	734	734	624	577	516
v/s Ratio Prot		c0.21	0.18		c0.09	
v/s Ratio Perm	0.07			0.01		0.04
v/c Ratio	0.18	0.53	0.46	0.04	0.29	0.13
Uniform Delay, d ₁	6.4	7.5	7.2	6.0	8.1	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	0.2	0.7	0.5	0.0	0.3	0.1
Delay (s)	6.6	8.1	7.7	6.0	8.4	7.8
Level of Service	A	A	A	A	A	A
Approach Delay (s)		7.9	7.4		8.0	
Approach LOS		A	A		A	
Intersection Summary						
HCM 2000 Control Delay			7.8	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			32.2	Sum of lost time (s)		9.0
Intersection Capacity Utilization			44.4%	ICU Level of Service		A
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Yeagertown Road & Boyers Mill Road

Bell Farm Property
PM Existing

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	414	175	8	449	151	11
Future Volume (Veh/h)	414	175	8	449	151	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	450	190	9	488	164	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume		640		1051	545	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		640		1051	545	
tC, single (s)		4.1		6.4	6.2	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		99		34	98	
cM capacity (veh/h)		944		249	538	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	640	497	176			
Volume Left	0	9	164			
Volume Right	190	0	12			
cSH	1700	944	258			
Volume to Capacity	0.38	0.01	0.68			
Queue Length 95th (ft)	0	1	112			
Control Delay (s)	0.0	0.3	44.3			
Lane LOS		A	E			
Approach Delay (s)	0.0	0.3	44.3			
Approach LOS			E			
Intersection Summary						
Average Delay		6.0				
Intersection Capacity Utilization		48.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
2: Yeagertown Road & Site Access

Bell Farm Property
PM Existing

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	162	183	0
Future Volume (Veh/h)	0	0	0	162	183	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	176	199	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	375	199	199			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	375	199	199			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	626	842	1373			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	176	199			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1373	1700			
Volume to Capacity	0.06	0.00	0.12			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		13.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
3: MD 144 & Meadow Road

Bell Farm Property
PM Existing

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	113	789	274	354	116	218
Future Volume (vph)	113	789	274	354	116	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Fr _t	1.00	1.00	0.92	1.00	0.85	
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	3240	1770	1583	
Fl _t Permitted	0.25	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	460	1863	3240	1770	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	858	298	385	126	237
RTOR Reduction (vph)	0	0	252	0	0	127
Lane Group Flow (vph)	123	858	431	0	126	110
Turn Type	pm+pt	NA	NA	Prot	pt+ov	
Protected Phases	7	4	8	6	6	7
Permitted Phases	4					
Actuated Green, G (s)	28.8	28.8	16.4	9.6	22.0	
Effective Green, g (s)	28.8	28.8	16.4	9.6	22.0	
Actuated g/C Ratio	0.61	0.61	0.35	0.20	0.46	
Clearance Time (s)	4.5	4.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	497	1131	1121	358	734	
v/s Ratio Prot	0.04	c0.46	0.13	c0.07	0.07	
v/s Ratio Perm	0.11					
v/c Ratio	0.25	0.76	0.38	0.35	0.15	
Uniform Delay, d ₁	4.7	6.8	11.7	16.2	7.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d ₂	0.3	3.0	0.2	0.6	0.1	
Delay (s)	4.9	9.7	11.9	16.8	7.4	
Level of Service	A	A	B	B	A	
Approach Delay (s)		9.1	11.9	10.7		
Approach LOS		A	B	B		
Intersection Summary						
HCM 2000 Control Delay			10.3	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			47.4	Sum of lost time (s)		13.5
Intersection Capacity Utilization			55.5%	ICU Level of Service		B
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: MD 144 & Yeagertown Road

Bell Farm Property
PM Existing

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	165	463	411	24	35	132
Future Volume (Veh/h)	165	463	411	24	35	132
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	179	503	447	26	38	143
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)				2		
Median type	None	None				
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	473			1308	447	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	473			1308	447	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	84			74	77	
cM capacity (veh/h)	1089			147	612	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	179	503	447	26	181	
Volume Left	179	0	0	0	38	
Volume Right	0	0	0	26	143	
cSH	1089	1700	1700	1700	700	
Volume to Capacity	0.16	0.30	0.26	0.02	0.26	
Queue Length 95th (ft)	15	0	0	0	26	
Control Delay (s)	9.0	0.0	0.0	0.0	18.0	
Lane LOS	A			C		
Approach Delay (s)	2.4		0.0		18.0	
Approach LOS				C		
Intersection Summary						
Average Delay		3.6				
Intersection Capacity Utilization		44.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
6: MD 144 & Boyers Mill Road

Bell Farm Property
PM Existing

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	320	362	271	246	200	185
Future Volume (vph)	320	362	271	246	200	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.58	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1080	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	348	393	295	267	217	201
RTOR Reduction (vph)	0	0	0	134	0	124
Lane Group Flow (vph)	348	393	295	133	217	77
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	21.6	21.6	21.6	21.6	12.7	12.7
Effective Green, g (s)	21.6	21.6	21.6	21.6	12.7	12.7
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.29	0.29
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	538	929	929	789	519	464
v/s Ratio Prot		0.21	0.16		c0.12	
v/s Ratio Perm	c0.32			0.08		0.05
v/c Ratio	0.65	0.42	0.32	0.17	0.42	0.17
Uniform Delay, d ₁	8.0	6.9	6.5	5.9	12.3	11.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	2.7	0.3	0.2	0.1	0.5	0.2
Delay (s)	10.7	7.2	6.7	6.0	12.9	11.5
Level of Service	B	A	A	A	B	B
Approach Delay (s)		8.8	6.4		12.2	
Approach LOS		A	A		B	
Intersection Summary						
HCM 2000 Control Delay			8.9	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			43.3	Sum of lost time (s)		9.0
Intersection Capacity Utilization			54.3%	ICU Level of Service		A
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Yeagertown Road & Boyers Mill Road

Bell Farm Property
PM Background



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	729	209	9	817	187	12
Future Volume (Veh/h)	729	209	9	817	187	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	792	227	10	888	203	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume		1019		1814	906	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1019		1814	906	
tC, single (s)		4.1		6.4	6.2	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		99		0	96	
cM capacity (veh/h)		681		85	335	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1019	898	216			
Volume Left	0	10	203			
Volume Right	227	0	13			
cSH	1700	681	89			
Volume to Capacity	0.60	0.01	2.43			
Queue Length 95th (ft)	0	1	499			
Control Delay (s)	0.0	0.4	752.9			
Lane LOS		A	F			
Approach Delay (s)	0.0	0.4	752.9			
Approach LOS		F				
Intersection Summary						
Average Delay		76.4				
Intersection Capacity Utilization		68.8%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
2: Yeagertown Road & Site Access

Bell Farm Property
PM Background

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	198	218	0
Future Volume (Veh/h)	0	0	0	198	218	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	215	237	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	452	237	237			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	452	237	237			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	565	802	1330			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	215	237			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1330	1700			
Volume to Capacity	0.06	0.00	0.14			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		14.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
3: MD 144 & Meadow Road

Bell Farm Property
PM Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑↑		↑	↑
Traffic Volume (vph)	433	1169	322	636	164	442
Future Volume (vph)	433	1169	322	636	164	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Fr _t	1.00	1.00	0.90		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	3187		1770	1583
Flt Permitted	0.13	1.00	1.00		0.95	1.00
Satd. Flow (perm)	243	1863	3187		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	471	1271	350	691	178	480
RTOR Reduction (vph)	0	0	298	0	0	203
Lane Group Flow (vph)	471	1271	743	0	178	277
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases	4					
Actuated Green, G (s)	58.6	58.6	33.9		12.4	37.1
Effective Green, g (s)	58.6	58.6	33.9		12.4	37.1
Actuated g/C Ratio	0.73	0.73	0.42		0.16	0.46
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	563	1364	1350		274	734
v/s Ratio Prot	0.21	c0.68	0.23		c0.10	0.17
v/s Ratio Perm	0.40					
v/c Ratio	0.84	0.93	0.55		0.65	0.38
Uniform Delay, d ₁	18.4	9.0	17.3		31.8	13.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	10.4	11.6	0.5		5.2	0.3
Delay (s)	28.8	20.6	17.8		37.0	14.3
Level of Service	C	C	B		D	B
Approach Delay (s)		22.9	17.8		20.4	
Approach LOS		C	B		C	
Intersection Summary						
HCM 2000 Control Delay		20.9		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.94				
Actuated Cycle Length (s)		80.0		Sum of lost time (s)		13.5
Intersection Capacity Utilization		78.1%		ICU Level of Service		D
Analysis Period (min)		15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: MD 144 & Yeagertown Road

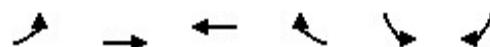
Bell Farm Property
PM Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	230	992	794	26	38	193
Future Volume (Veh/h)	230	992	794	26	38	193
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	1078	863	28	41	210
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)				2		
Median type	None	None				
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	891			2441	863	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	891			2441	863	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	67			0	41	
cM capacity (veh/h)	761			23	354	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	250	1078	863	28	251	
Volume Left	250	0	0	0	41	
Volume Right	0	0	0	28	210	
cSH	761	1700	1700	1700	114	
Volume to Capacity	0.33	0.63	0.51	0.02	2.19	
Queue Length 95th (ft)	36	0	0	0	537	
Control Delay (s)	12.0	0.0	0.0	0.0	626.7	
Lane LOS	B				F	
Approach Delay (s)	2.3		0.0		626.7	
Approach LOS					F	
Intersection Summary						
Average Delay		64.9				
Intersection Capacity Utilization		67.9%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
6: MD 144 & Boyers Mill Road

Bell Farm Property
PM Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	220	519	471	148	149	102
Future Volume (vph)	220	519	471	148	149	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.41	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	755	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	564	512	161	162	111
RTOR Reduction (vph)	0	0	0	74	0	83
Lane Group Flow (vph)	239	564	512	87	162	28
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	23.6	23.6	23.6	23.6	11.0	11.0
Effective Green, g (s)	23.6	23.6	23.6	23.6	11.0	11.0
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.25	0.25
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	408	1008	1008	856	446	399
v/s Ratio Prot		0.30	0.27		c0.09	
v/s Ratio Perm	c0.32			0.06		0.02
v/c Ratio	0.59	0.56	0.51	0.10	0.36	0.07
Uniform Delay, d ₁	6.7	6.6	6.3	4.9	13.4	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	2.1	0.7	0.4	0.1	0.5	0.1
Delay (s)	8.9	7.3	6.7	4.9	13.9	12.5
Level of Service	A	A	A	A	B	B
Approach Delay (s)		7.7	6.3		13.3	
Approach LOS		A	A		B	
Intersection Summary						
HCM 2000 Control Delay			8.1	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.51			
Actuated Cycle Length (s)			43.6	Sum of lost time (s)		9.0
Intersection Capacity Utilization			61.0%	ICU Level of Service		B
Analysis Period (min)			15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Yeagertown Road & Boyers Mill Road

Bell Farm Property
PM Total



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Traffic Volume (veh/h)	729	214	14	817	191	16
Future Volume (Veh/h)	729	214	14	817	191	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	792	233	15	888	208	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume		1025		1826	908	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1025		1826	908	
tC, single (s)		4.1		6.4	6.2	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		98		0	95	
cM capacity (veh/h)		677		83	333	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1025	903	225			
Volume Left	0	15	208			
Volume Right	233	0	17			
cSH	1700	677	88			
Volume to Capacity	0.60	0.02	2.57			
Queue Length 95th (ft)	0	2	529			
Control Delay (s)	0.0	0.6	813.9			
Lane LOS		A	F			
Approach Delay (s)	0.0	0.6	813.9			
Approach LOS		F				
Intersection Summary						
Average Delay		85.3				
Intersection Capacity Utilization		72.4%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
2: Yeagertown Road & Site Access

Bell Farm Property
PM Total

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	19	25	198	218	10
Future Volume (Veh/h)	8	19	25	198	218	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	21	27	215	237	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	512	242	248			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	512	242	248			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	98			
cM capacity (veh/h)	512	796	1318			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	30	242	248			
Volume Left	9	27	0			
Volume Right	21	0	11			
cSH	682	1318	1700			
Volume to Capacity	0.04	0.02	0.15			
Queue Length 95th (ft)	3	2	0			
Control Delay (s)	10.5	1.0	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.5	1.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		37.2%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
3: MD 144 & Meadow Road

Bell Farm Property
PM Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑↑		↑	↑
Traffic Volume (vph)	433	1173	325	645	176	442
Future Volume (vph)	433	1173	325	645	176	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	0.95		1.00	1.00
Fr _t	1.00	1.00	0.90		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	3186		1770	1583
Flt Permitted	0.13	1.00	1.00		0.95	1.00
Satd. Flow (perm)	237	1863	3186		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	471	1275	353	701	191	480
RTOR Reduction (vph)	0	0	297	0	0	202
Lane Group Flow (vph)	471	1275	757	0	191	278
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases	4					
Actuated Green, G (s)	59.2	59.2	34.4		12.7	37.5
Effective Green, g (s)	59.2	59.2	34.4		12.7	37.5
Actuated g/C Ratio	0.73	0.73	0.43		0.16	0.46
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	558	1363	1354		277	733
v/s Ratio Prot	0.21	c0.68	0.24		c0.11	0.18
v/s Ratio Perm	0.41					
v/c Ratio	0.84	0.94	0.56		0.69	0.38
Uniform Delay, d ₁	19.0	9.2	17.5		32.2	14.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	11.2	12.0	0.5		7.0	0.3
Delay (s)	30.2	21.2	18.0		39.2	14.5
Level of Service	C	C	B		D	B
Approach Delay (s)		23.7	18.0		21.5	
Approach LOS		C	B		C	
Intersection Summary						
HCM 2000 Control Delay		21.5		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.95				
Actuated Cycle Length (s)		80.9		Sum of lost time (s)		13.5
Intersection Capacity Utilization		79.0%		ICU Level of Service		D
Analysis Period (min)		15				

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: MD 144 & Yeagertown Road

Bell Farm Property
PM Total

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	246	992	794	35	45	205
Future Volume (Veh/h)	246	992	794	35	45	205
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	267	1078	863	38	49	223
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)				2		
Median type	None	None				
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	901			2475	863	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	901			2475	863	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	65			0	37	
cM capacity (veh/h)	754			21	354	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	267	1078	863	38	272	
Volume Left	267	0	0	0	49	
Volume Right	0	0	0	38	223	
cSH	754	1700	1700	1700	96	
Volume to Capacity	0.35	0.63	0.51	0.02	2.82	
Queue Length 95th (ft)	40	0	0	0	648	
Control Delay (s)	12.4	0.0	0.0	0.0	917.9	
Lane LOS	B				F	
Approach Delay (s)	2.5		0.0		917.9	
Approach LOS					F	
Intersection Summary						
Average Delay		100.5				
Intersection Capacity Utilization		68.8%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis
6: MD 144 & Boyers Mill Road

Bell Farm Property
PM Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	220	526	480	148	149	102
Future Volume (vph)	220	526	480	148	149	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.40	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	739	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	572	522	161	162	111
RTOR Reduction (vph)	0	0	0	73	0	83
Lane Group Flow (vph)	239	572	522	88	162	28
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	24.5	24.5	24.5	24.5	11.4	11.4
Effective Green, g (s)	24.5	24.5	24.5	24.5	11.4	11.4
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.25	0.25
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	403	1016	1016	863	449	401
v/s Ratio Prot		0.31	0.28		c0.09	
v/s Ratio Perm	c0.32			0.06		0.02
v/c Ratio	0.59	0.56	0.51	0.10	0.36	0.07
Uniform Delay, d ₁	6.9	6.7	6.4	4.9	13.8	12.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	2.3	0.7	0.4	0.1	0.5	0.1
Delay (s)	9.2	7.4	6.9	5.0	14.3	12.8
Level of Service	A	A	A	A	B	B
Approach Delay (s)		7.9	6.4		13.7	
Approach LOS		A	A		B	
Intersection Summary						
HCM 2000 Control Delay		8.2		HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio		0.52				
Actuated Cycle Length (s)		44.9		Sum of lost time (s)		9.0
Intersection Capacity Utilization		61.5%		ICU Level of Service		B
Analysis Period (min)		15				

c Critical Lane Group

MOVEMENT SUMMARY

Site: 4 [MD 144 & Eaglehead Drive]

Bell Farm Property
Site Category: AM Existing
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Stickleback Street												
3	L2	43	3.0	0.085	5.1	LOS A	0.3	7.6	0.50	0.44	0.50	33.6
8	T1	26	3.0	0.085	5.1	LOS A	0.3	7.6	0.50	0.44	0.50	33.5
18	R2	1	3.0	0.085	5.1	LOS A	0.3	7.6	0.50	0.44	0.50	32.5
Approach		71	3.0	0.085	5.1	LOS A	0.3	7.6	0.50	0.44	0.50	33.5
East: MD 144												
1	L2	15	3.0	0.327	7.0	LOS A	1.5	38.4	0.47	0.38	0.47	34.2
6	T1	489	3.0	0.327	6.9	LOS A	1.5	38.4	0.47	0.37	0.47	34.2
16	R2	168	3.0	0.327	6.6	LOS A	1.5	37.8	0.45	0.36	0.45	33.3
Approach		673	3.0	0.327	6.8	LOS A	1.5	38.4	0.46	0.37	0.46	33.9
North: Eaglehead Drive												
7	L2	160	3.0	0.240	7.3	LOS A	0.9	24.2	0.56	0.55	0.56	32.0
4	T1	27	3.0	0.240	7.3	LOS A	0.9	24.2	0.56	0.55	0.56	31.9
14	R2	252	3.0	0.295	7.5	LOS A	1.2	30.6	0.56	0.55	0.56	32.8
Approach		439	3.0	0.295	7.4	LOS A	1.2	30.6	0.56	0.55	0.56	32.4
West: MD 144												
5	L2	224	3.0	0.207	5.2	LOS A	0.9	22.4	0.35	0.24	0.35	32.5
2	T1	192	3.0	0.194	4.8	LOS A	0.8	20.3	0.33	0.22	0.33	35.4
12	R2	32	3.0	0.194	4.8	LOS A	0.8	20.3	0.33	0.22	0.33	34.2
Approach		448	3.0	0.207	5.0	LOS A	0.9	22.4	0.34	0.23	0.34	33.8
All Vehicles		1630	3.0	0.327	6.4	LOS A	1.5	38.4	0.46	0.38	0.46	33.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: LENHART TRAFFIC CONSULTING | Processed: Tuesday, October 31, 2023 1:59:41 PM

Project: \\LTC-OFFICE\\LTC-Drive\\LTC-Server\\I-Projects\\Bell Farm_New Market Lake Linganore\\20230925 TIS\\20231031 Sidra\\All Scenarios.sip8

MOVEMENT SUMMARY

Site: 4 [MD 144 & Eaglehead Drive]

Bell Farm Property

Site Category: AM Background

Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Stickleback Street												
3	L2	183	3.0	0.518	12.9	LOS B	3.1	80.5	0.71	0.85	1.12	30.4
8	T1	104	3.0	0.518	12.9	LOS B	3.1	80.5	0.71	0.85	1.12	30.3
18	R2	84	3.0	0.518	12.9	LOS B	3.1	80.5	0.71	0.85	1.12	29.5
Approach		371	3.0	0.518	12.9	LOS B	3.1	80.5	0.71	0.85	1.12	30.2
East: MD 144												
1	L2	75	3.0	0.624	14.8	LOS B	5.6	143.3	0.75	0.95	1.30	30.4
6	T1	667	3.0	0.624	14.4	LOS B	5.7	146.1	0.74	0.95	1.29	30.5
16	R2	301	3.0	0.624	13.8	LOS B	5.7	146.1	0.73	0.93	1.27	30.1
Approach		1043	3.0	0.624	14.3	LOS B	5.7	146.1	0.74	0.94	1.29	30.4
North: Eaglehead Drive												
7	L2	288	3.0	0.659	19.8	LOS C	4.7	120.1	0.80	1.03	1.56	27.5
4	T1	116	3.0	0.659	19.8	LOS C	4.7	120.1	0.80	1.03	1.56	27.5
14	R2	312	3.0	0.572	17.9	LOS C	3.4	86.5	0.77	0.93	1.32	28.4
Approach		716	3.0	0.659	19.0	LOS C	4.7	120.1	0.78	0.99	1.46	27.9
West: MD 144												
5	L2	235	3.0	0.391	9.0	LOS A	1.9	48.5	0.60	0.61	0.66	31.5
2	T1	227	3.0	0.391	8.7	LOS A	1.9	48.5	0.59	0.59	0.63	32.6
12	R2	218	3.0	0.391	8.5	LOS A	1.8	47.1	0.58	0.57	0.62	32.4
Approach		680	3.0	0.391	8.7	LOS A	1.9	48.5	0.59	0.59	0.64	32.1
All Vehicles		2811	3.0	0.659	14.0	LOS B	5.7	146.1	0.71	0.86	1.15	30.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: LENHART TRAFFIC CONSULTING | Processed: Tuesday, October 31, 2023 2:03:17 PM

Project: \\LTC-OFFICE\\LTC-Drive\\LTC-Server\\I-Projects\\Bell Farm_New Market Lake Linganore\\20230925 TIS\\20231031 Sidra\\AM Background.sip8

MOVEMENT SUMMARY

Site: 4 [MD 144 & Eaglehead Drive]

