

Chesapeake BAY CROSSING STUDY
TIER 2 NEPA

SOCIOECONOMIC AND LAND USE TECHNICAL REPORT

JANUARY 2026

Maryland Transportation Authority
MDTA

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ABBREVIATIONS AND ACRONYMS

ACS	American Community Survey
ADA	Americans with Disabilities Act
ARDS	Alternatives Retained for Detailed Study
Bay Bridge	William Preston Lane, Jr. Memorial Bridge
BEA	Bureau of Economic Analysis
BGE	Baltimore Gas and Electric
Block Group(s)	United States Census Tract Block Group(s)
BRTB	Baltimore Regional Transportation Board
CDP	Census Designated Place
CFR	Code of Federal Regulations
DDI	Diverging Diamond Interchange
DNR	Maryland Department of Natural Resources
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
FPPA	The Farmland Protection Policy Act
FTA	Federal Transit Administration
GIS	Geographic Information Systems
I-O	Input-Output
LOD	Limit of Disturbance
MD	Maryland
MDOT	Maryland Department of Transportation
MDP	Maryland Department of Planning
MDTA	Maryland Transportation Authority
MTA	Maryland Transit Administration
NEPA	National Environmental Policy Act
NOI	Notice of Intent
O&M	Operations and Maintenance
PFA	Priority Funding Area
PTSU	Part-time Shoulder Use
QHGC	Queenstown Harbor Golf Course
QAC	Queen Anne's County
RIMS II	Regional Input-Output Modeling System
SAP	Small Area Plan
SHA	State Highway Administration
SIC	Standard Industrial Classification
SELU analysis area	Socioeconomic and Land Use Analysis Area

SS4A	Safe Streets and Roads for All
SUP	Shared Use Path
Tier 1 Study	Tier 1 of the Chesapeake Bay Crossing Study
Tier 2 Study	Tier 2 of the Chesapeake Bay Crossing Study
TDM	Transportation Demand Management
TSM	Transportation Systems Management
U.S.	United States
U.S.C.	United States Code
U.S.DOT	United States Department of Transportation
VFD	Volunteer Fire Department

1 INTRODUCTION

The Chesapeake Bay Crossing Study (Bay Crossing Study) is a two-tiered engineering and environmental study being advanced by the Maryland Transportation Authority (MDTA) in coordination with the Federal Highway Administration (FHWA). The Bay Crossing Study is addressing existing and future transportation issues at the William Preston Lane, Jr. Memorial Bridge (Bay Bridge) and its approaches along U.S. 50/301. Each tier of the Bay Crossing Study involves development of an Environmental Impact Statement (EIS), in compliance with the National Environmental Policy Act (NEPA), to describe potential significant environmental effects and inform the evaluation of alternatives. Tier 1 of the Bay Crossing Study (Tier 1 Study) was completed in April 2022. At that time, the FHWA issued a Final EIS/Record of Decision (FEIS/ROD) identifying Corridor 7, the corridor that includes the Bay Bridge and its approaches, as the Selected Corridor Alternative for further evaluation. Tier 2 of the Bay Crossing Study (Tier 2 Study) was launched in June 2022 to focus on a project-level (site-specific) analysis within the Tier 1 Selected Corridor Alternative (Corridor 7). Study limits for the Tier 2 Study analysis are defined in **Section 2.2**. The Tier 2 NEPA process was initiated formally with publication of a Notice of Intent (NOI) to prepare an EIS in the Federal Register on November 15, 2024.

This technical report presents the existing conditions and an assessment of the potential direct impacts of the Alternatives to economic, social, and community resources. It is being prepared to support and inform the EIS. The report begins with a description of the study background (**Section 2**), including the tiered NEPA process, the study limits, and the Purpose and Need. **Section 3** details the alternatives evaluated. **Section 4** provides an overview of the federal/state statutes and regulations, as well as guidance and policy statements, and **Section 5** details the methodology behind the Socioeconomic & Land Use (SELU) Analysis and defines the analysis area. **Section 6** presents the affected environment and environmental consequences of the alternatives. To enhance the communication of potential benefits and environmental consequences to a localized audience, **Section 7** presents community profiles and effects for six community analysis areas located within the analysis area. Public outreach and engagement conducted in support of the Tier 2 Study is summarized in **Section 8**.

2 BACKGROUND

The Chesapeake Bay is one of Maryland's most important natural, economic, and cultural resources and the largest estuary in the United States. The 64,000-square-mile watershed that flows into the Chesapeake Bay spans six states and the District of Columbia and includes 150 major rivers and over 100,000 tributaries. The Chesapeake Bay has historically shaped the region's identity, culture, and traditions.

The Bay Bridge is a two-span structure that crosses the Chesapeake Bay from Anne Arundel County on the Western Shore to Queen Anne's County on the Eastern Shore. The original span opened in 1952, and the second span opened in 1973. Today, the two-lane original span typically carries eastbound traffic, and the three-lane second span typically carries westbound traffic. However, lanes on the bridge can be reversed to accommodate periods of heavy traffic. The approaches along U.S. 50/301 on each shore have six lanes (three lanes for each travel direction). The Bay Bridge has become one of Maryland's most iconic and recognizable landmarks, used by millions of Maryland residents and other travelers every year.

2.1 The Tiered NEPA Process

To study possible solutions that could address transportation issues, specifically as they relate to congestion, the MDTA and the FHWA are conducting the Bay Crossing Study as a tiered NEPA study. The tiered approach to NEPA allowed the MDTA and the FHWA to focus on broader, planning-level decisions related to the preferred location of a potential new Bay crossing in the Tier 1 Study EIS. In the subsequent Tier 2 Study EIS, the MDTA and FHWA analyzed more specific, project-level alternatives and potential impacts.