Bell Farm Property
Site Category: AM Total
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Stickleback Street												
3	L2	183	3.0	0.533	13.6	LOS B	3.3	83.6	0.73	0.87	1.17	30.1
8	T1	104	3.0	0.533	13.6	LOS B	3.3	83.6	0.73	0.87	1.17	30.1
18	R2	84	3.0	0.533	13.6	LOS B	3.3	83.6	0.73	0.87	1.17	29.3
Approach		371	3.0	0.533	13.6	LOS B	3.3	83.6	0.73	0.87	1.17	29.9
East: MD 144												
1	L2	75	3.0	0.634	15.1	LOS C	5.8	149.3	0.76	0.97	1.34	30.3
6	T1	684	3.0	0.634	14.8	LOS B	6.0	152.4	0.75	0.96	1.33	30.4
16	R2	301	3.0	0.634	14.1	LOS B	6.0	152.4	0.74	0.95	1.31	29.9
Approach		1060	3.0	0.634	14.6	LOS B	6.0	152.4	0.75	0.96	1.32	30.3
North: Eaglehead Drive												
7	L2	312	3.0	0.708	22.6	LOS C	5.5	141.4	0.82	1.10	1.74	26.6
4	T1	116	3.0	0.708	22.6	LOS C	5.5	141.4	0.82	1.10	1.74	26.6
14	R2	288	3.0	0.536	16.9	LOS C	3.0	75.9	0.76	0.90	1.24	28.8
Approach		716	3.0	0.708	20.3	LOS C	5.5	141.4	0.79	1.02	1.54	27.4
West: MD 144												
5	L2	235	3.0	0.405	9.4	LOS A	2.1	52.5	0.62	0.65	0.72	31.4
2	T1	235	3.0	0.405	9.1	LOS A	2.1	52.5	0.60	0.63	0.69	32.4
12	R2	218	3.0	0.405	8.8	LOS A	2.0	51.4	0.60	0.62	0.68	32.2
Approach		688	3.0	0.405	9.1	LOS A	2.1	52.5	0.60	0.63	0.70	32.0
All Vehicles		2835	3.0	0.708	14.6	LOS B	6.0	152.4	0.72	0.88	1.20	29.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: LENHART TRAFFIC CONSULTING | Processed: Wednesday, January 29, 2025 12:24:38 PM

Project: \\LTC-OFFICE\\LTC-Drive\\LTC-Server\\I-Projects\\Bell Farm_New Market Lake Linganore\\20250129 TIS_v2 (Lower Unit Count)\\20231031 Sidra\\AM Total.sip8

MOVEMENT SUMMARY

Site: 4 [MD 144 & Eaglehead Drive]

Bell Farm Property
Site Category: PM Existing
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Stickleback Street												
3	L2	45	3.0	0.170	8.3	LOS A	0.6	14.8	0.63	0.63	0.63	32.5
8	T1	42	3.0	0.170	8.3	LOS A	0.6	14.8	0.63	0.63	0.63	32.4
18	R2	12	3.0	0.170	8.3	LOS A	0.6	14.8	0.63	0.63	0.63	31.5
Approach		99	3.0	0.170	8.3	LOS A	0.6	14.8	0.63	0.63	0.63	32.3
East: MD 144												
1	L2	17	3.0	0.288	7.2	LOS A	1.2	31.2	0.53	0.48	0.53	34.0
6	T1	378	3.0	0.288	7.0	LOS A	1.2	31.2	0.52	0.47	0.52	34.1
16	R2	133	3.0	0.288	6.7	LOS A	1.2	30.8	0.51	0.45	0.51	33.2
Approach		528	3.0	0.288	6.9	LOS A	1.2	31.2	0.52	0.46	0.52	33.9
North: Eaglehead Drive												
7	L2	152	3.0	0.199	6.2	LOS A	0.8	20.0	0.50	0.45	0.50	32.4
4	T1	20	3.0	0.199	6.2	LOS A	0.8	20.0	0.50	0.45	0.50	32.3
14	R2	195	3.0	0.207	5.9	LOS A	0.8	20.7	0.48	0.42	0.48	33.6
Approach		366	3.0	0.207	6.0	LOS A	0.8	20.7	0.49	0.43	0.49	33.0
West: MD 144												
5	L2	333	3.0	0.378	7.2	LOS A	1.9	49.3	0.41	0.29	0.41	32.2
2	T1	498	3.0	0.378	6.9	LOS A	1.9	49.3	0.40	0.27	0.40	33.9
12	R2	26	3.0	0.378	6.8	LOS A	1.9	48.4	0.39	0.27	0.39	33.2
Approach		857	3.0	0.378	7.0	LOS A	1.9	49.3	0.40	0.28	0.40	33.2
All Vehicles		1850	3.0	0.378	6.9	LOS A	1.9	49.3	0.46	0.38	0.46	33.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: LENHART TRAFFIC CONSULTING | Processed: Tuesday, October 31, 2023 2:01:44 PM

Project: \\LTC-OFFICE\\LTC-Drive\\LTC-Server\\I-Projects\\Bell Farm_New Market Lake Linganore\\20230925 TIS\\20231031 Sidra\\PM Existing.sip8

MOVEMENT SUMMARY

 Site: 4 [MD 144 & Eaglehead Drive]

Movement Performance - Vehicles

MOVEMENT SUMMARY

Site: 4 [MD 144 & Eaglehead Drive]

Bell Farm Property
Site Category: PM Total
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: Stickleback Street												
3	L2	153	3.0	1.083	112.5	LOS F	17.5	447.0	1.00	2.15	5.52	13.1
8	T1	101	3.0	1.083	112.5	LOS F	17.5	447.0	1.00	2.15	5.52	13.1
18	R2	85	3.0	1.083	112.5	LOS F	17.5	447.0	1.00	2.15	5.52	13.0
Approach		339	3.0	1.083	112.5	LOS F	17.5	447.0	1.00	2.15	5.52	13.1
East: MD 144												
1	L2	72	3.0	0.758	25.9	LOS D	7.2	184.6	0.85	1.20	1.97	26.5
6	T1	449	3.0	0.758	25.7	LOS D	7.5	192.4	0.85	1.20	1.97	26.5
16	R2	455	3.0	0.758	23.8	LOS C	7.5	192.4	0.85	1.20	1.96	26.4
Approach		976	3.0	0.758	24.8	LOS C	7.5	192.4	0.85	1.20	1.96	26.5
North: Eaglehead Drive												
7	L2	534	3.0	0.802	24.8	LOS C	10.5	269.3	0.89	1.32	2.18	25.8
4	T1	83	3.0	0.802	24.8	LOS C	10.5	269.3	0.89	1.32	2.18	25.7
14	R2	379	3.0	0.545	13.9	LOS B	3.6	92.6	0.73	0.88	1.17	29.9
Approach		996	3.0	0.802	20.7	LOS C	10.5	269.3	0.83	1.15	1.79	27.2
West: MD 144												
5	L2	565	3.0	0.932	44.1	LOS E	18.3	469.7	1.00	1.80	3.44	21.2
2	T1	595	3.0	0.932	41.8	LOS E	19.5	499.3	1.00	1.83	3.47	22.3
12	R2	180	3.0	0.932	41.4	LOS E	19.5	499.3	1.00	1.83	3.47	22.0
Approach		1340	3.0	0.932	42.7	LOS E	19.5	499.3	1.00	1.82	3.45	21.8
All Vehicles		3651	3.0	1.083	38.4	LOS E	19.5	499.3	0.91	1.50	2.79	22.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: LENHART TRAFFIC CONSULTING | Processed: Wednesday, January 29, 2025 12:26:25 PM

Project: \\LTC-OFFICE\\LTC-Drive\\LTC-Server\\I-Projects\\Bell Farm_New Market Lake Linganore\\20250129 TIS_v2 (Lower Unit Count)\\20231031 Sidra\\PM Total.sip8

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Boyers Mill Road
Minor Street: Yeagertown Road
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

BOYERS MILL ROAD

---TL

	AM	PM
T	155	449
L	7	8

adjusted lefts 21 16

PM	AM		
414	449	T	
175	277	R	

TR ---

Yeagertown Road

I
LR

AM	L	R
PM	151	11

BOYERS MILL ROAD

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
NB	62	1.00	62			62
EB	726	1.00	726	7	1.00	7
WB	176	1.00	176			733
CLV TOTAL =				795		
Level of Service (LOS) =				A		

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
NB	162	1.00	162			162
EB	589	1.00	589	8	1.00	8
WB	465	1.00	465			597
CLV TOTAL =				759		
Level of Service (LOS) =				A		

Critical Lane Volume Analysis

 LENHART TRAFFIC CONSULTING, INC.
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SEVERNA PARK, MD 21146
www.lenharttraffic.com

Boyers Mill Road &
Yeagertown Road
(Existing Traffic)

Intersection
1

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Boyers Mill Road
Minor Street: Yeagertown Road
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

BOYERS MILL ROAD

---TL

	AM	PM
T	335	817
L	8	9

adjusted lefts 40 36

PM	AM
729	749 T
209	311 R

TR ---

Yeagertown Road

	L	R
AM	67	6
PM	187	12

BOYERS MILL ROAD

I
LR

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
NB	73	1.00	73			73
EB	1060	1.00	1060	8	1.00	8
WB	375	1.00	375			1068
CLV TOTAL =				1141		
Level of Service (LOS) =				B		

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
NB	199	1.00	199			199
EB	938	1.00	938	9	1.00	9
WB	853	1.00	853			947
CLV TOTAL =				1146		
Level of Service (LOS) =				B		

Critical Lane Volume Analysis

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Boyers Mill Road &
Yeagertown Road
(Background Traffic)

Intersection
1

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Boyers Mill Road
Minor Street: Yeagertown Road
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

BOYERS MILL ROAD

---TL

	AM	PM
T	335	817
L	11	14

adjusted lefts 55 56

PM	AM
729	749 T
214	314 R

TR ---

Yeagertown Road

I
LR

	L	R
AM	72	11
PM	191	16

BOYERS MILL ROAD

Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
NB	83	1.00	83			83
EB	1063	1.00	1063	11	1.00	11
WB	390	1.00	390			1074
				CLV TOTAL=	1157	
				Level of Service (LOS)=	C	

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
NB	207	1.00	207			207
EB	943	1.00	943	14	1.00	14
WB	873	1.00	873			957
				CLV TOTAL=	1164	
				Level of Service (LOS)=	C	

Critical Lane Volume Analysis

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Boyers Mill Road &
Yeagertown Road
(Total Traffic)

Intersection
1

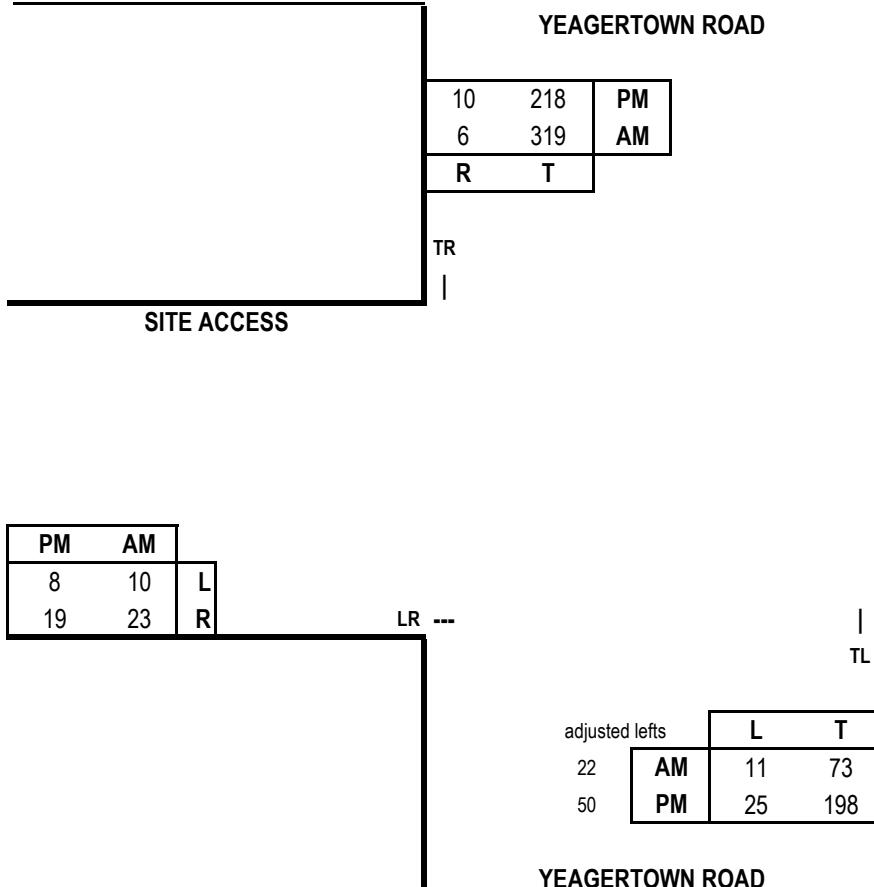
CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Yeagertown Road
and: Site Access
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
EB	33	1.00	33			33
NB	95	1.00	95			336
SB	325	1.00	325	11 1.00 11		
CLV TOTAL=					369	
Level of Service (LOS)=					A	

Evening Peak Hour						
Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
EB	27	1.00	27			27
NB	248	1.00	248			253
SB	228	1.00	228	25 1.00 25		
CLV TOTAL=					280	
Level of Service (LOS)=					A	

Critical Lane Volume Analysis



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Yeagertown Road &
Site Access
(Total Traffic)

Intersection
2

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

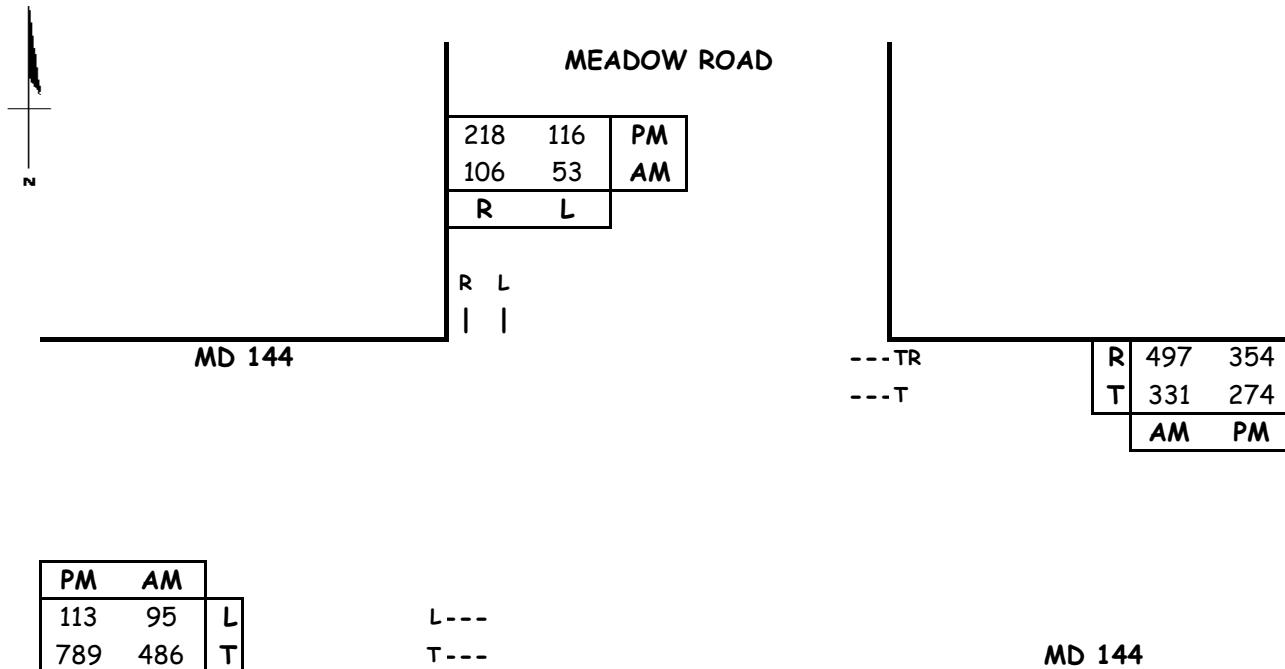
Intersection of: Meadow Road

and: MD 144

Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	53	1.00	53			53
EB	486	1.00	486			550
WB	828	0.55	455	95	1.00	95
			CLV TOTAL=	603		
Level of Service (LOS)=				A		

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	116	1.00	116			116
EB	789	1.00	789			789
WB	628	0.55	345	113	1.00	113
			CLV TOTAL=	905		
Level of Service (LOS)=				A		

Critical Lane Volume Analysis



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Meadow Road &
MD 144
(Existing Traffic)

Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

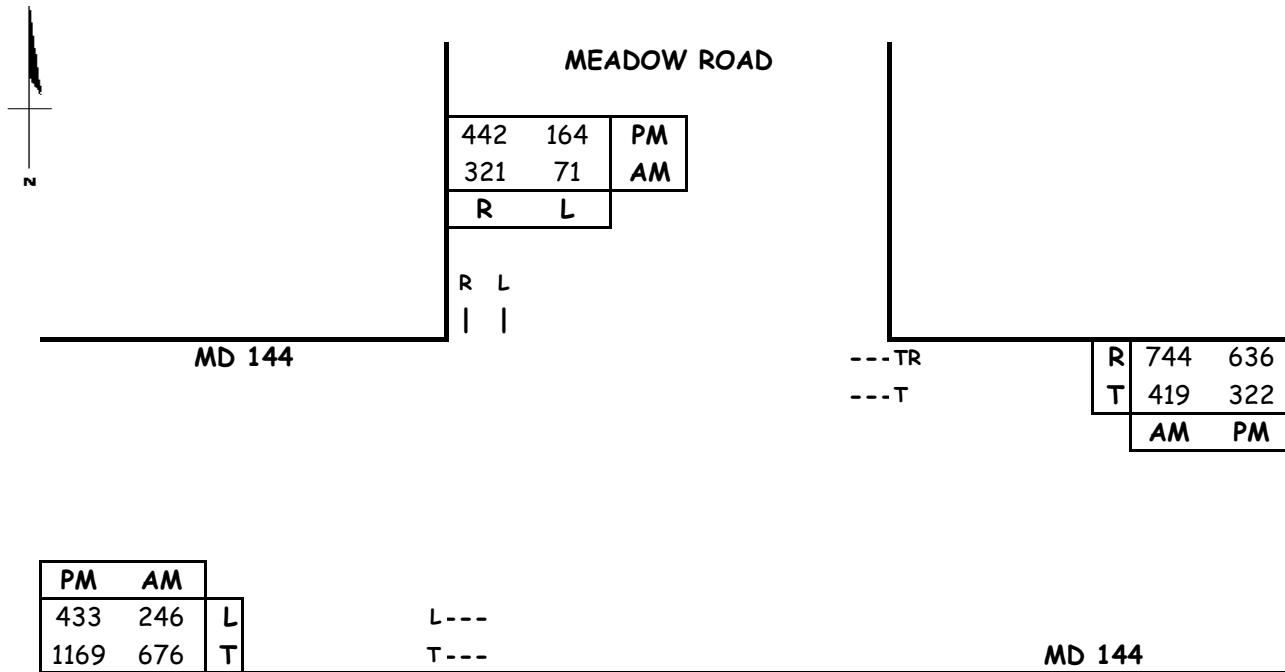
Intersection of: Meadow Road

and: MD 144

Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	75	1.00	75			75
EB	676	1.00	676			886
WB	1163	0.55	640	246	1.00	246
CLV TOTAL =				961		
Level of Service (LOS) =				A		

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	164	1.00	164			164
EB	1169	1.00	1169			1169
WB	958	0.55	527	433	1.00	433
CLV TOTAL =				1333		
Level of Service (LOS) =				D		

Critical Lane Volume Analysis



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Meadow Road &
 MD 144
 (Background Traffic)

Intersection
 3

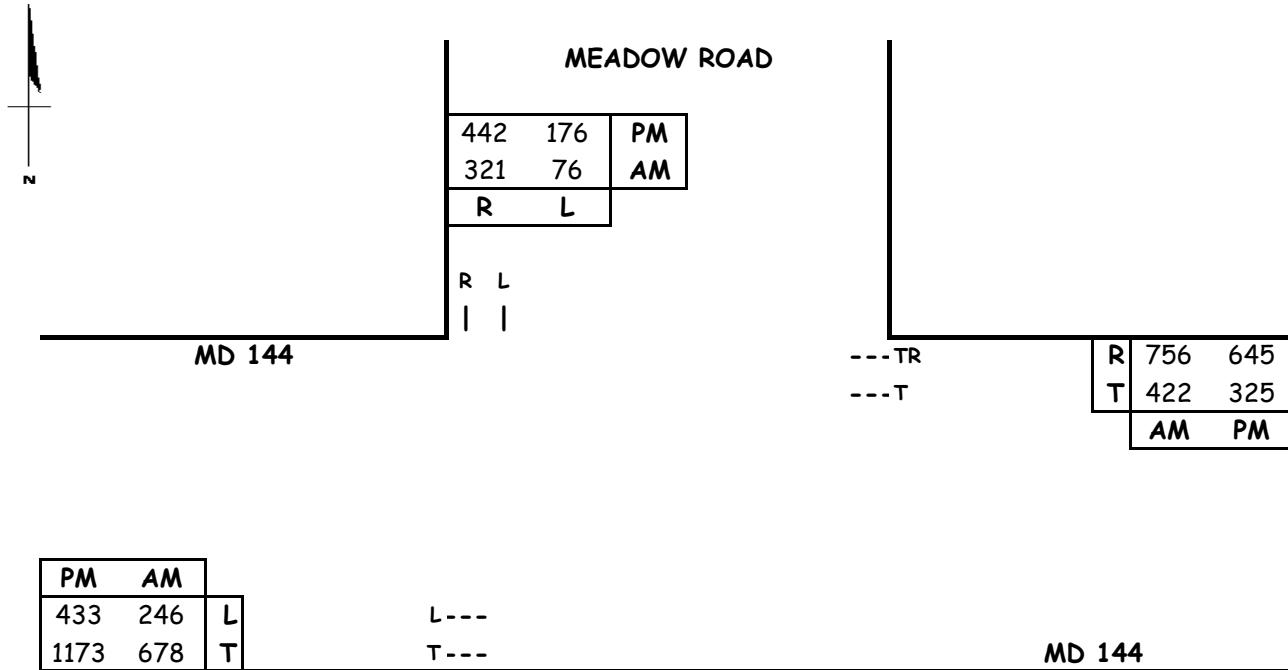
CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Meadow Road
and: MD 144
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	76	1.00	76			76
EB	678	1.00	678			894
WB	1178	0.55	648	246	1.00	246
				CLV TOTAL=	970	
				Level of Service (LOS)=	A	

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	176	1.00	176			176
EB	1173	1.00	1173			1173
WB	970	0.55	534	433	1.00	433
				CLV TOTAL=	1349	
				Level of Service (LOS)=	D	

Critical Lane Volume Analysis



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Meadow Road &
MD 144
(Total Traffic)

Intersection
3

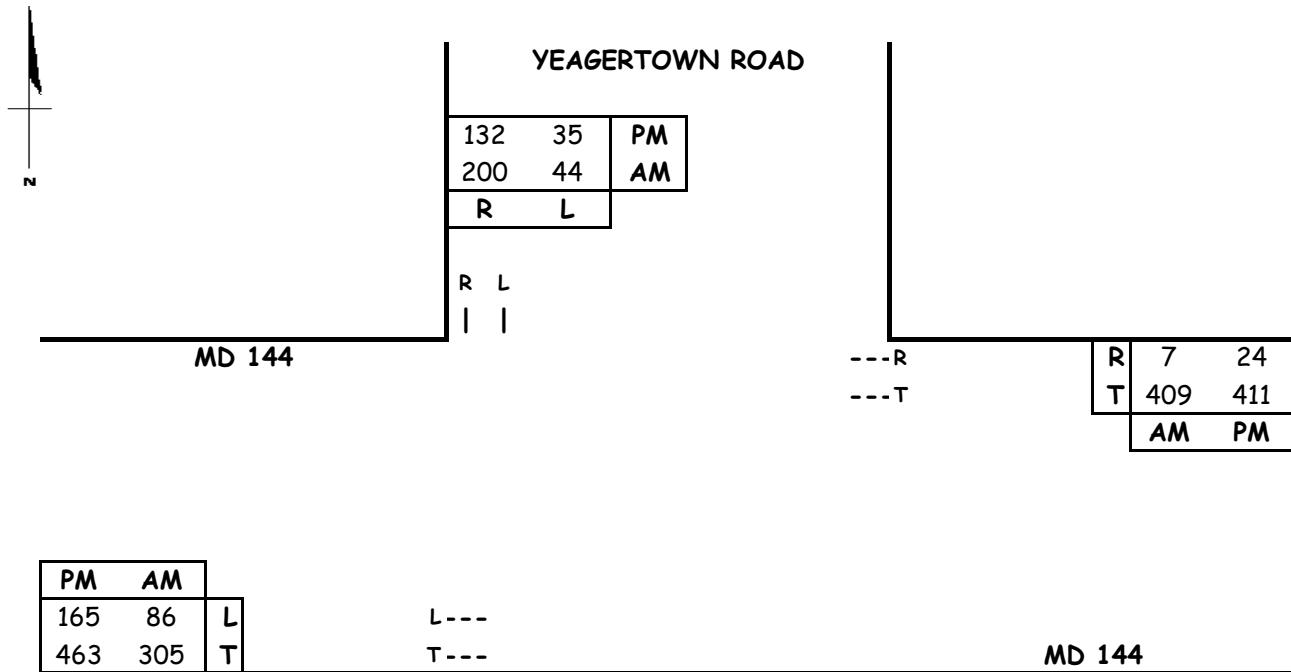
CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Yeagertown Road
and: MD 144
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes		+ Opposing Lefts		AM CLV		
	VOL	x LUF	= Total	VOL	x LUF	= Total	
SB	114	1.00	114			114	
EB	305	1.00	305			495	
WB	409	1.00	409	86	1.00	86	
				CLV TOTAL=	609		
Level of Service (LOS)=				A			

Evening Peak Hour

Dir	Thru Volumes		+ Opposing Lefts		PM CLV		
	VOL	x LUF	= Total	VOL	x LUF	= Total	
SB	35	1.00	35			35	
EB	463	1.00	463			576	
WB	411	1.00	411	165	1.00	165	
				CLV TOTAL=	611		
Level of Service (LOS)=				A			

Critical Lane Volume Analysis



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Yeagertown Road &
MD 144
(Existing Traffic)

Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

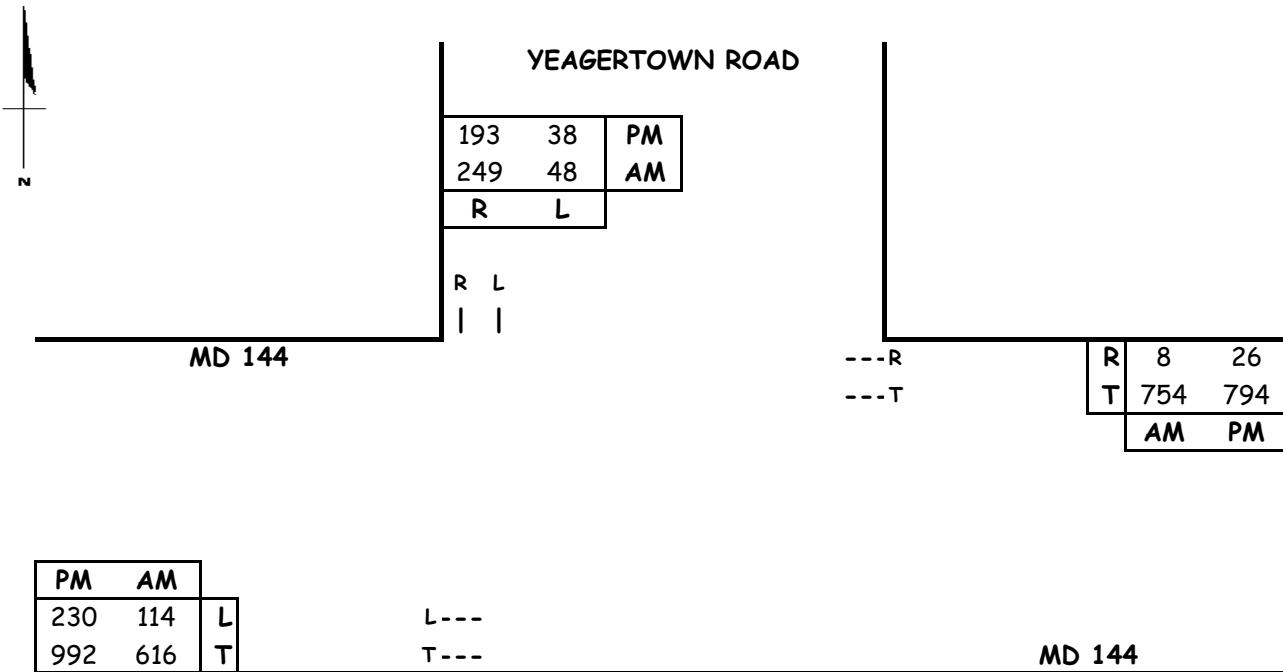
Intersection of: Yeagertown Road

and: MD 144

Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	135	1.00	135			135
EB	616	1.00	616			868
WB	754	1.00	754	114	1.00	114
					CLV TOTAL=	1003
					Level of Service (LOS)=	B

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	38	1.00	38			38
EB	992	1.00	992			1024
WB	794	1.00	794	230	1.00	230
					CLV TOTAL=	1062
					Level of Service (LOS)=	B

Critical Lane Volume Analysis



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Yeagertown Road &
MD 144
(Background Traffic)

Intersection
5

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

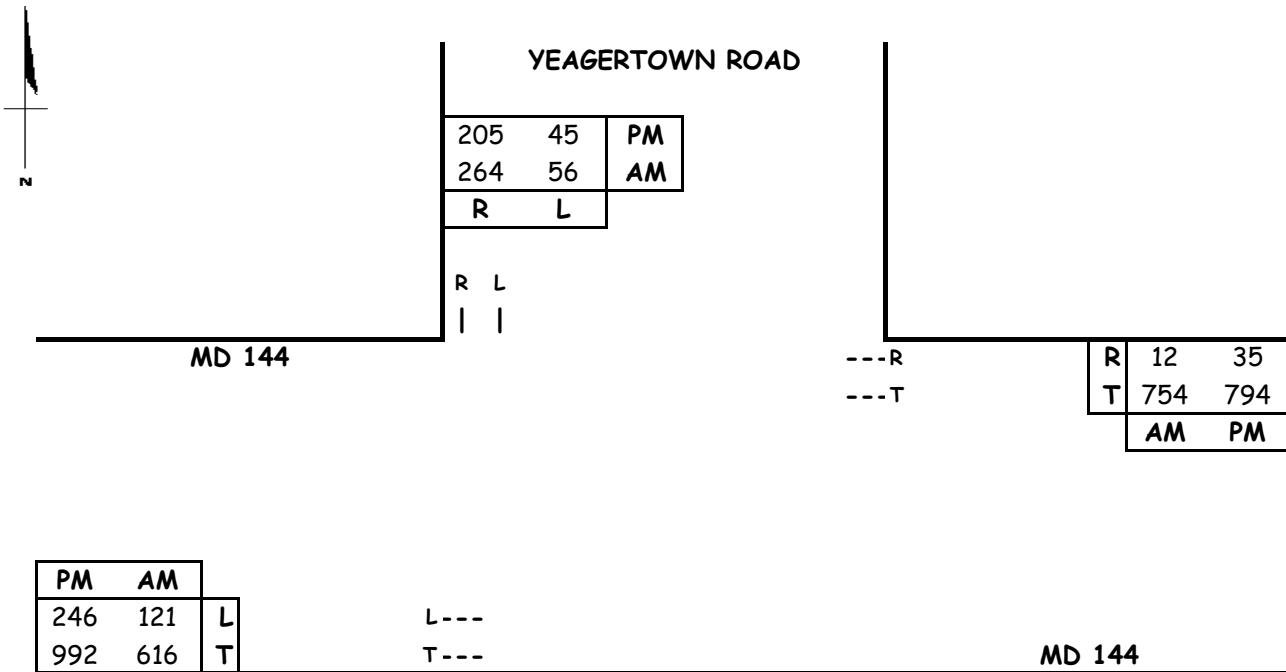
Intersection of: Yeagertown Road

and: MD 144

Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	143	1.00	143			143
EB	616	1.00	616			875
WB	754	1.00	754	121	1.00	121
				CLV TOTAL =	1018	
Level of Service (LOS) =				B		

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	45	1.00	45			45
EB	992	1.00	992			1040
WB	794	1.00	794	246	1.00	246
				CLV TOTAL =	1085	
Level of Service (LOS) =				B		

Critical Lane Volume Analysis



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Yeagertown Road &
MD 144
(Background Traffic)

Intersection
5

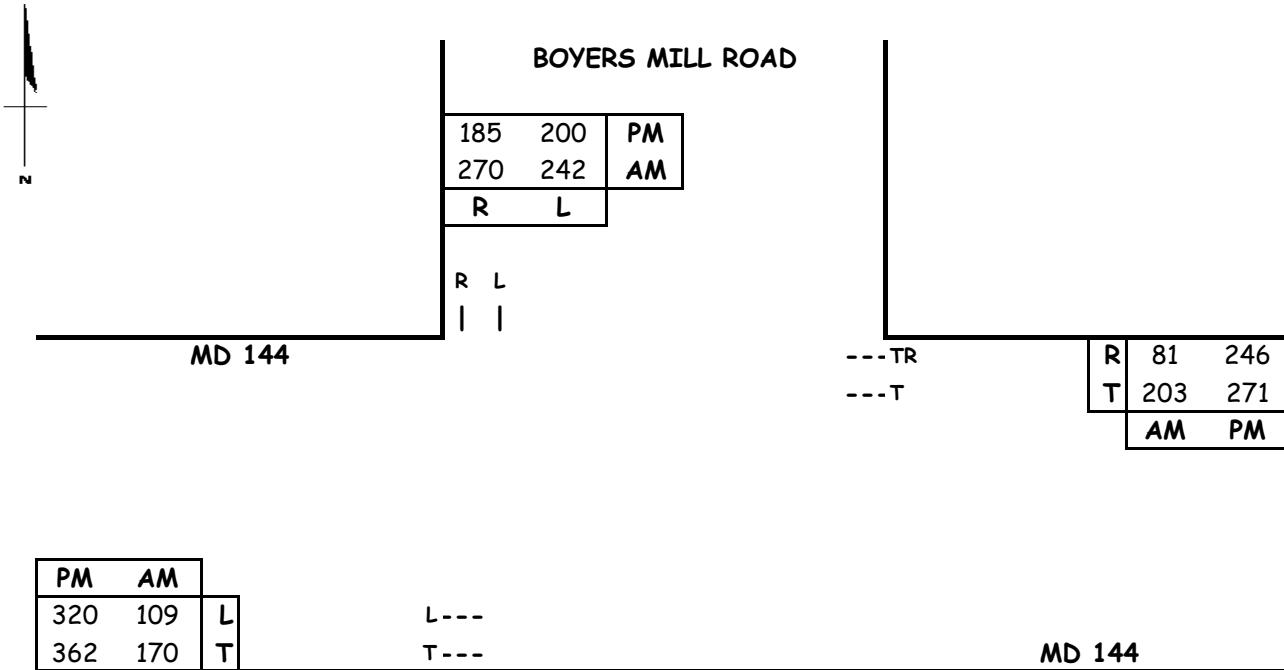
CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Boyers Mill Road
and: MD 144
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour							
Dir	Thru Volumes		+ Opposing Lefts		AM CLV		
	VOL	x LUF	= Total	VOL	x LUF	= Total	
SB	242	1.00	242			242	
EB	170	1.00	170			265	
WB	284	0.55	156	109	1.00	109	
CLV TOTAL =				507			
Level of Service (LOS) =				A			

Evening Peak Hour							
Dir	Thru Volumes		+ Opposing Lefts		PM CLV		
	VOL	x LUF	= Total	VOL	x LUF	= Total	
SB	200	1.00	200			200	
EB	362	1.00	362			604	
WB	517	0.55	284	320	1.00	320	
CLV TOTAL =				804			
Level of Service (LOS) =				A			

Critical Lane Volume Analysis



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Boyers Mill Road &
MD 144
(Existing Traffic)

Intersection

6

CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

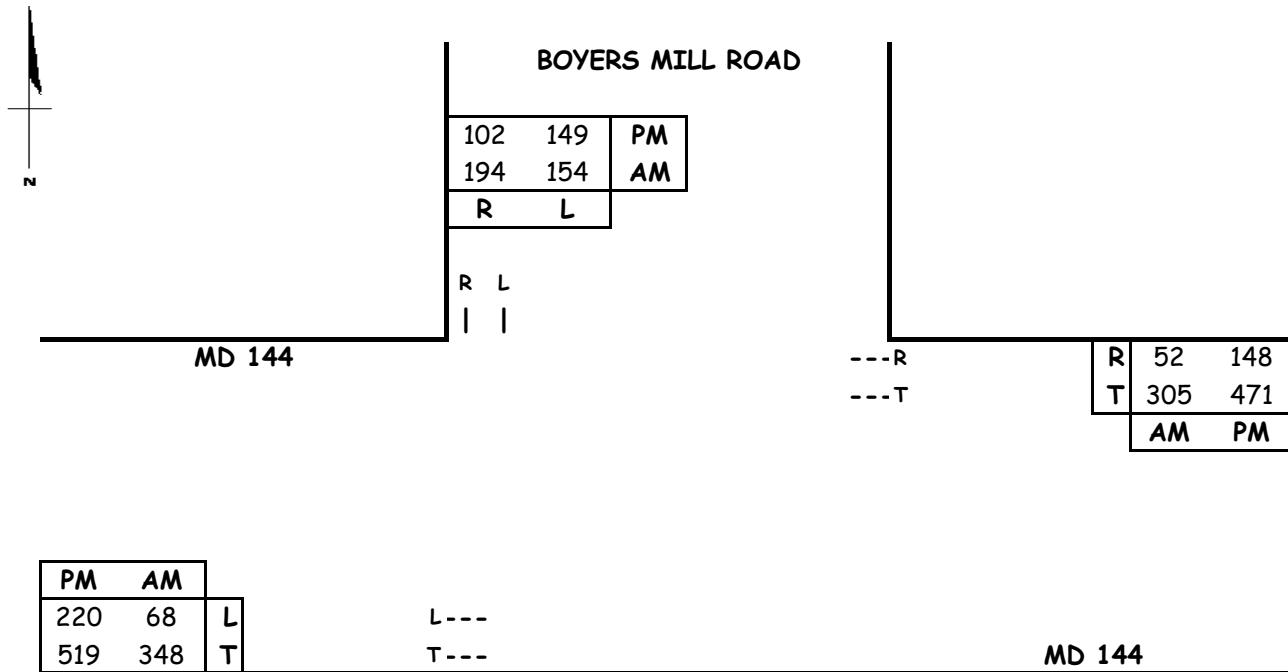
Intersection of: Boyers Mill Road

and: MD 144

Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	154	1.00	154			154
EB	348	1.00	348			373
WB	305	1.00	305	68	1.00	68
CLV TOTAL =				527		
Level of Service (LOS) =				A		

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	149	1.00	149			149
EB	519	1.00	519			691
WB	471	1.00	471	220	1.00	220
CLV TOTAL =				840		
Level of Service (LOS) =				A		

Critical Lane Volume Analysis



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Boyers Mill Road &
MD 144
(Background Traffic)

Intersection
6

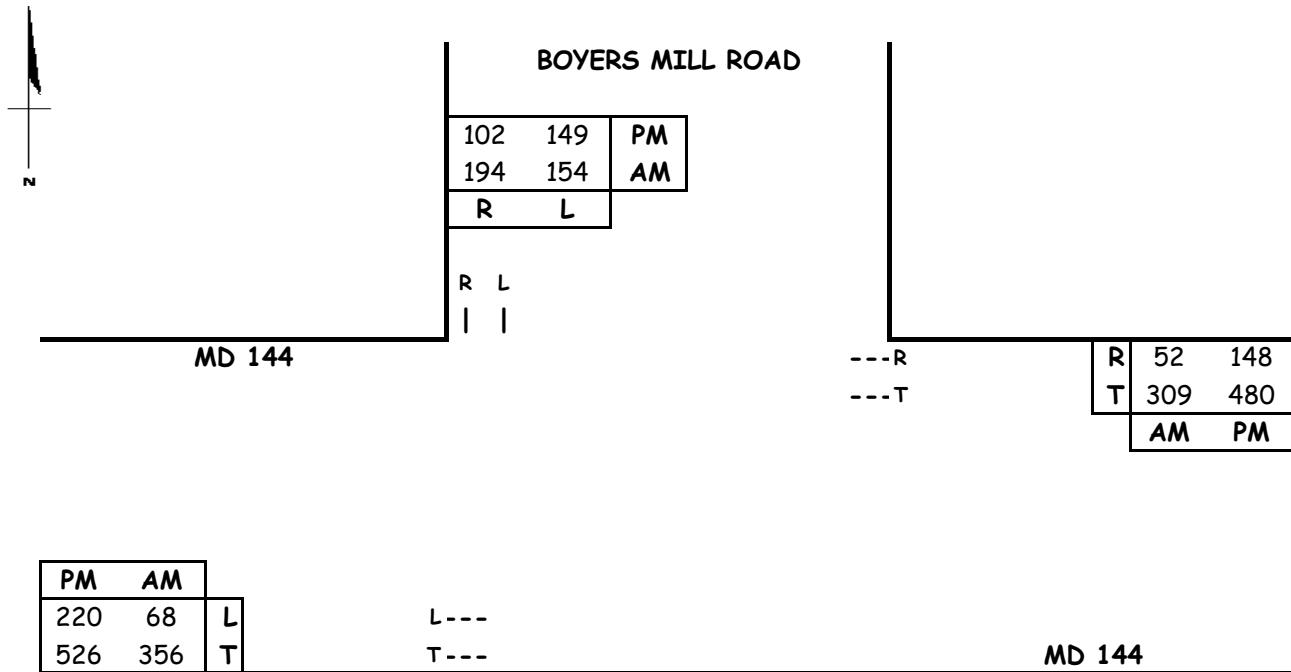
CRITICAL LANE VOLUME (CLV) METHODOLOGY

for MSHA

Intersection of: Boyers Mill Road
and: MD 144
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		AM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	154	1.00	154			154
EB	356	1.00	356			377
WB	309	1.00	309	68	1.00	68
				CLV TOTAL =	531	
				Level of Service (LOS) =	A	

Evening Peak Hour

Dir	Thru Volumes			+ Opposing Lefts		PM CLV
	VOL	x LUF	= Total	VOL	x LUF	
SB	149	1.00	149			149
EB	526	1.00	526			700
WB	480	1.00	480	220	1.00	220
				CLV TOTAL =	849	
				Level of Service (LOS) =	A	

Critical Lane Volume Analysis



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Boyers Mill Road &
MD 144
(Total Traffic)

Intersection

6

Intersection: 1: Yeagertown Road & Boyers Mill Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	35	322	150
Average Queue (ft)	2	41	55
95th Queue (ft)	14	195	131
Link Distance (ft)	482	563	509
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Yeagertown Road & Site Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: MD 144 & Meadow Road

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	TR	L	R
Maximum Queue (ft)	155	228	231	279	109	231
Average Queue (ft)	71	107	109	138	43	123
95th Queue (ft)	125	187	187	234	86	194
Link Distance (ft)	548	548	816		409	409
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				500		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: MD 144 & Yeagertown Road

Movement	EB	WB	SB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	96	4	290	85
Average Queue (ft)	42	0	79	67
95th Queue (ft)	75	3	213	100
Link Distance (ft)	668		313	
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		175		60
Storage Blk Time (%)			8	26
Queuing Penalty (veh)		20		13

Intersection: 6: MD 144 & Boyers Mill Road

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	97	151	134	67	140	84
Average Queue (ft)	31	64	64	17	52	48
95th Queue (ft)	68	113	114	48	104	82
Link Distance (ft)		138	166		481	
Upstream Blk Time (%)	0	0	0			
Queuing Penalty (veh)	0	0	0			
Storage Bay Dist (ft)	100			125		60
Storage Blk Time (%)	0	1	0		4	2
Queuing Penalty (veh)	1	1	0		7	2

Intersection: 14: Bend

Movement	WB
Directions Served	T
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	13
Link Distance (ft)	138
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 44

Queuing and Blocking Report

Bell Farm Property

AM Total

Intersection: 1: Yeagertown Road & Boyers Mill Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	13	234	192
Average Queue (ft)	1	26	67
95th Queue (ft)	8	123	165
Link Distance (ft)	482	563	509
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Yeagertown Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	46	36
Average Queue (ft)	21	4
95th Queue (ft)	44	22
Link Distance (ft)	534	744
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: MD 144 & Meadow Road

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	TR	L	R
Maximum Queue (ft)	160	213	205	345	112	242
Average Queue (ft)	71	102	109	152	47	119
95th Queue (ft)	125	184	181	272	92	199
Link Distance (ft)	548	548	816		409	409
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				500		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

Bell Farm Property

AM Total

Intersection: 5: MD 144 & Yeagertown Road

Movement	EB	WB	WB	SB	SB
Directions Served	L	T	R	L	R
Maximum Queue (ft)	105	4	4	314	85
Average Queue (ft)	41	0	0	166	74
95th Queue (ft)	80	3	3	360	105
Link Distance (ft)	668	412		313	
Upstream Blk Time (%)				15	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			175		60
Storage Blk Time (%)				21	43
Queuing Penalty (veh)				55	24

Intersection: 6: MD 144 & Boyers Mill Road

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	75	138	112	52	120	85
Average Queue (ft)	31	66	58	17	49	47
95th Queue (ft)	63	114	99	44	91	80
Link Distance (ft)		138	166		481	
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	100			125		60
Storage Blk Time (%)	0	1	0		3	2
Queuing Penalty (veh)	0	1	0		6	3

Network Summary

Network wide Queuing Penalty: 88

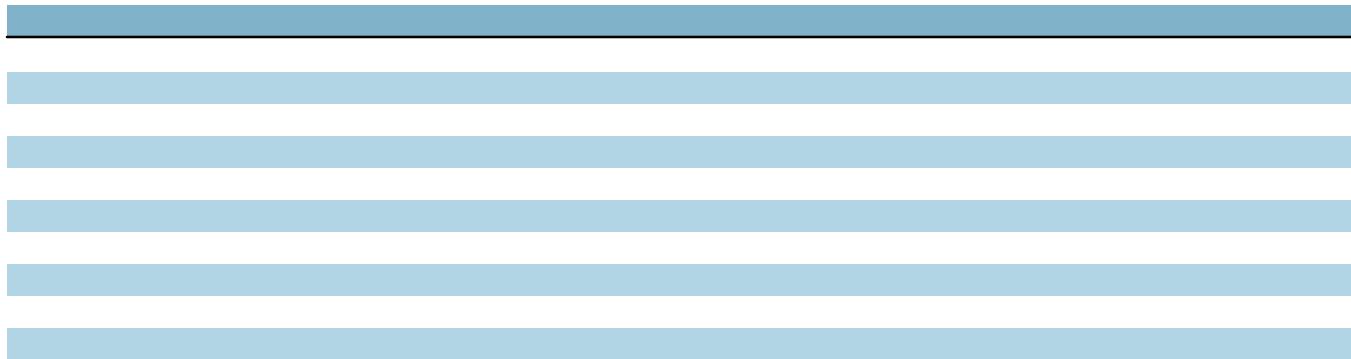
Intersection: 1: Yeagertown Road & Boyers Mill Road

Intersection: 2: Yeagertown Road & Site Access

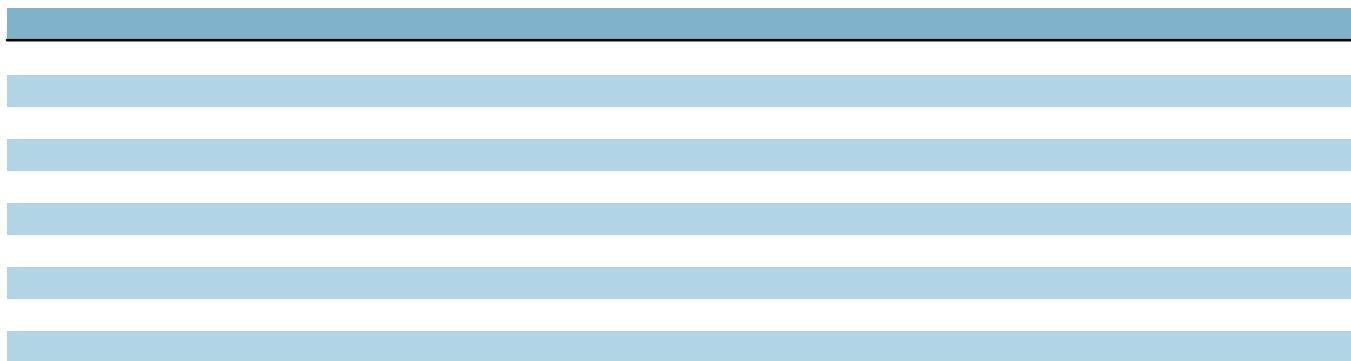
A horizontal bar chart consisting of five horizontal bars of increasing length from left to right. The bars are a uniform light blue color and are separated by small gaps. The first bar is the shortest, and the fifth bar is the longest, extending almost to the right edge of the chart area.

Intersection: 3: MD 144 & Meadow Road

Intersection: 5: MD 144 & Yeagertown Road



Intersection: 6: MD 144 & Boyers Mill Road



Network Summary



Queuing and Blocking Report

Bell Farm Property
PM Total

Intersection: 1: Yeagertown Road & Boyers Mill Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	22	467	549
Average Queue (ft)	1	57	522
95th Queue (ft)	9	271	551
Link Distance (ft)	482	563	509
Upstream Blk Time (%)		1	97
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Yeagertown Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	48	66
Average Queue (ft)	18	8
95th Queue (ft)	43	36
Link Distance (ft)	534	744
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: MD 144 & Meadow Road

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	TR	L	R
Maximum Queue (ft)	500	522	191	242	189	329
Average Queue (ft)	143	241	99	123	98	175
95th Queue (ft)	331	445	166	205	161	286
Link Distance (ft)	548	548	816		409	409
Upstream Blk Time (%)	0	1			0	
Queuing Penalty (veh)	0	0			0	
Storage Bay Dist (ft)			500			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

Bell Farm Property
PM Total

Intersection: 5: MD 144 & Yeagertown Road

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	265	136	24	4	360	85
Average Queue (ft)	72	5	1	0	322	64
95th Queue (ft)	167	96	9	3	374	123
Link Distance (ft)	668	668	412		313	
Upstream Blk Time (%)	0	0			90	
Queuing Penalty (veh)	0	0			0	
Storage Bay Dist (ft)			175		60	
Storage Blk Time (%)					89	28
Queuing Penalty (veh)				183	12	

Intersection: 6: MD 144 & Boyers Mill Road

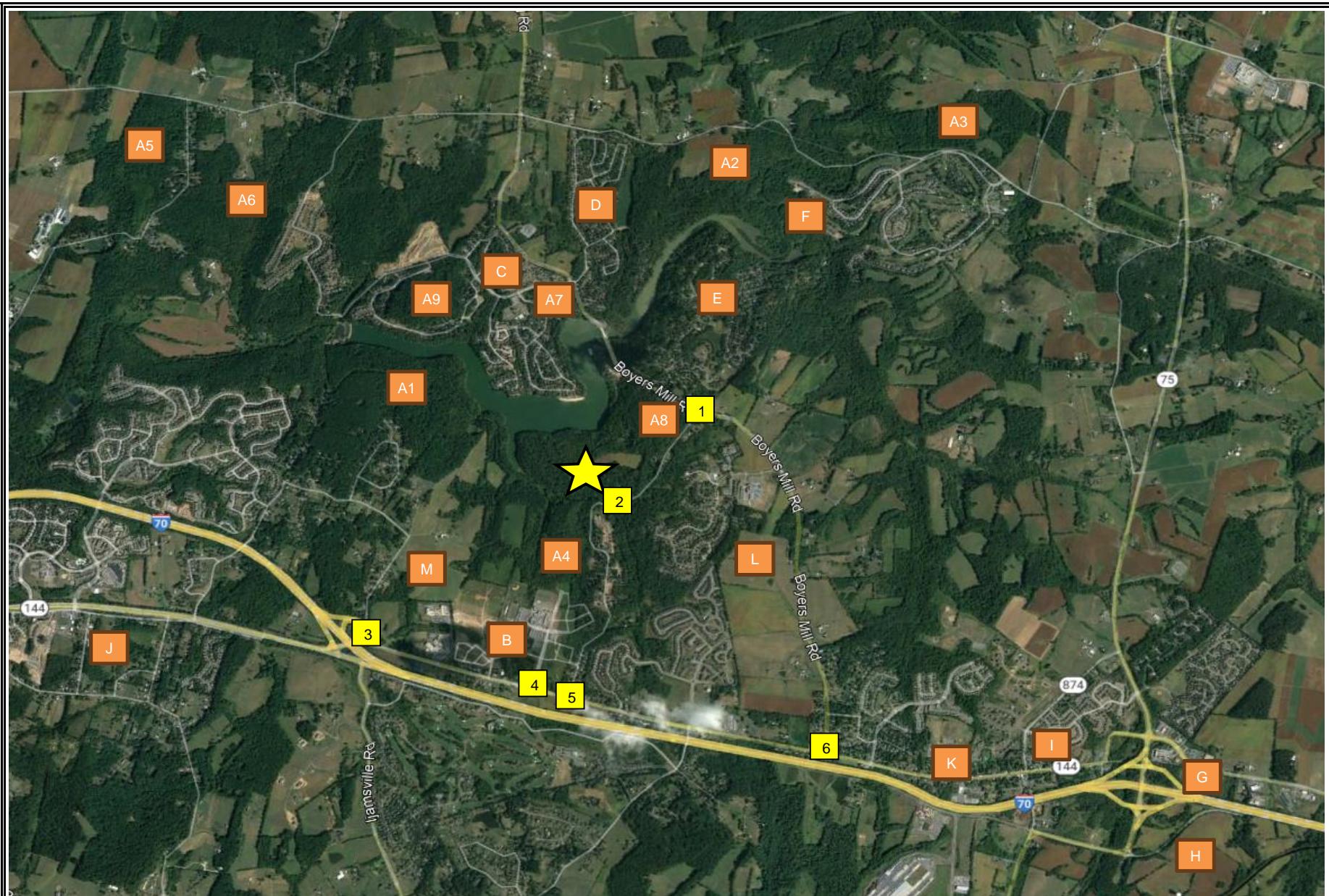
Movement	EB	EB	B14	WB	WB	SB	SB
Directions Served	L	T	T	T	R	L	R
Maximum Queue (ft)	124	198	111	186	145	188	85
Average Queue (ft)	81	95	10	82	37	80	47
95th Queue (ft)	125	180	93	149	92	147	90
Link Distance (ft)		138	388	166		481	
Upstream Blk Time (%)	1	3	1	0	0		
Queuing Penalty (veh)	0	0	0	0	0		
Storage Bay Dist (ft)	100			125		60	
Storage Blk Time (%)	8	3		1	0	15	1
Queuing Penalty (veh)	43	7		2	0	16	1

Network Summary

Network wide Queuing Penalty: 265

Appendix C

Background Developments



Traffic Impact Analysis

 **LENHART TRAFFIC CONSULTING, INC.**
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
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Background Development
Location Map

 - Location of Site

**Exhibit
C-1**

Trip Generation Rates

Day Care Center (ksf, ITE-565)	Trip Distribution (In/Out)
Morning Trips = 11.00 x ksf	53/47
Evening Trips = 11.12 x ksf	47/53
Single-Family Attached Housing (ITE-215, Units)	Trip Distribution (In/Out)
Morning Trips = 0.52 x Units - 5.70	31/69
Evening Trips = 0.60 x Units - 3.93	57/43
Single-Family Detached Housing (ITE-210, Units)	Trip Distribution (In/Out)
Ln(Morning Trips) = 0.91 x Ln(Units) + 0.12	26/74
Ln(Evening Trips) = 0.94 x Ln(Units) + 0.27	63/37
Senior Adult Housing - Multifamily (ITE-252, Units)	Trip Distribution (In/Out)
Morning Trips = 0.19 x Units + 0.90	34/66
Evening Trips = 0.25 x Units + 0.07	56/44
Senior Adult Housing - Single Family (ITE-251, Units)	Trip Distribution (In/Out)
Ln(Morning Trips) = 0.76 x Ln(Units) + 0.16	33/67
Ln(Evening Trips) = 0.78 x Ln(Units) + 0.20	61/39

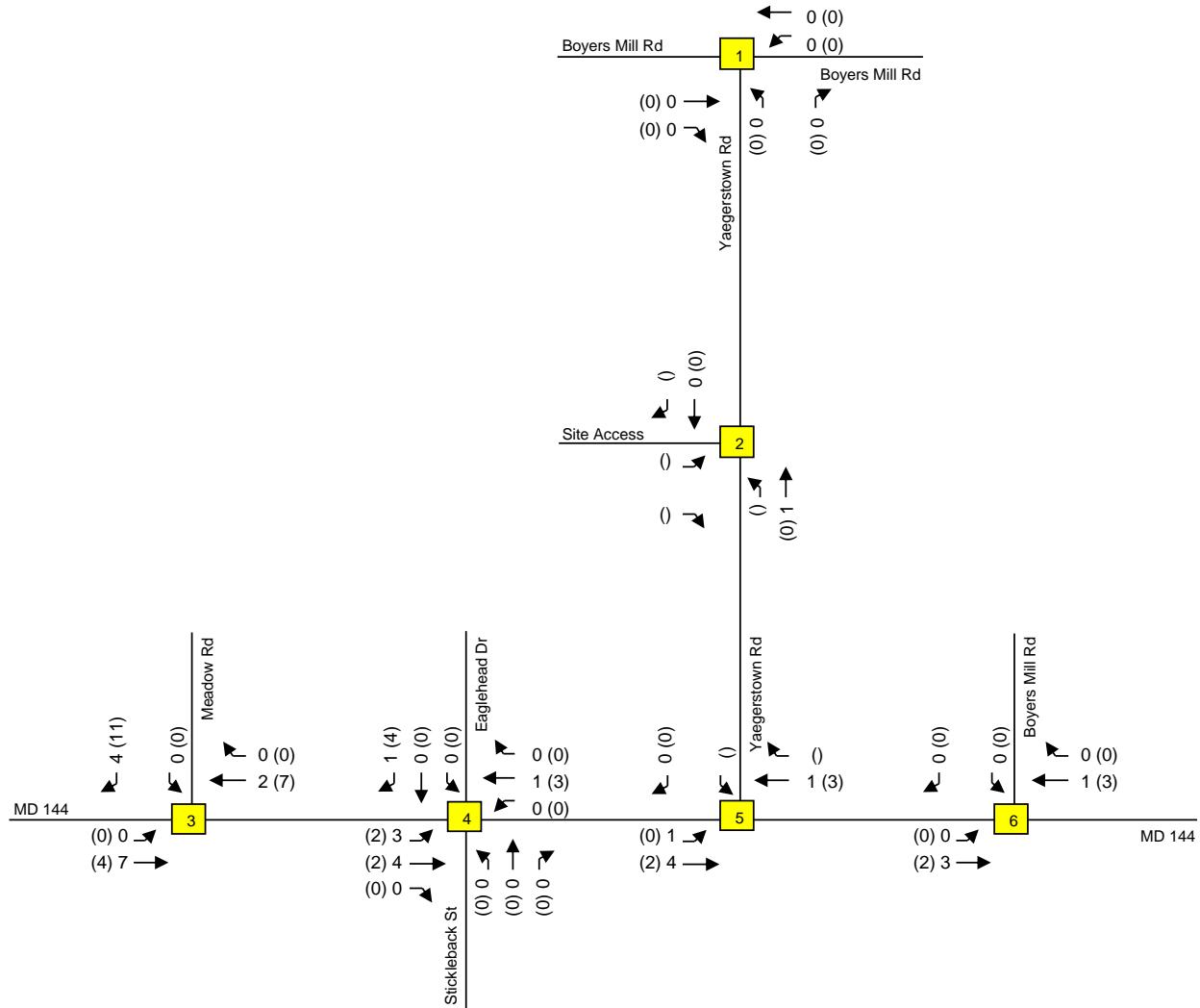
Trip Generation Totals

			AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
A1	Eaglehead - Alpine	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
A2&3	Eaglehead - Hamptons E&W	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
A4	Eaglehead - Town Center	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
A5	Eaglehead - Westridge	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
A6	Eaglehead - Woodridge	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
A7	Eaglehead - Coldstream	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
A8	Eaglehead - Nightingale	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
A9	Eaglehead - Aspen	Obtained from Gordon Mill December 2022 TIS	469	1223	1692	1395	935	2330
B	Oakdale Village	Day Care Center (ksf, ITE-565)				Built Out - According to Approved New Market East TIS		
C	Aubudon Terrace	Single-Family Attached Housing (ITE-215, Units)	21	units	2	3	5	5
D	Meadows	Single-Family Detached Housing (ITE-210, Units)	32	units	7	19	26	21
E	Pinehurst	Single-Family Detached Housing (ITE-210, Units)	157	units	29	83	112	96
F	Westwinds	Single-Family Attached Housing (ITE-215, Units)	73	units	10	22	32	23
G	New Market Ret. Center		Assumed to be LTC South Commercial, Obtained from Gordon Mill December 2022 TIS.					
H	Intercoastal		Assumed to not impact study intersections due to location					
I	Marley Commons	Obtained from Gordon Mill December 2022 TIS			1	5	6	5
J	Perston/Mains		Assumed to not impact study intersections due to location					
			Assumed to not impact study intersections due to location					
K	105/113 West Main	Obtained from Gordon Mill December 2022 TIS			13	17	30	40
L	Calumet	Obtained from Gordon Mill December 2022 TIS			112	394	506	402
M	Cromwell	Senior Adult Housing - Single Family (ITE-251, Units)	488	units	43	87	130	93
					60		153	

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition, or obtained from approved Traffic Impact Studies

Traffic Impact Analysis	Trip Generation for Background Developments	Exhibit C-2
Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning		

Note: Trip distribution and assignment obtained from the Dec. 2022 Gordon Mill TIS.



Traffic Impact Analysis

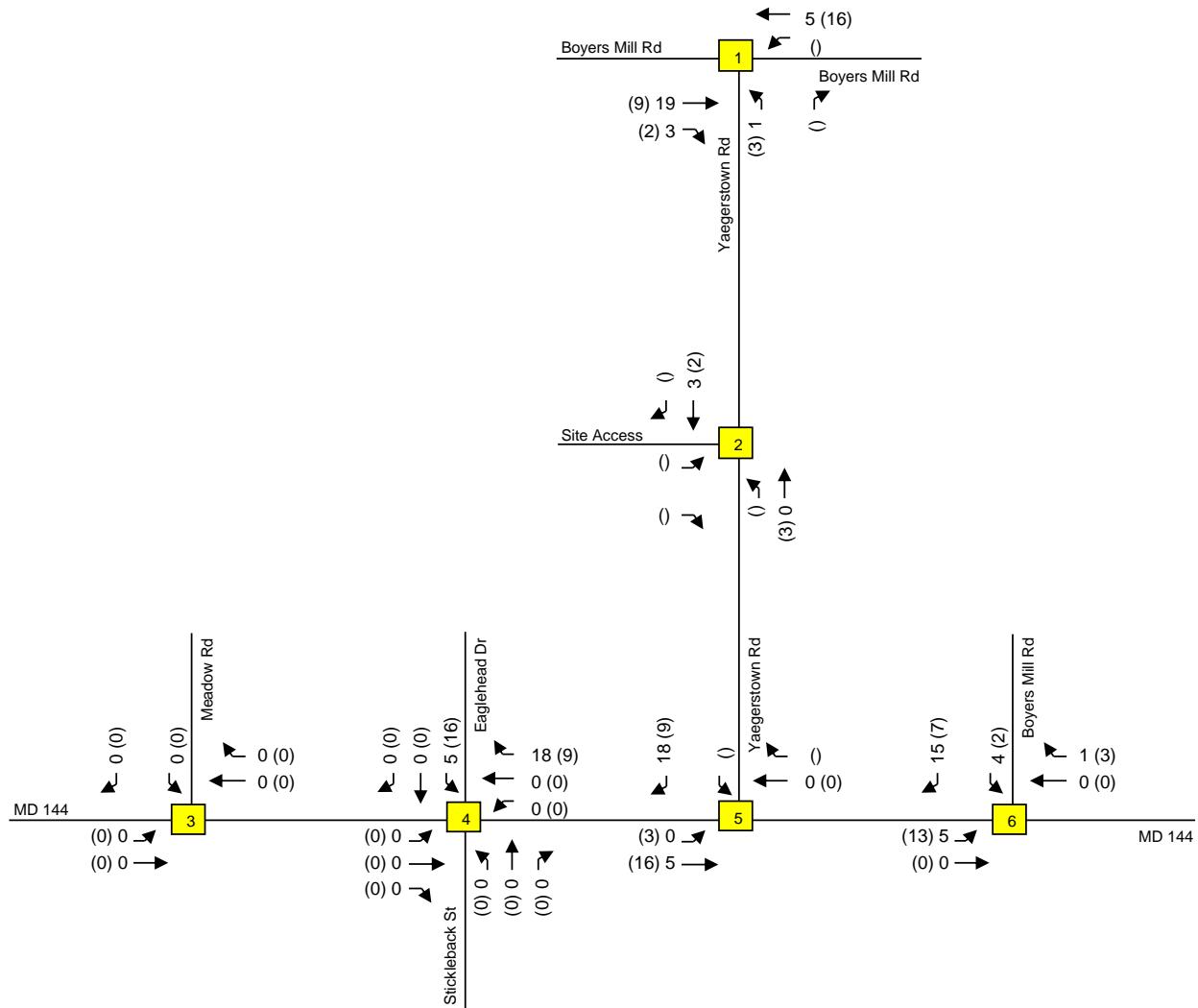
Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Background Trip Assignment Eaglehead - Alpine

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3a**

Note: Trip distribution and assignment obtained from the Dec. 2022 Gordon Mill TIS.



Traffic Impact Analysis

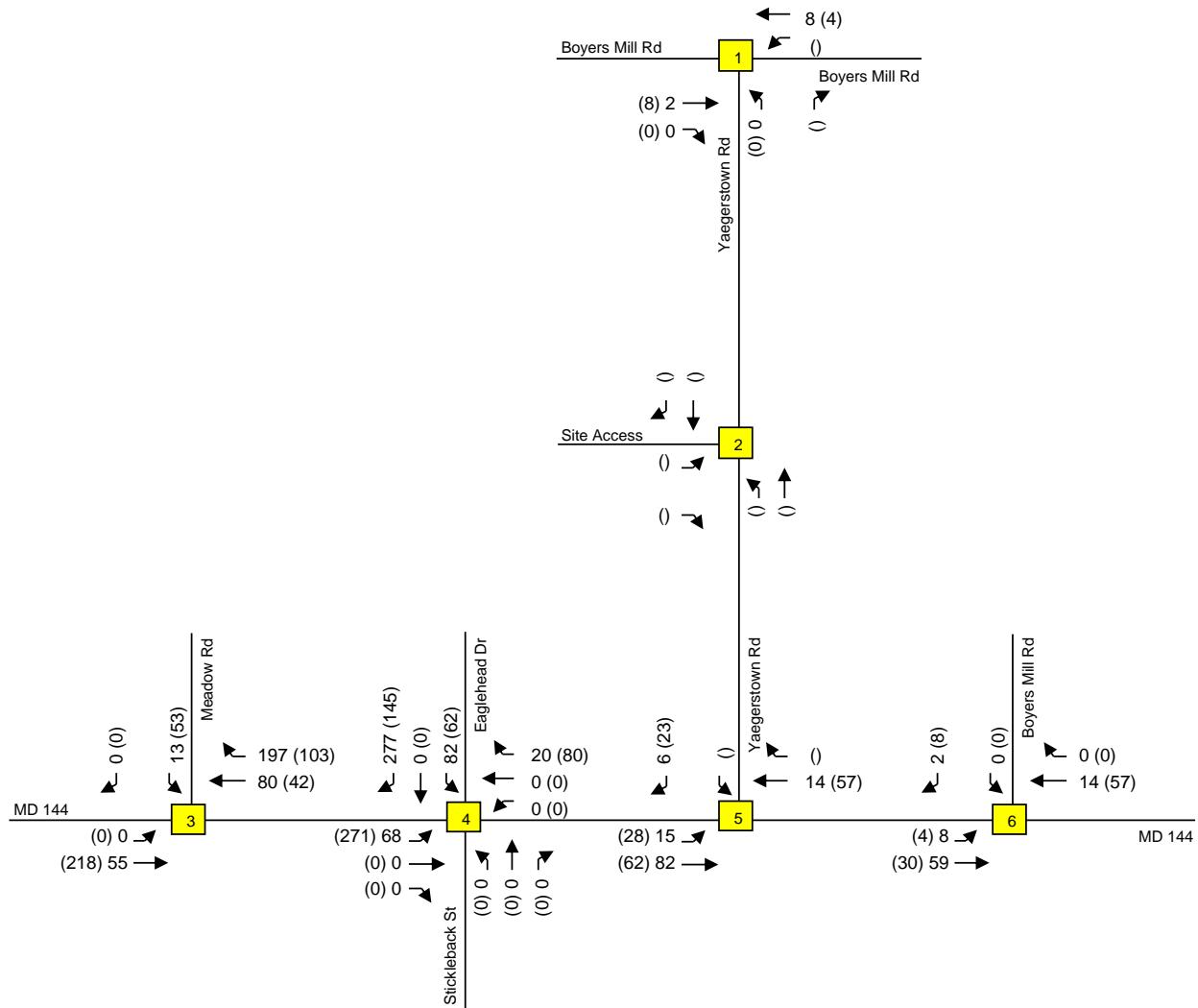
Background Trip Assignment

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Exhibit C-3b

Note: Trip distribution and assignment obtained from the Dec. 2022 Gordon Mill TIS.



Traffic Impact Analysis

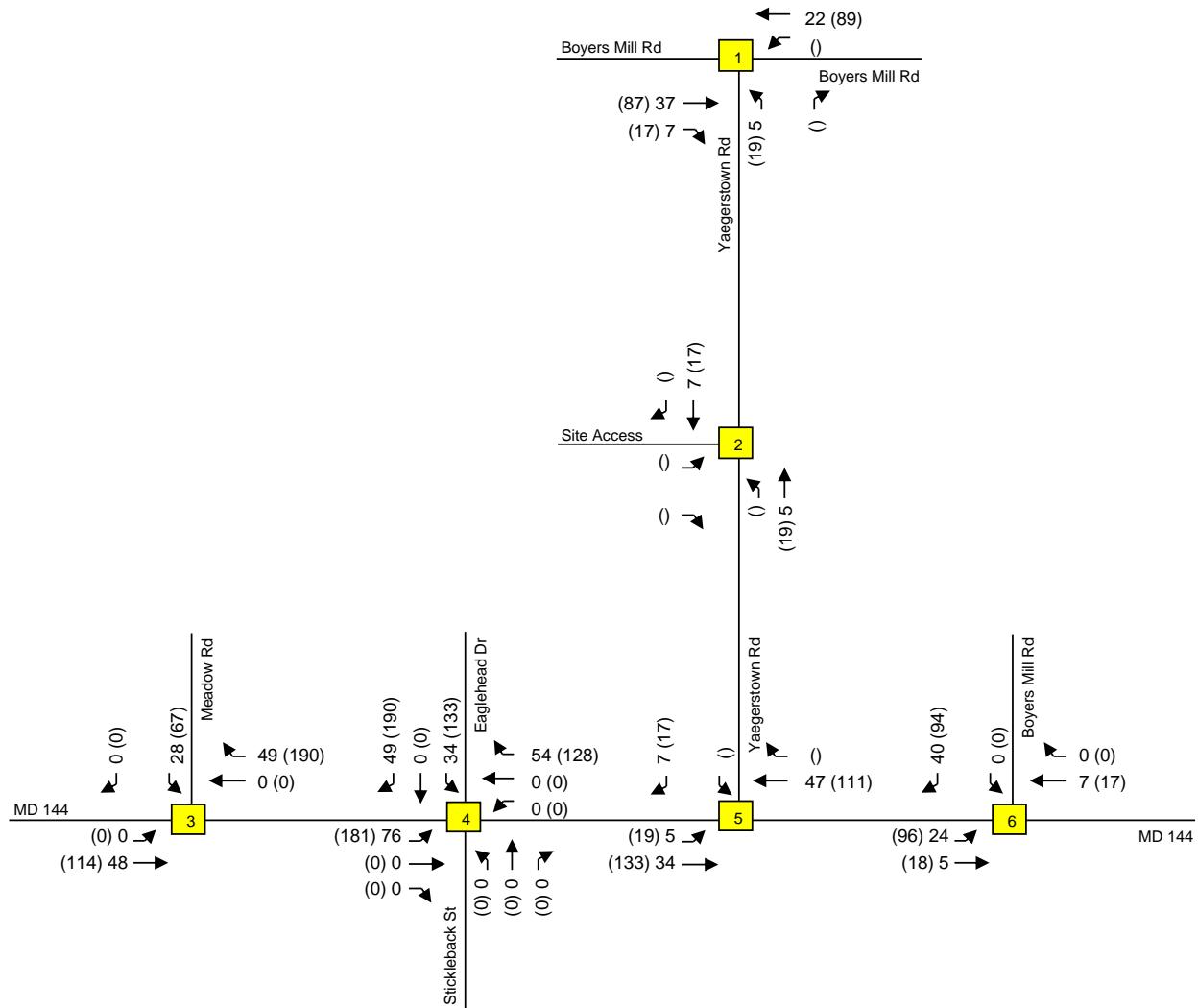
Background Trip Assignment Eaglehead - Town Center (Res.)

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3c**

Note: Trip distribution and assignment obtained from the Dec. 2022 Gordon Mill TIS.



Traffic Impact Analysis

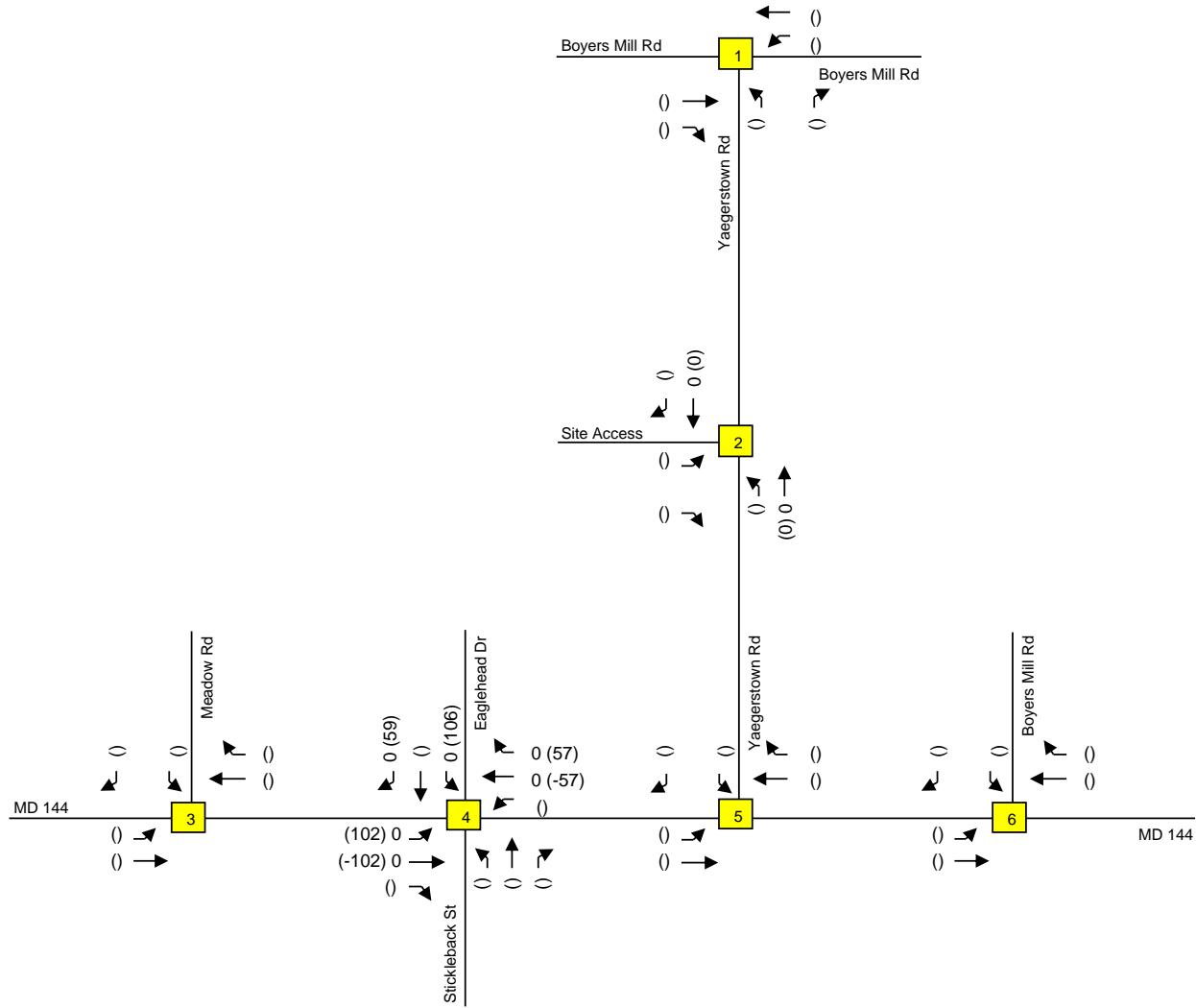
Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Background Trip Assignment
Eaglehead - Town Center (Ret.)

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3d**

Note: Trip distribution and assignment obtained from the Dec. 2022 Gordon Mill TIS.



Traffic Impact Analysis

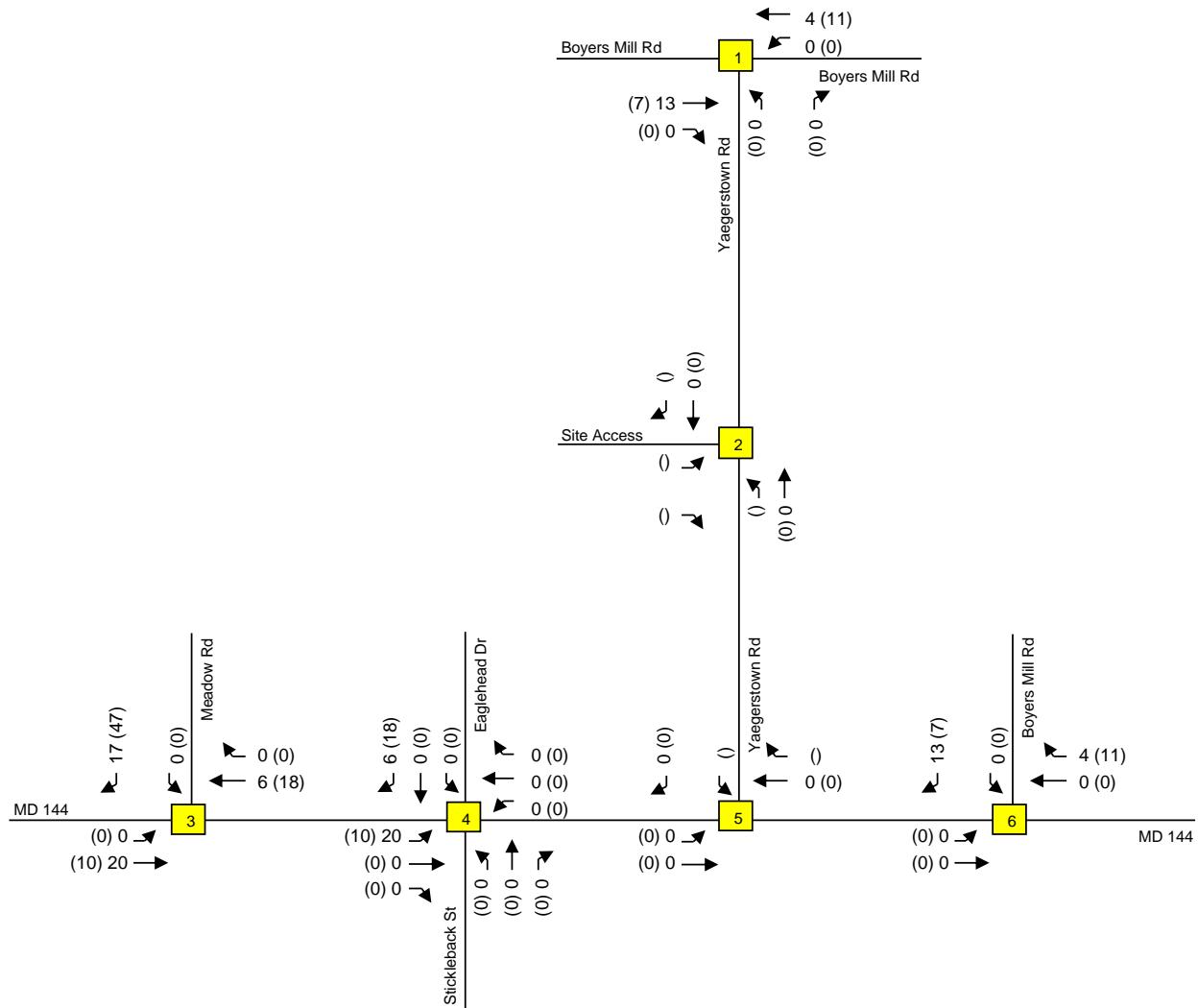
Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Background Trip Assignment Eaglehead - Town Center (Pass-by)

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3e**

Note: Trip distribution and assignment obtained from the Dec. 2022 Gordon Mill TIS.



Traffic Impact Analysis

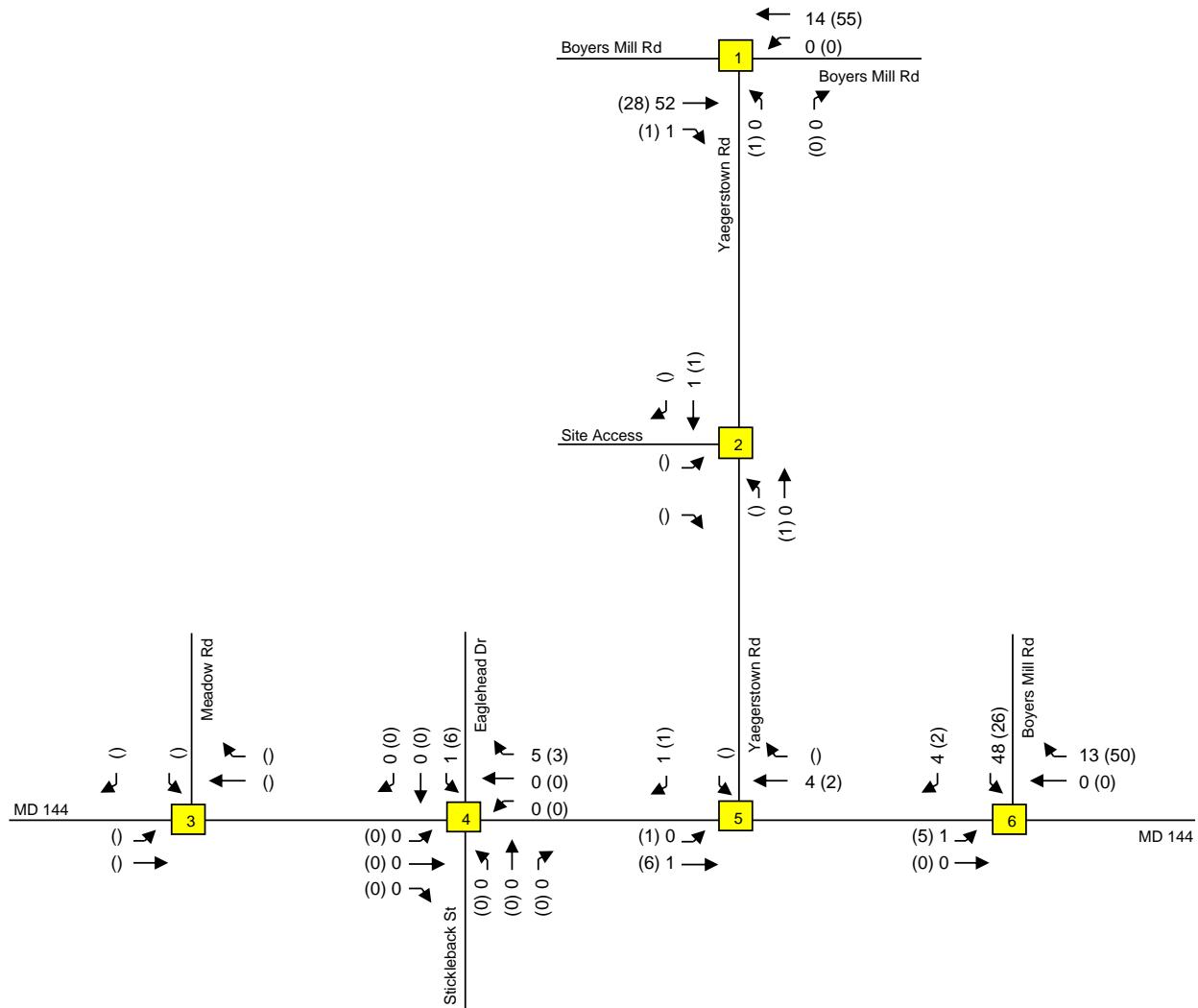
Background Trip Assignment Eaglehead - Westridge & Woolridge

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3f**

Note: Trip distribution and assignment obtained from the Dec. 2022 Gordon Mill TIS.



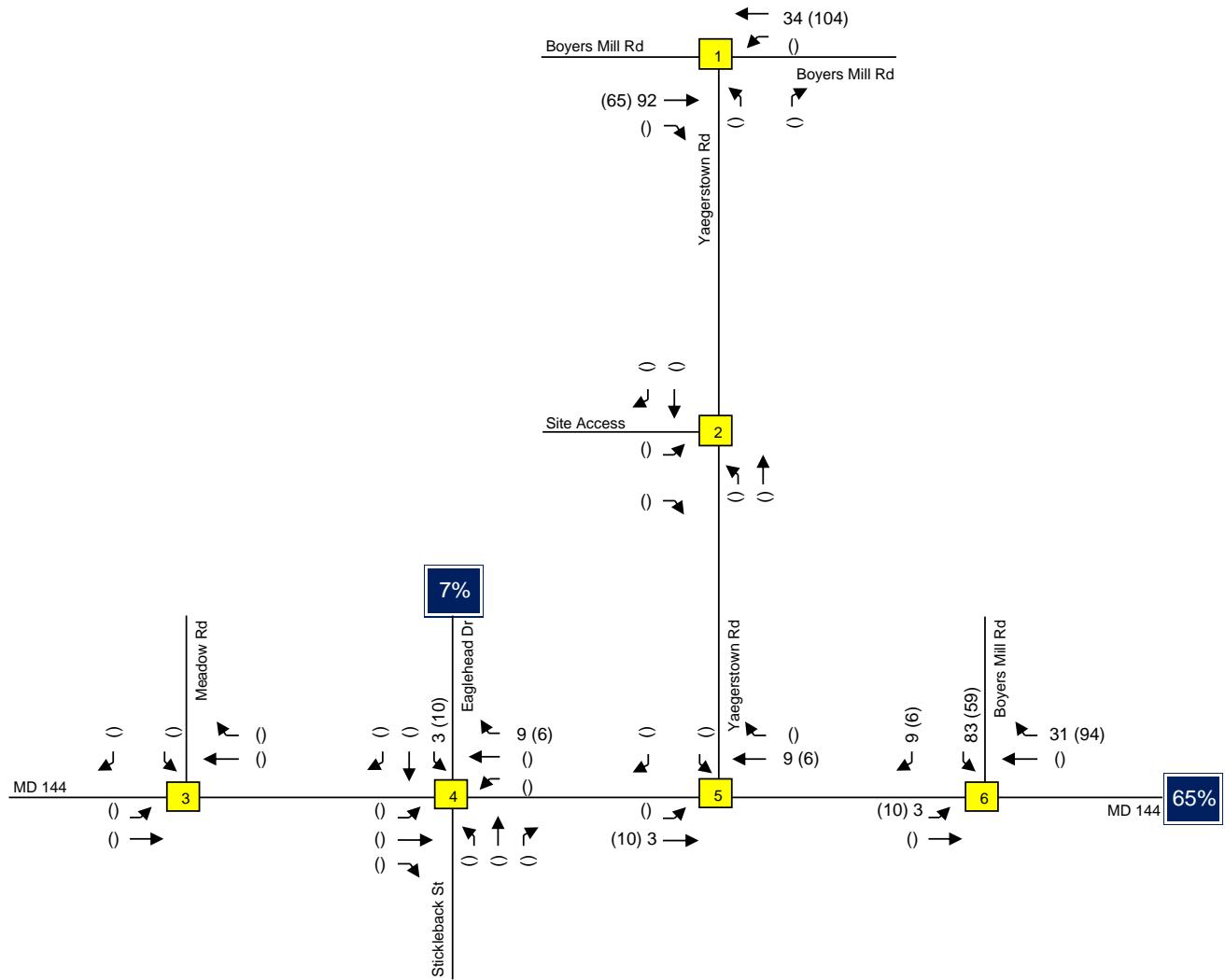
Traffic Impact Analysis

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Background Trip Assignment
Eaglehead - Eaglestream, Nightingale, Aspen

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3g**



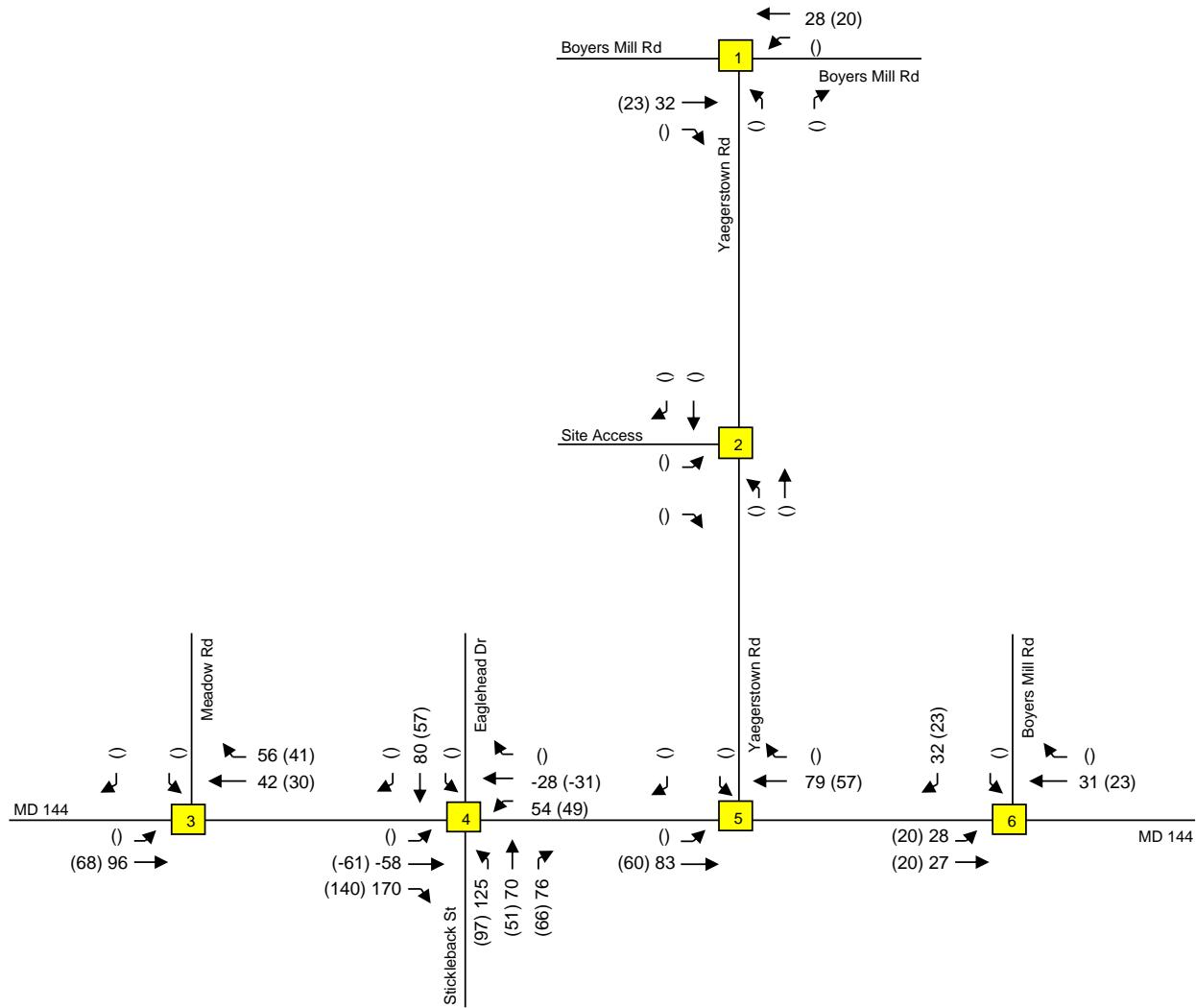
Traffic Impact Analysis

Background Trip Assignment

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Exhibit C-3h



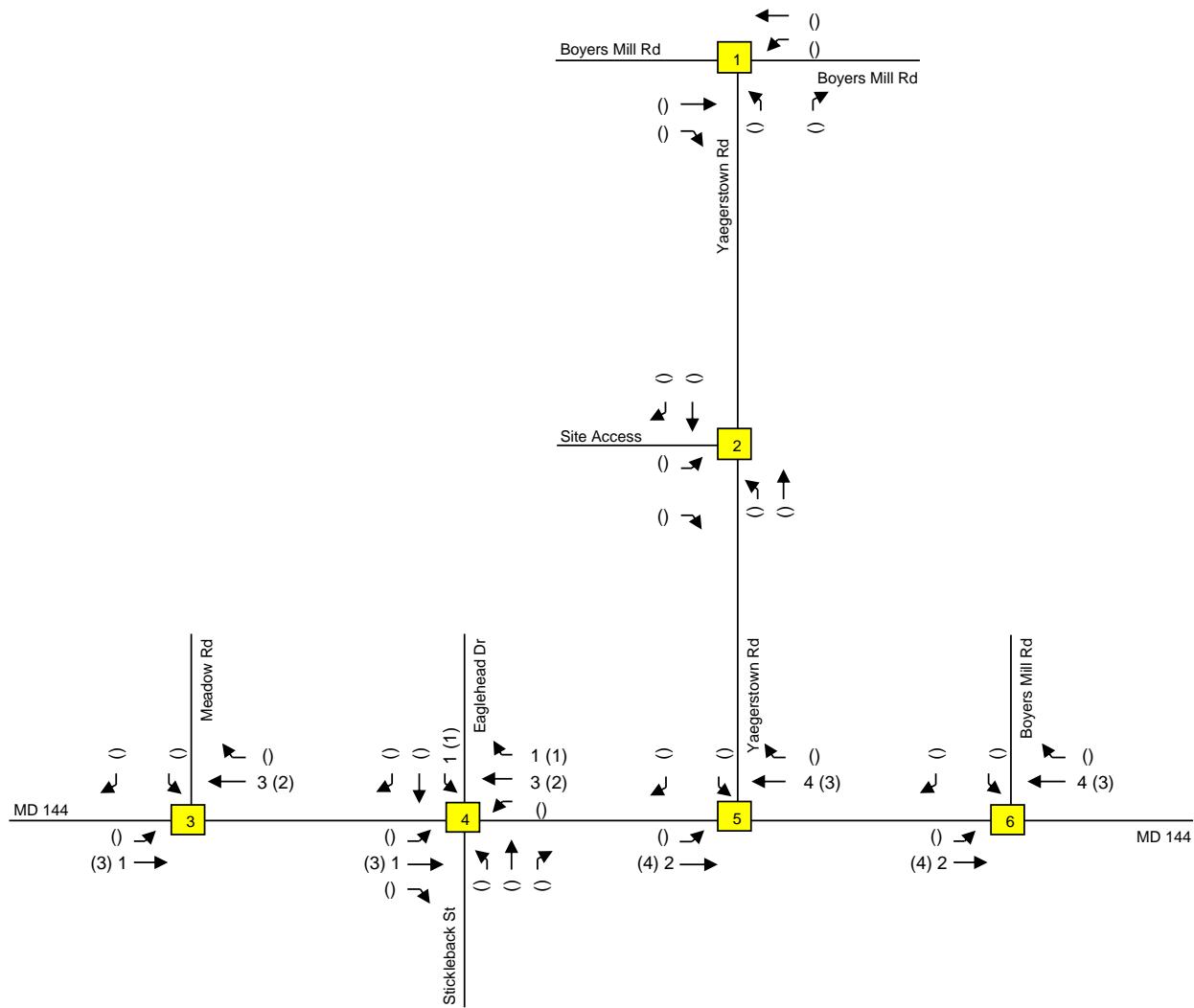
Traffic Impact Analysis

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Background Trip Assignment
New Market Retail Center

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3i**



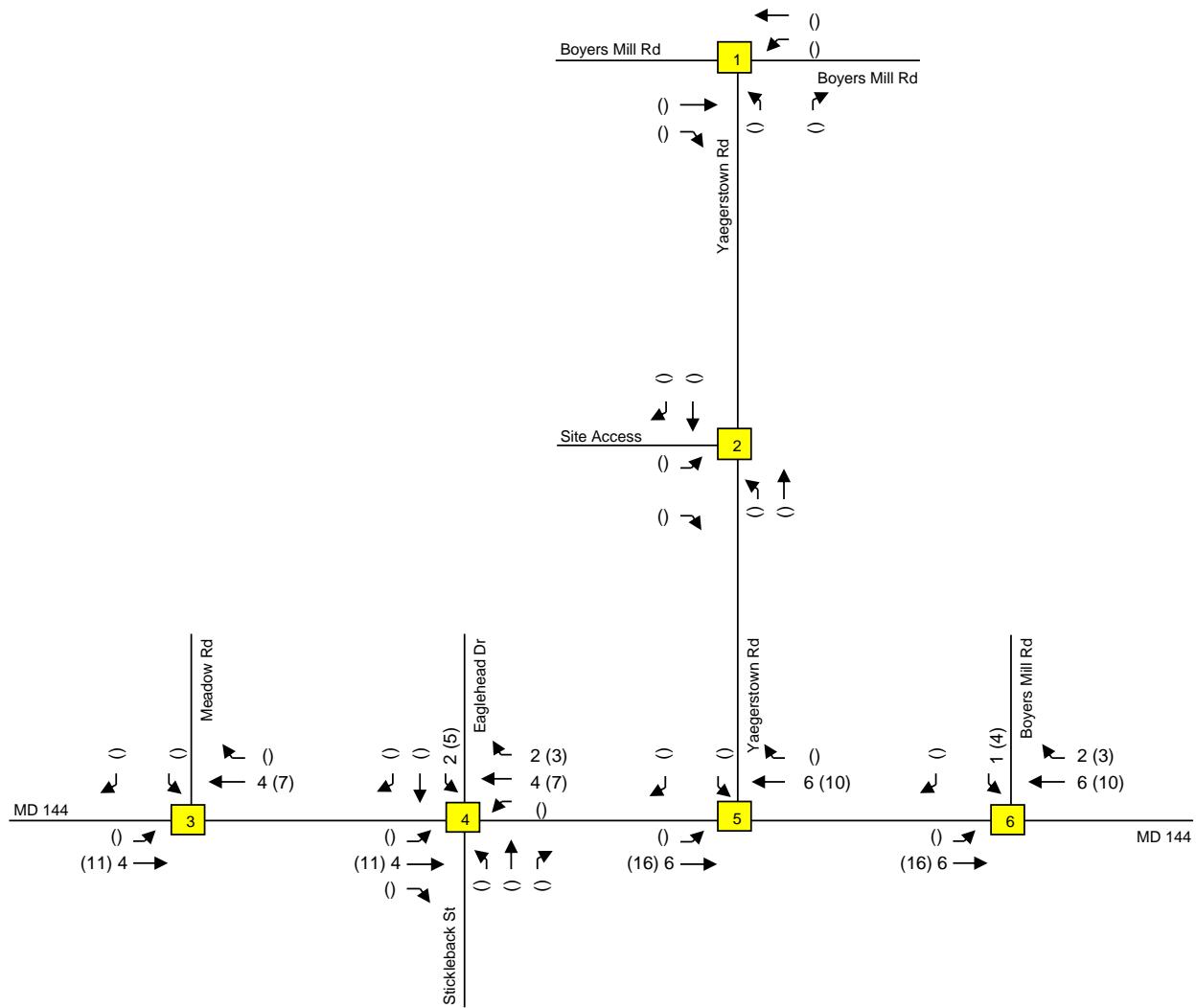
Traffic Impact Analysis

Background Trip Assignment
Marley Commons

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Exhibit
C-3j



Traffic Impact Analysis

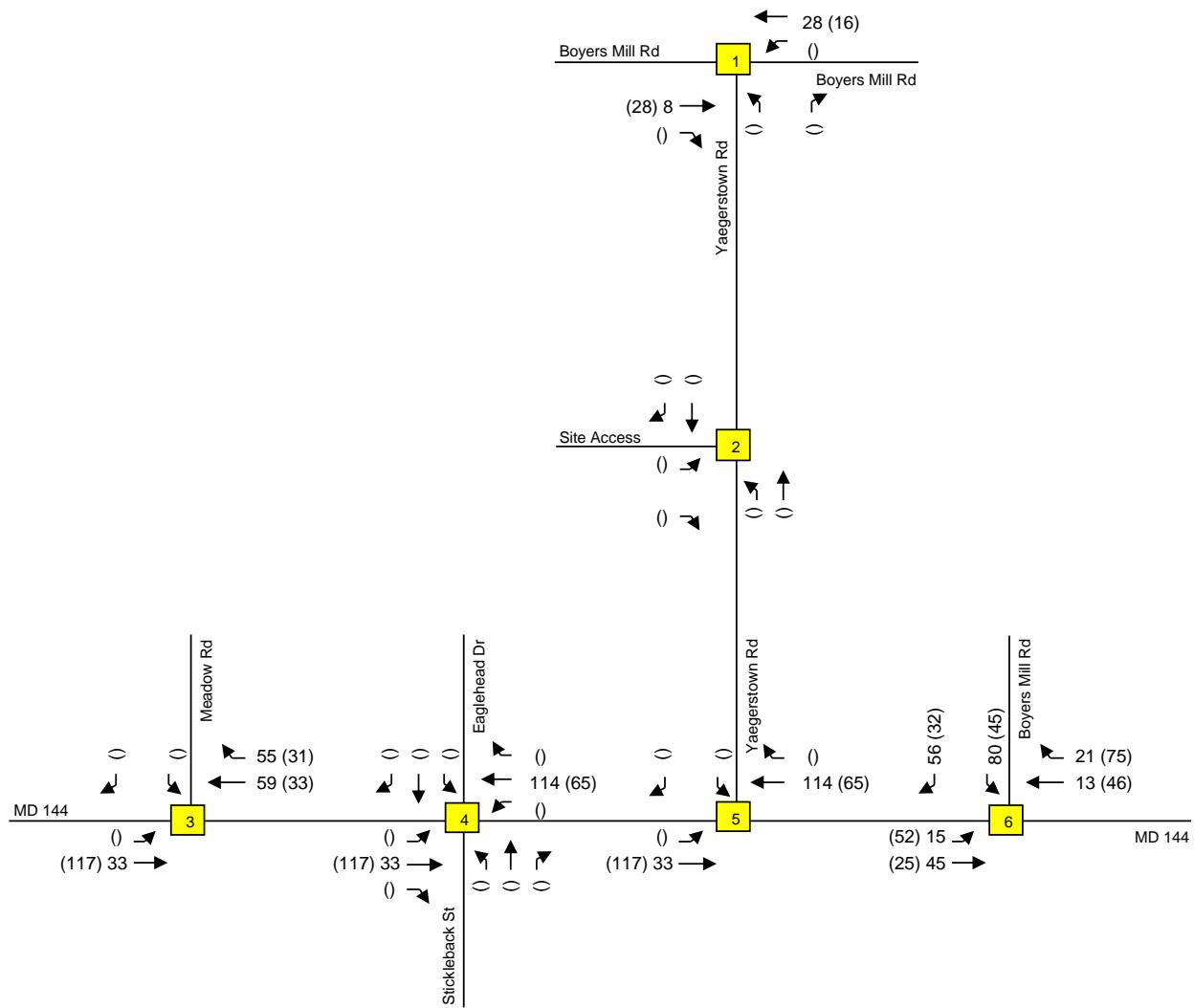
Background Trip Assignment

105/113 West Main

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Exhibit C-3k



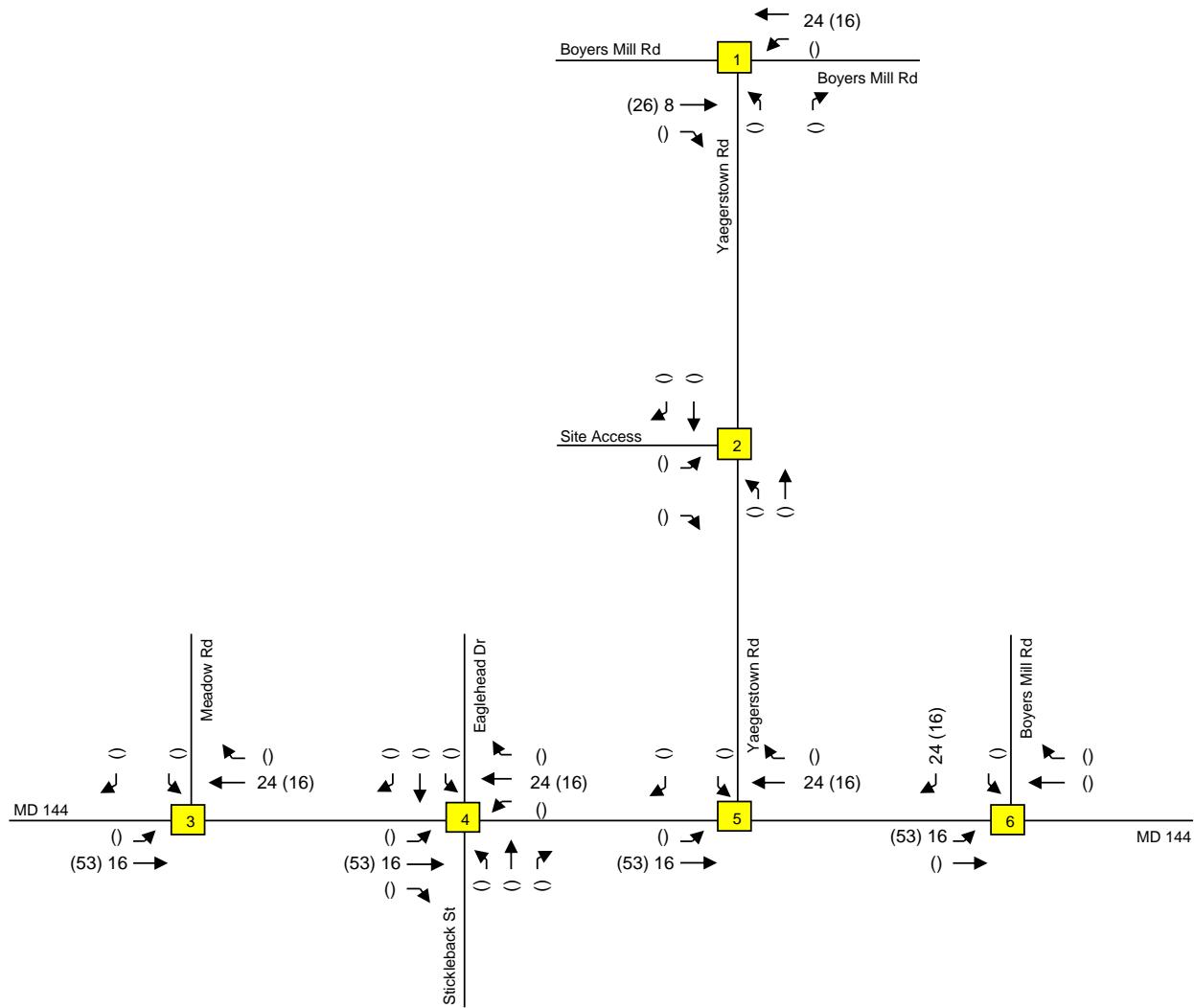
Traffic Impact Analysis

Background Trip Assignment Calumet

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

**Exhibit
C-3l**



Traffic Impact Analysis

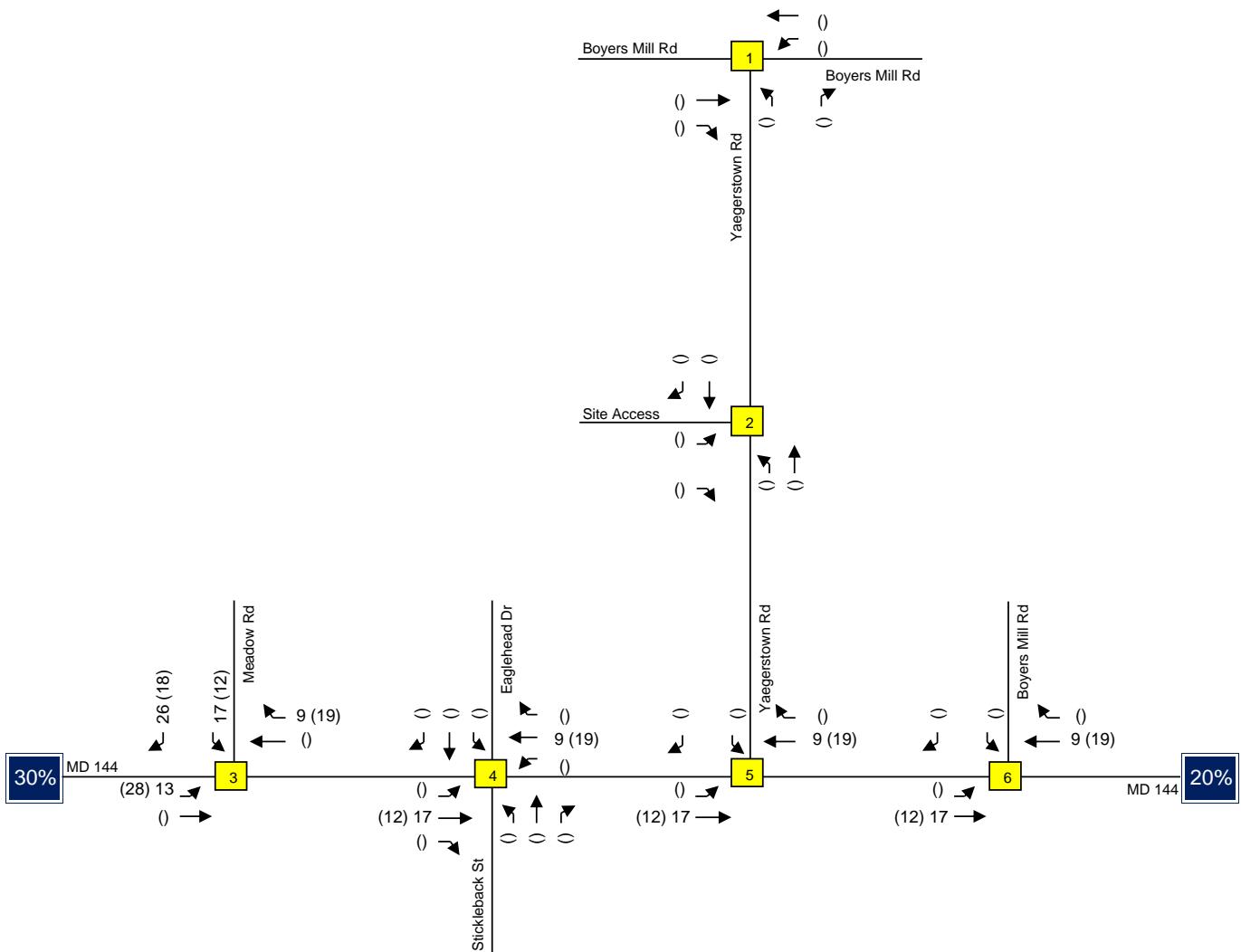
Background Trip Assignment Calumet

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Exhibit C-3m

Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

Note: It is assumed that 50% of trips to/from the site are to/from the west along I-70, or to destinations north of the site. These trips will not pass through the study intersections.



Traffic Impact Analysis

Background Trip Assignment

Cromwell

Lenhart Traffic Consulting, Inc.
Traffic Engineering & Transportation Planning

Exhibit

C-3n

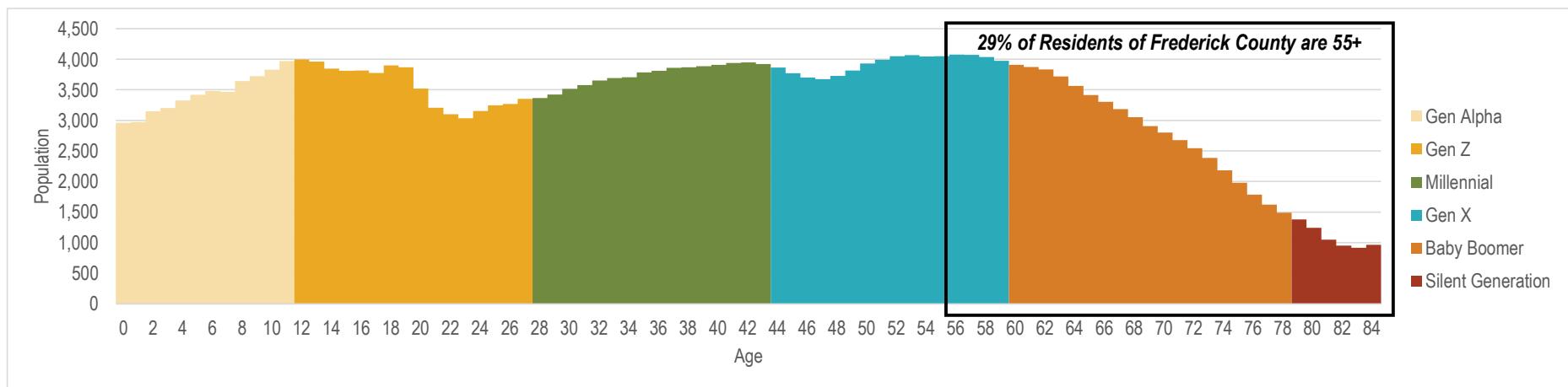
Key: xx = AM Peak Vol's (xx) = PM Peak Vol's

EXHIBITS

Exhibit S

Exhibit II-1

Population Distribution by Age and Generation
Frederick County, MD
2023

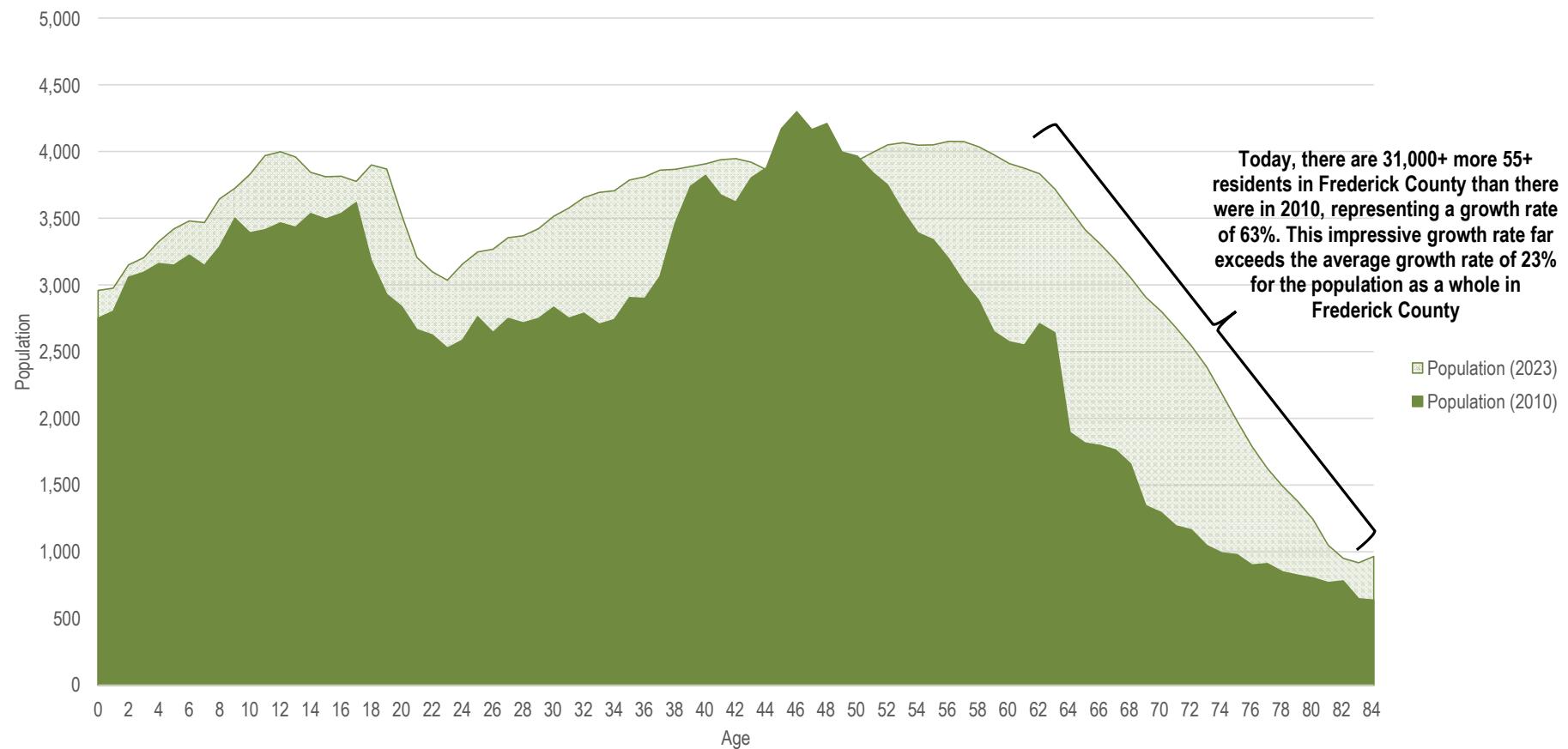


YEAR	STUDENT HOUSING	RENTAL HOUSING	RENT AS COUPLE OR BUY CONDO / TH	YOUNG FAMILY OWN	MATURE FAMILY OWN	EMPTY NESTER DOWNSIZE	BUY / RENT RETIREMENT HOME
EST. AGE	18-21	21-25	26-30	31-40	41-50	51-60	60+
2015	Millennials	Millennials	Millennials	Gen X	Baby Boomers Gen X	Baby Boomers	Silent Generation Baby Boomers
2020	Gen Z	Gen Z	Millennials	Gen X	Gen X	Baby Boomers Gen X	Baby Boomers
2025	Gen Z	Gen Z	Millennials Gen Z	Millennials	Gen X Millennials	Gen X	Baby Boomers
2030	Gen Z	Gen Z	Gen Z	Millennials Gen Z	Millennials	Gen X	Baby Boomers Gen X
2035	Gen Alpha	Gen Z Gen Alpha	Gen Z	Gen Z	Millennials	Millennials	Gen X
2040	Gen Alpha	Gen Alpha	Gen Z Gen Alpha	Gen Z	Millennials Gen Z	Millennials	Gen X

Source: Esri; RCLCO

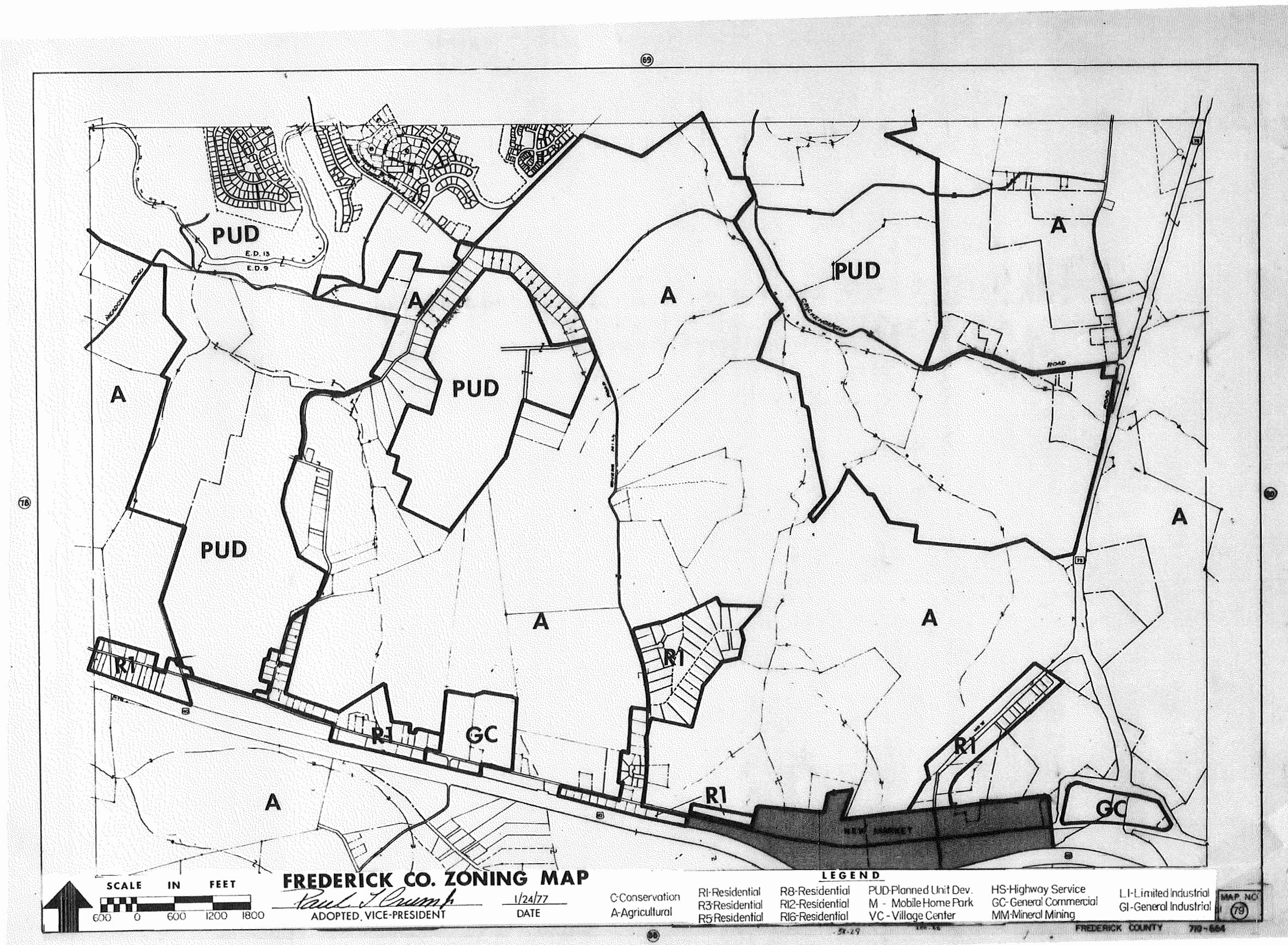
Exhibit II-2

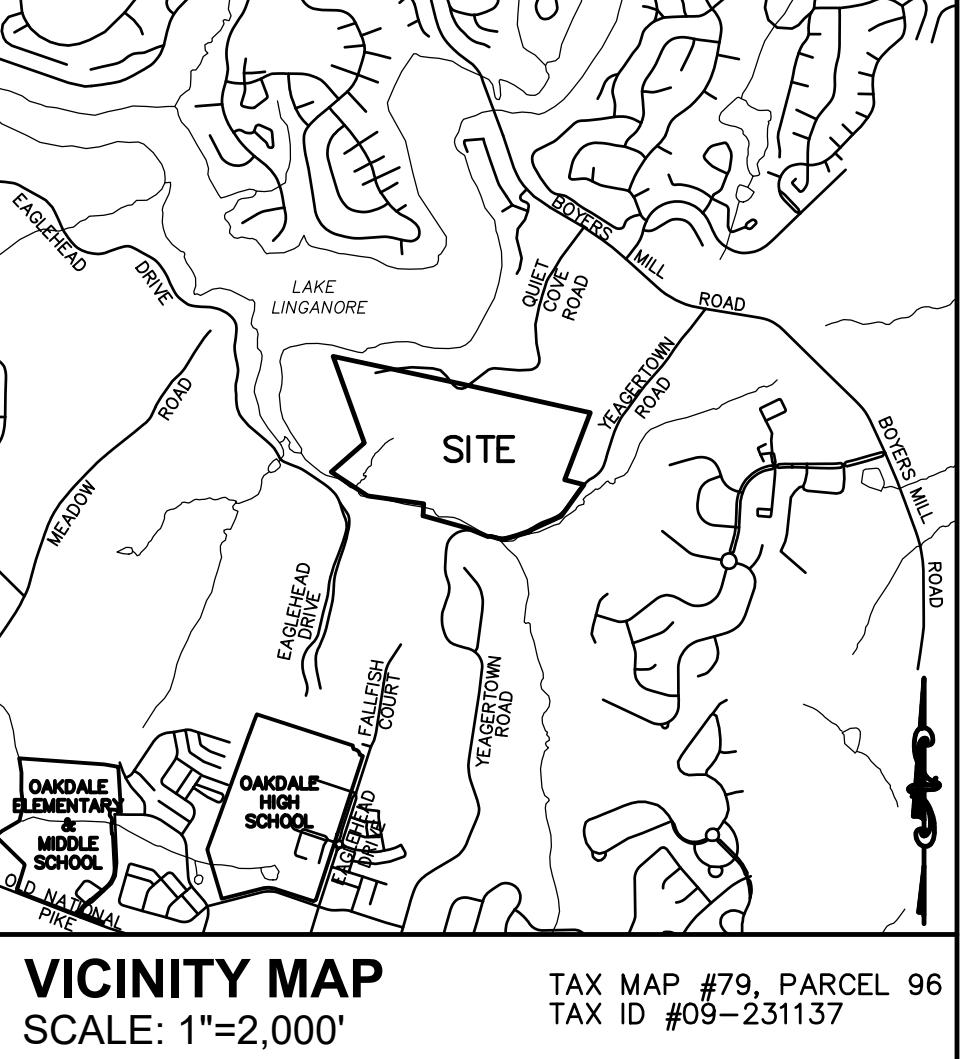
Population Distribution by Age
Frederick County, MD
2010 to 2023



Source: Esri; RCLCO

Exhibit A



<p>EXHIBIT B VICINITY MAP SCALE: 1"=2,000'</p>	<p>VICINITY MAP TAX MAP #79, PARCEL 96 SCALE: 1"=2,000'</p> 	<p>HARRIS SMARIGA PLANNERS, ENGINEERS - SURVEYORS 125 CHURCH STREET SUITE 100 FREDERICK MARYLAND 21701 P: 301.662.4488 F: 301.662.4906 www.harrisスマリガ.com</p> <p>EXHIBIT B- VICINITY MAP BELL FARM PUD REZONING APPLICATION</p> <p>REVISIONS:</p> <p>ACCORDING TO A DEED RECORDED IN LIBER 16199 FOLIO 393 STATED AT 6218 YEAGERTOWN ROAD, NEW MARKET, MD 21774 A TAX MAP #79, PARCEL 96 FREDERICK ELECTION DISTRICT NO. 9 STATED AT 6218 YEAGERTOWN ROAD, NEW MARKET, MD 21774 FREDERICK COUNTY, MARYLAND</p> <p>1</p> <p>1: APPROVING THE PLANNING PHASE PUD GRAPHIC LSC 2/1/2025 8:46 AM</p>
--	---	--

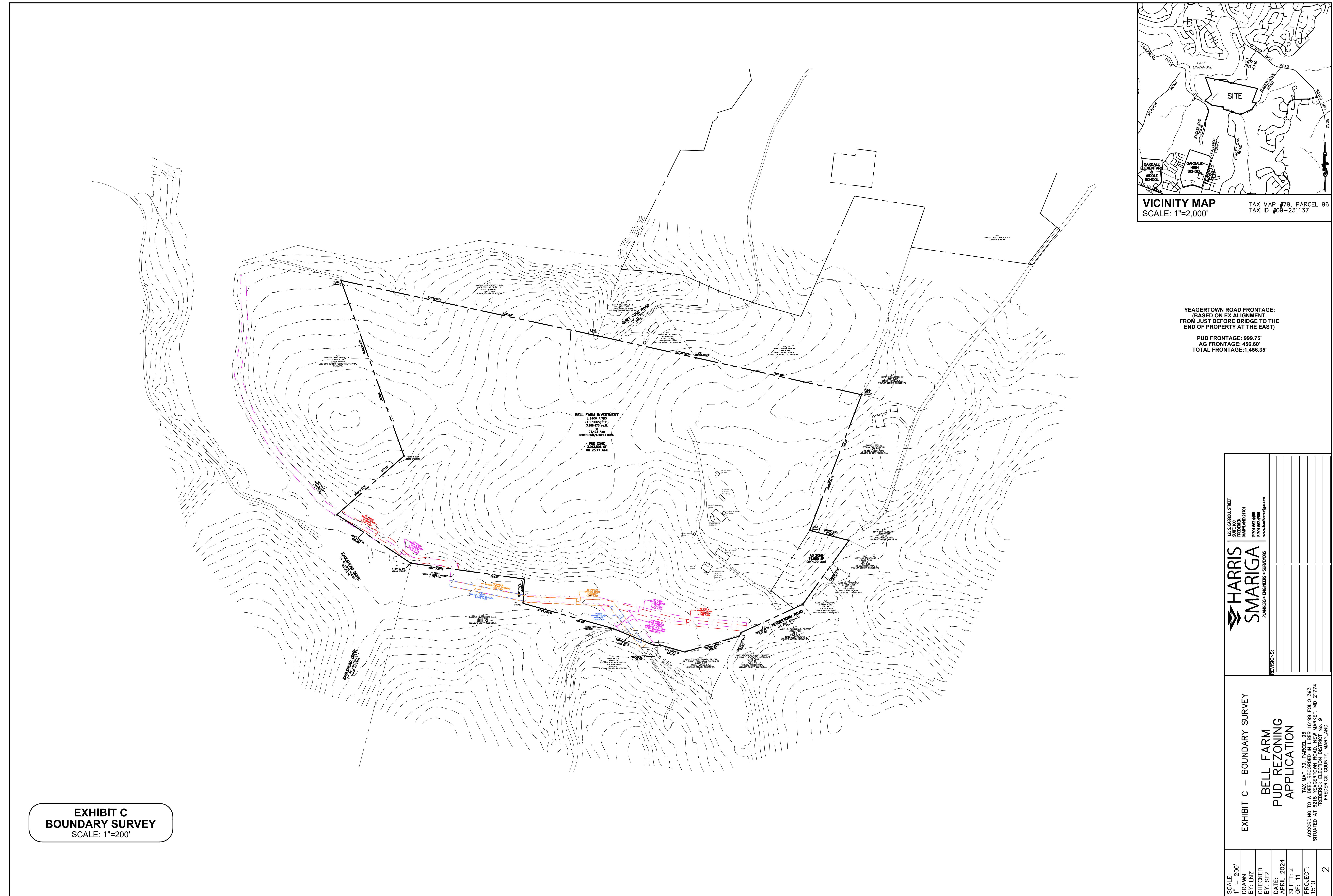
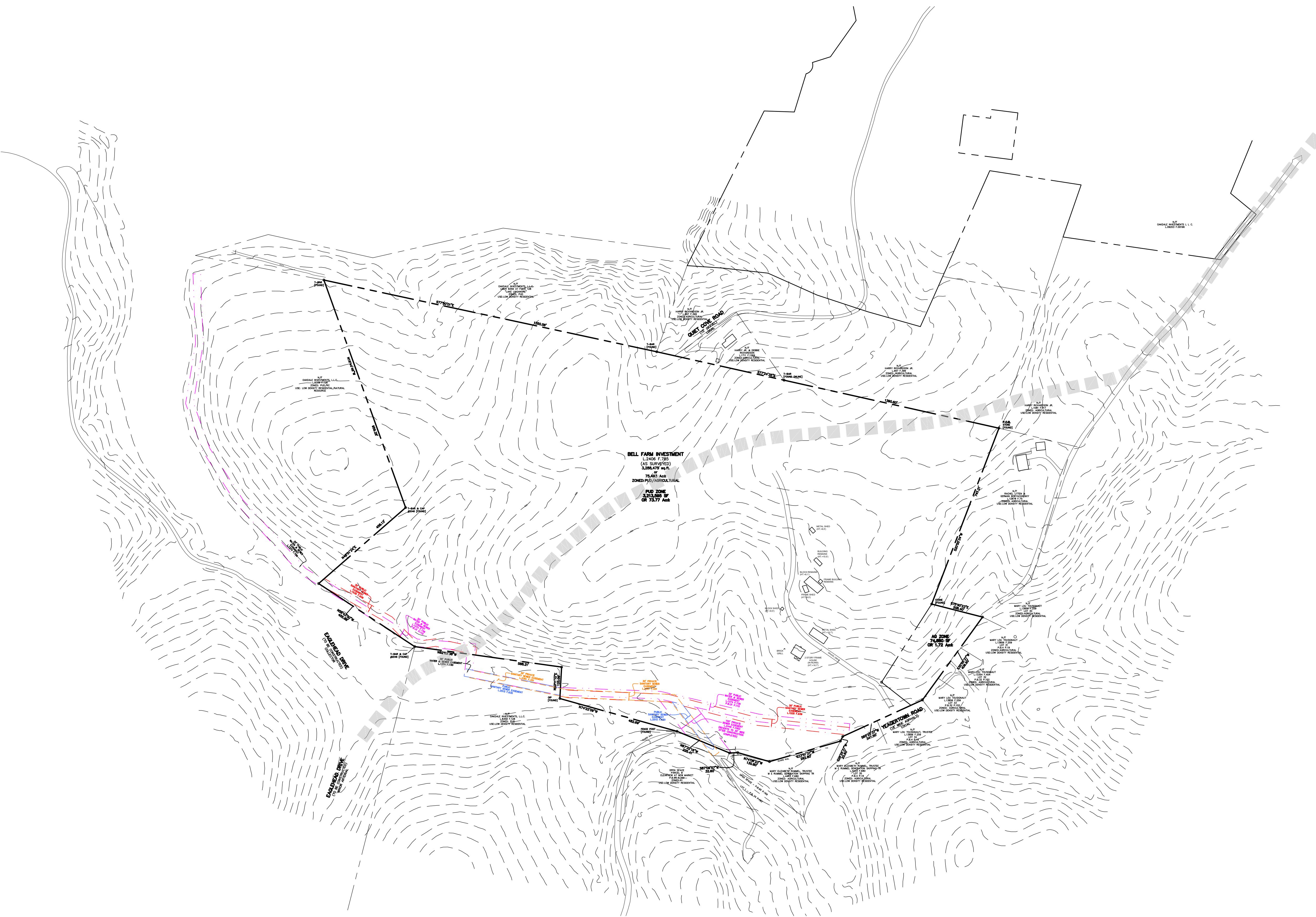


EXHIBIT D
TRANSPORTATION MAP
SCALE: 1"=200'

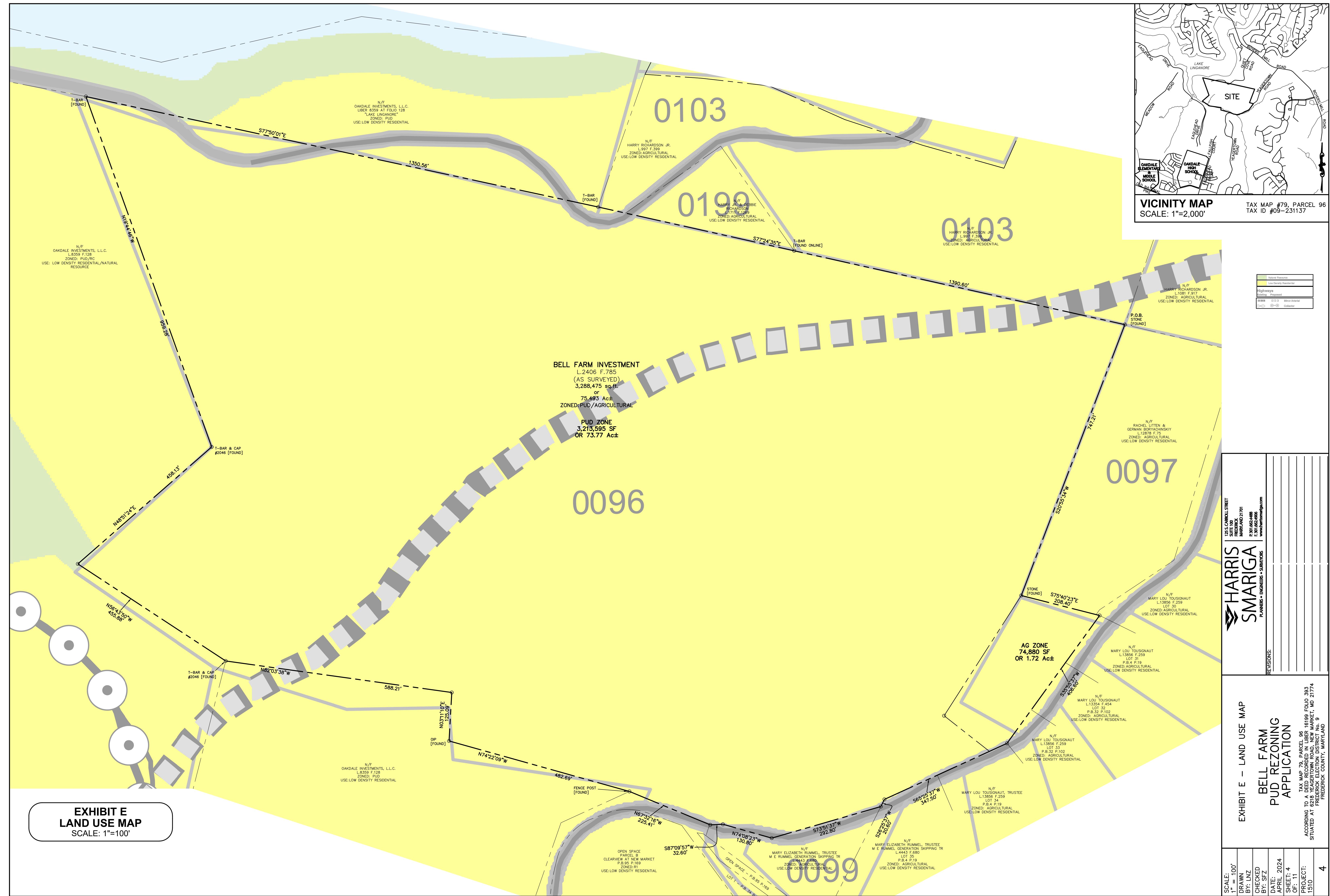
SCALE 1" = 200'



VICINITY MAP

TAX MAP #79, PARCEL 96
TAX ID #09-231137

SCALE: 1" = 200'	EXHIBIT D – TRANSPORTATION MAP		
DRAWN BY: LNZ	BELL FARM PUD REZONING APPLICATION		
CHECKED BY: SFZ	DATE: APRIL 2024		
SHEET: 3 OF: 11	PROJECT: 1510		
1" = 200'			
HARRIS SMARIGA			
PLANNERS • ENGINEERS • SURVEYORS			
SUITE 100 FREDERICK MARYLAND 21701			
P: 301.662.4486 F: 301.662.4906 www.harrismariga.com			
REVISIONS:			
TAX MAP 79, PARCEL 96 ACCORDING TO A DEED RECORDED IN LIBER 16199 FOLIO 393 SITUATED AT 6218 YEAGERTOWN ROAD, NEW MARKET, MD 21774 FREDERICK ELECTION DISTRICT No. 9 FREDERICK COUNTY, MARYLAND			
3			



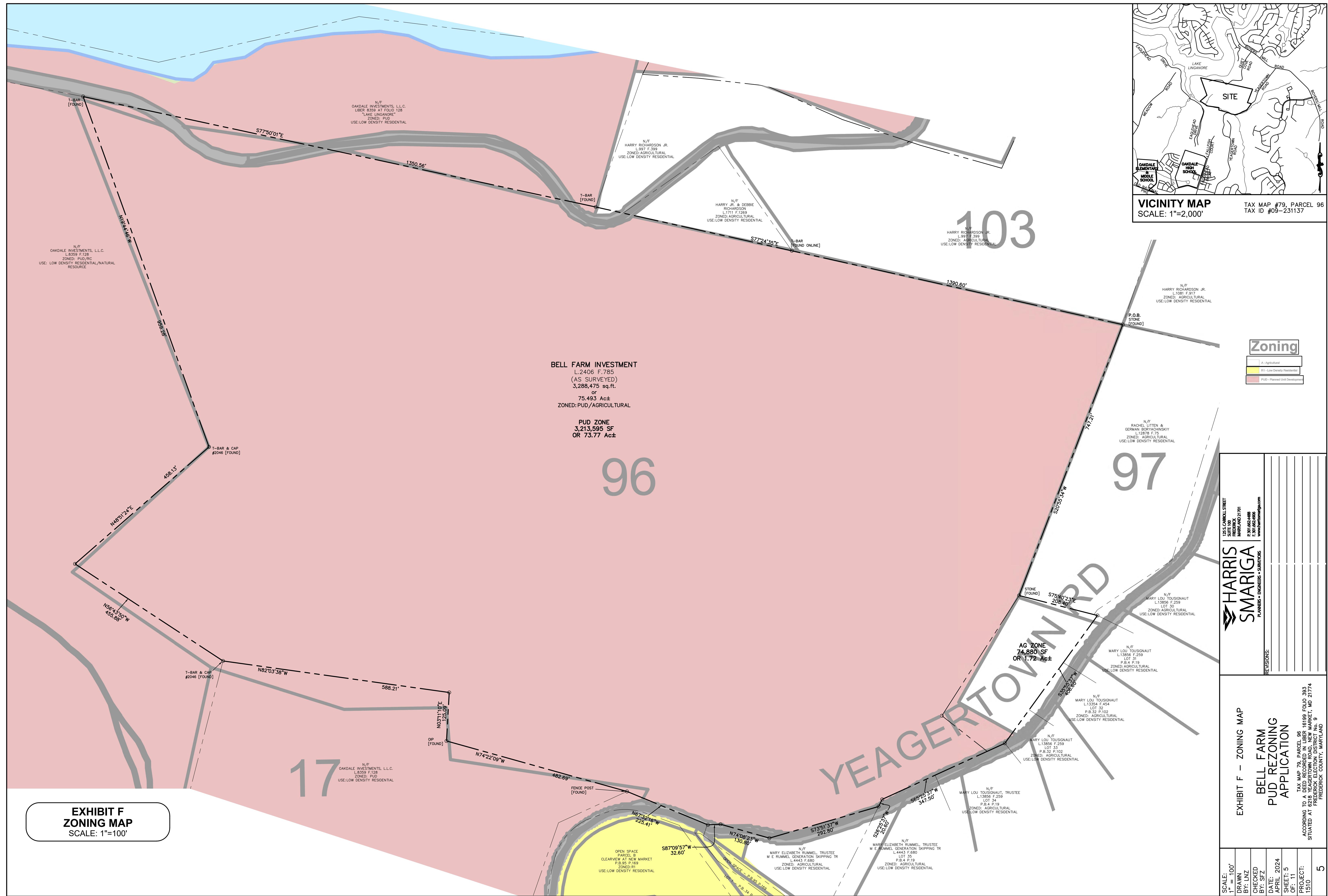




EXHIBIT G
AERIAL PHOTOGRAPH
SCALE: 1"=200'

SCALE: 1"=200'

EXHIBIT G – AERIAL PHOTOGRAPH

BELL FARM
PUD REZONING
APPLICATION

TAX MAP 79, PARCEL 96
ACCORDING TO A DEED RECORDED IN LIBER 16199 FOLIO 393
SITUATED AT 6218 YEAGERTOWN ROAD, NEW MARKET, MD 21773

HARRIS
SMARIGA

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SUITE 100
FREDERICK
MARYLAND 21701

P:301.662.4488
F:301.662.4906

www.harrismariga.com

INITY MAP
SCALE: 1"=2,000' **TAX MAP #79, PARCEL 96**
TAX ID #09-231137

X MAP #79, PARCEL 96
X ID #09-231137

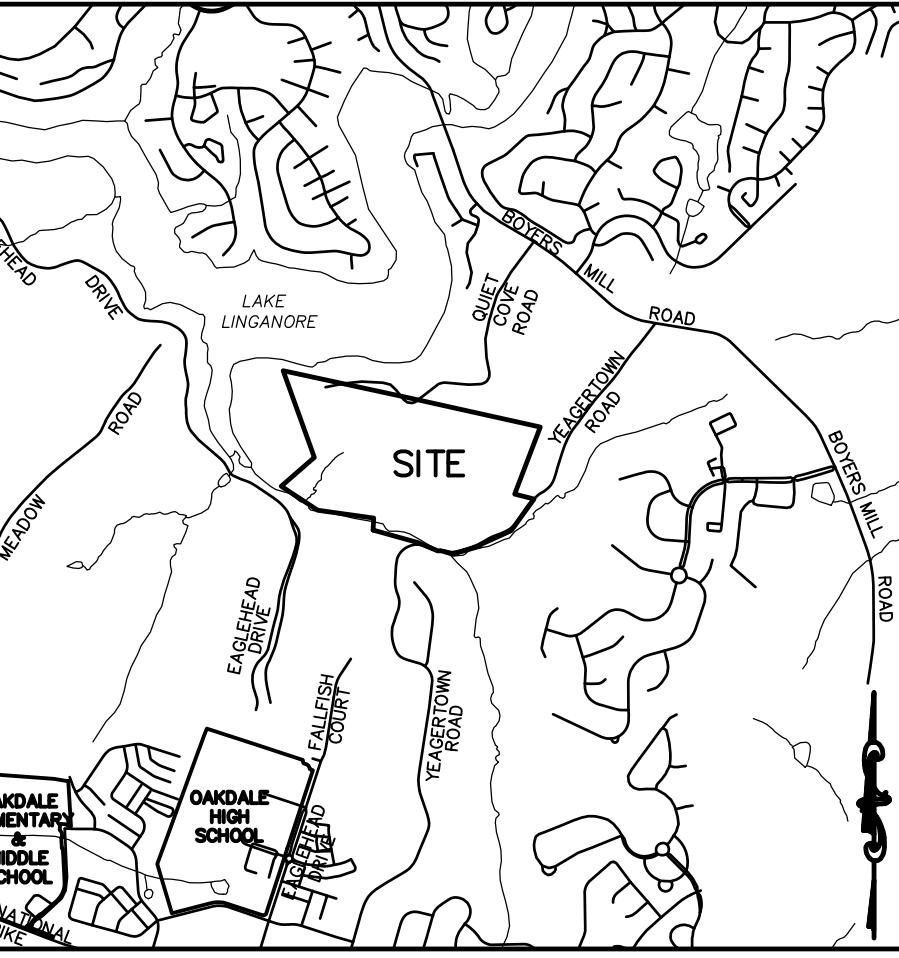




Exhibit M

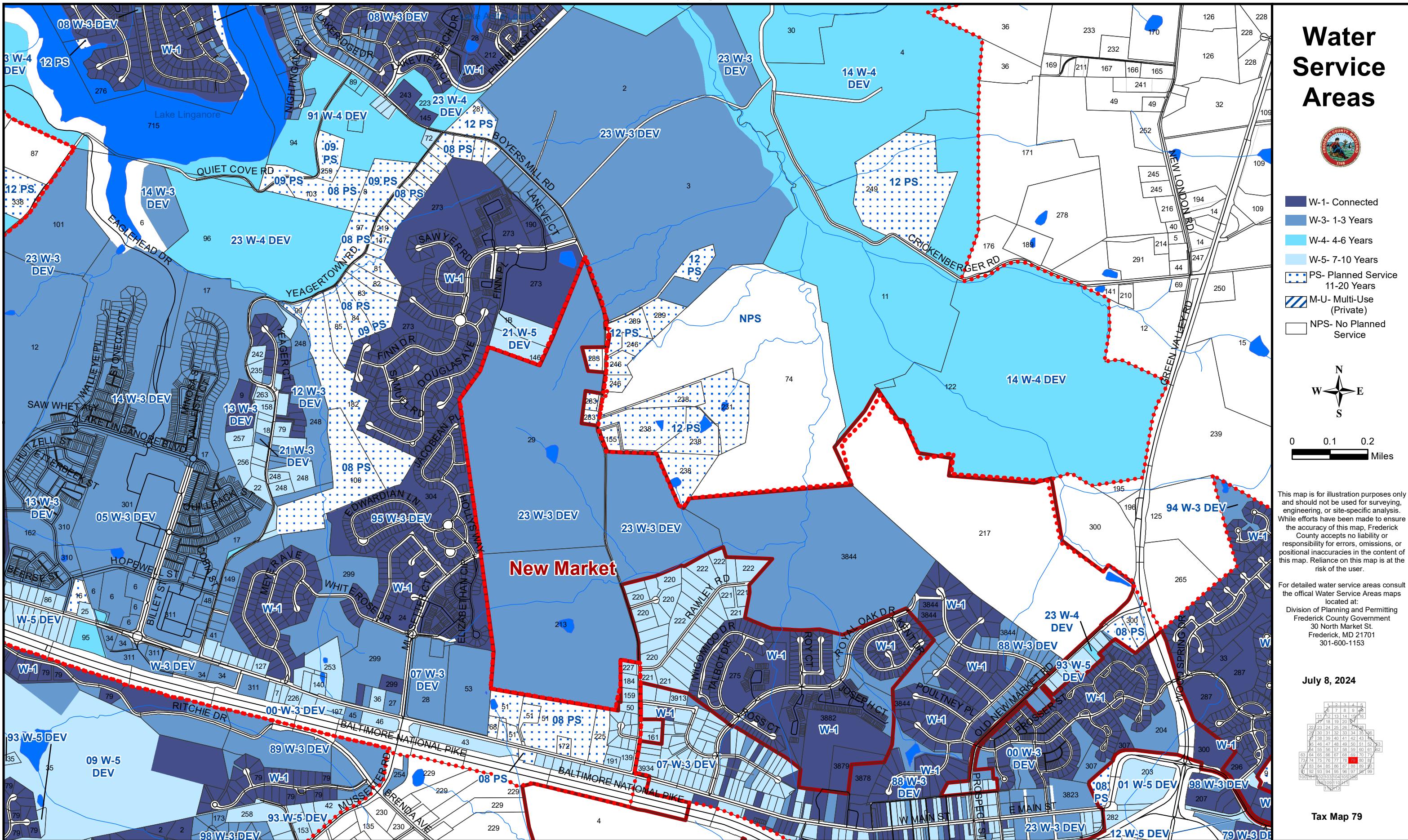


Exhibit N

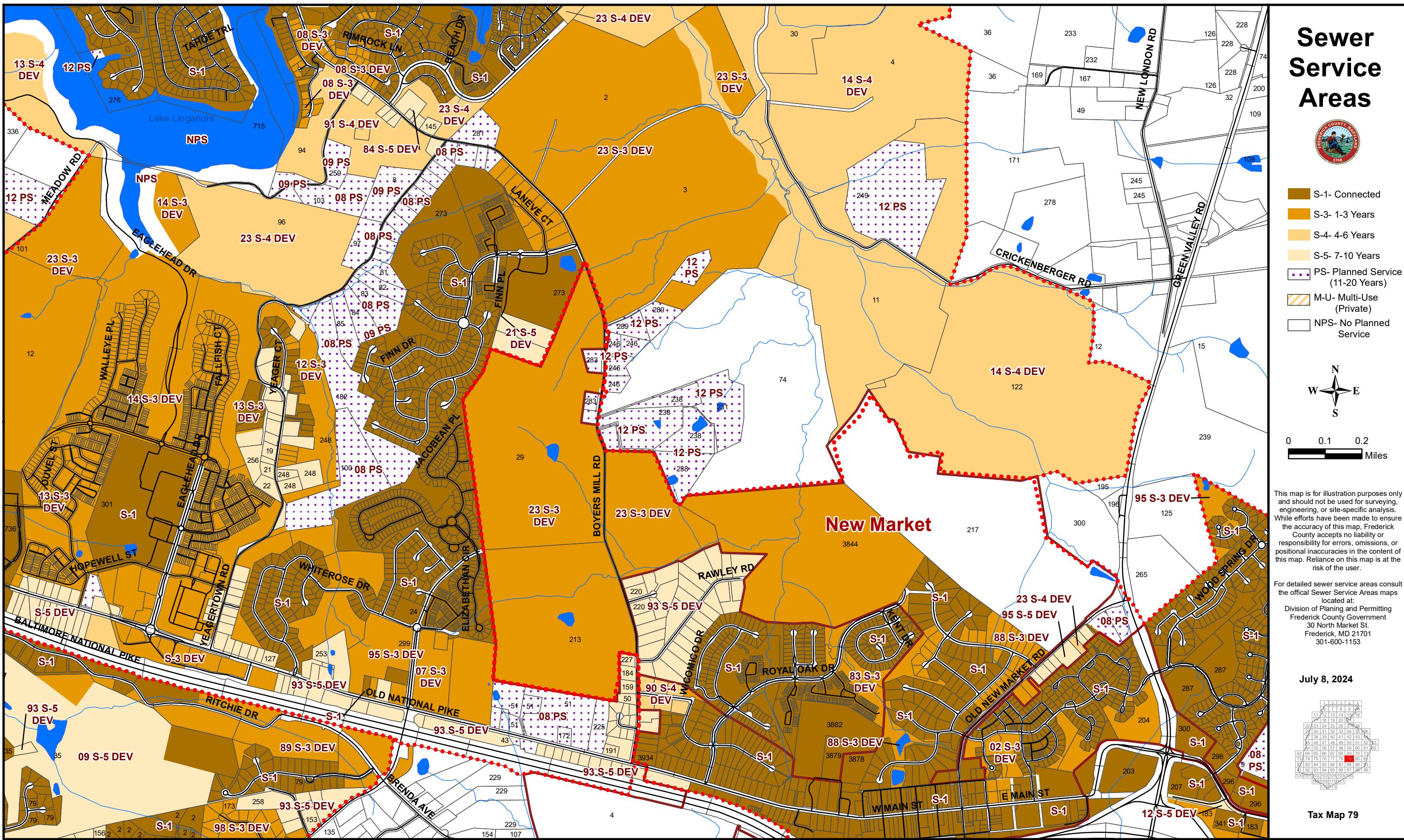


Exhibit O

SITE

REMAINS OF OLD FEN

- EXTEND 12" WATERLINE THRU SITE TO CREATE LOOP BETWEEN EXISTING 12" WATERLINE IN EAGLEHEAD DRIVE & EXISTING 12" ZONE 2 WATERLINE FROM EXISTING NIGHTINGALE TANK

T-BAR & CAP
#2046 [FOUND]

HARRIS
SMARTIGA
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Suite 100
Frederick
Maryland 21701
800.348.2466
F.301.662.0100
www.harris-smariga.com

WATERFORD SEVEN
EXHIBIT
FOR
BELL FARM

1

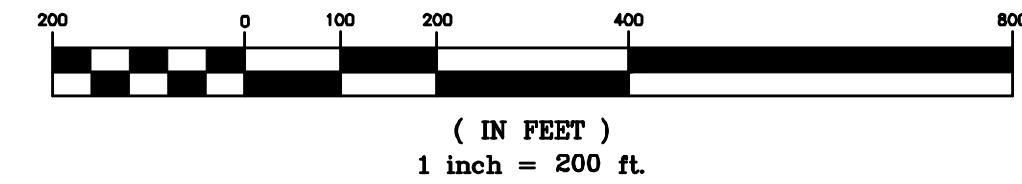
Exhibit P

BELL FARM INVESTMENT
L.2406 F.785
(AS SURVEYED)
3,288.475 sq. ft.
or
75.493 Acre

SITE

EXTEND 12" WATERLINE
THRU SITE TO CREATE
LOOP BETWEEN EXISTING
12" WATERLINE IN
EAGLEHEAD DRIVE &
EXISTING 12" ZONE 2
WATERLINE FROM EXISTING
NIGHTINGALE TANK

GRAPHIC SCALE



WATER AND SEWER
EXHIBIT
FOR
BELL FARM

 <p>HARRIS SMARIGA PLANNERS • ENGINEERS • SURVEYORS</p>		<p>SUITE 100 FREDERICK MARYLAND 21701 P: 301.662.4600 F: 301.662.4605 www.harrissmariga.com</p>
<p>WATER AND SEWER EXHIBIT FOR BELL FARM</p>		
1'-00'	DATE: FEB. 2024	1
DRUM BY DLS	SHEET: 1 OF: 1	1
CHECKED BY: SPZ	PROJECT: 1510	1