The Tier 1 Study evaluated 14 possible alternative corridor locations over a broad geographic area that spanned nearly 100 miles of the Chesapeake Bay between Harford and Cecil counties to the north and St. Mary's and Somerset counties to the south. The Tier 1 Study identified Corridor 7 as the Selected Corridor Alternative, which is a two-mile-wide and approximately 22-mile-long corridor that follows existing U.S. 50/301 and includes the location of the existing Bay Bridge.

The Tier 2 Study involves a project-level (site-specific) alternatives analysis within the Tier 1 Selected Corridor Alternative (Corridor 7). The focus of the Tier 2 Study is to identify the environmental impacts associated with alternatives to address the Tier 2 Study's Purpose and Need. This technical report supports the evaluation that will be presented in the EIS.

2.2 Study Limits

The MDTA analyzed the traffic volumes along Corridor 7 and its interchanges to determine appropriate study limits for the Tier 2 Study. The Tier 2 western study limit has been identified as the MD 2/MD 450 interchange just east of the Severn River Bridge, and the Tier 2 eastern study limit has been identified as the U.S. 50/301 split.

2.3 Purpose and Need

The purpose of the Tier 2 Study is to address existing and future transportation capacity needs and access across the Chesapeake Bay and at the Chesapeake Bay Bridge approaches along the U.S. 50/301 corridor. The Tier 2 Study is evaluating measures to reduce congestion; improve travel times and reliability, mobility, and roadway deficiencies; and accommodate maintenance activities and navigation, while minimizing impacts to local communities and the environment. Five needs have been identified:

- **Adequate Capacity and Reliable Travel Times** – Capacity of the Bay Bridge and its approaches on U.S. 50/301 are not sufficient to accommodate existing and anticipated traffic demand, resulting in traffic congestion on the Bay Bridge and adjacent roadway network.

- **Mobility** – Congestion at the Bay Bridge and its approaches and subsequent spillover effects on local roadways limit the movement of people, goods, and services across the Chesapeake Bay and in adjacent communities.

- **Roadway Deficiencies** – The bridge does not meet current design standards for design or traffic operations because of the existing narrow lane widths, lack of shoulders, and other factors.

- **Existing and Future Maintenance Needs** – Due to the age and design life of the existing Bay Bridge, substantial maintenance of the facility will be needed, leading to lane closures that make incident management more difficult and cause increased traffic and congestion delays.

- **Navigation** – The existing Bay Bridge is a key constraint for the height of ships that travel the Chesapeake Bay, including to the Port of Baltimore.

The MDTA has also identified two study objectives:

- **Environmental Responsibility** – Project alternatives will be developed to avoid and minimize impacts to communities and sensitive environmental resources.

- **Cost and Financial Responsibility** – Cost and financial responsibility will be a factor when analyzing and evaluating potential solutions, with regard to the means of paying for the development, operation, and maintenance of all proposed facilities.

3 ALTERNATIVES

The MDTA identified the Alternatives Retained for Detailed Study (ARDS), which are the NEPA range of reasonable alternatives for evaluation in the Tier 2 Study EIS. The ARDS include the No-Build Alternative and six build alternatives (**Figure 3-1)**. Each build alternative includes removing the existing eastbound and westbound Bay Bridge spans and replacing them with two new bridge spans constructed near the location of the existing Bay Bridge. The ARDS are differentiated by the number of lanes provided across the new bridge and on the approaches as well as the bridge location, and consist of:

- **Alternative A - No-Build**: retains the existing Bay Bridge, the U.S. 50/301 alignment, and the existing number of lanes: 6 lanes along U.S. 50/301 on the Western Shore, 5 lanes across the Chesapeake Bay on the existing Bay Bridge, and 6 lanes along U.S. 50/301 on the Eastern Shore;

- **Alternative B - 6-8-6 North**: 6 lanes along U.S. 50/301 on the Western Shore, 8 lanes across the Chesapeake Bay on a new bridge with one span to the north of the existing spans and one span in-between the existing spans, and 6 lanes along U.S. 50/301 on the Eastern Shore;

- **Alternative C - 6-8-6 South**: 6 lanes along U.S. 50/301 on the Western Shore, 8 lanes across the Chesapeake Bay on a new bridge with one span to the south of the existing spans and one span in-between the existing spans, and 6 lanes along U.S. 50/301 on the Eastern Shore;

- **Alternative D - 8-8-8 North**: 8 lanes along U.S. 50/301 on the Western Shore, 8 lanes across the Chesapeake Bay on a new bridge with one span to the north of the existing spans and one span in-between the existing spans, and 8 lanes along U.S. 50/301 on the Eastern Shore;

- **Alternative E - 8-8-8 South**: 8 lanes along U.S. 50/301 on the Western Shore, 8 lanes across the Chesapeake Bay on a new bridge with one span to the south of the existing spans and one span in-between the existing spans, and 8 lanes along U.S. 50/301 on the Eastern Shore;

- **Alternative F - 8-10-8 North**: 8 lanes along U.S. 50/301 on the Western Shore, 10 lanes across the Chesapeake Bay on a new bridge with one span to the north of the existing spans and one span in-between the existing spans, and 8 lanes along U.S. 50/301 on the Eastern Shore; and

- **Alternative G - 8-10-8 South**: 8 lanes along U.S. 50/301 on the Western Shore, 10 lanes across the Chesapeake Bay on a new bridge with one span to the south of the existing spans and one span in-between the existing spans, and 8 lanes along U.S. 50/301 on the Eastern Shore.

Each of the ARDS will also include an optional pedestrian / bicycle shared use path, tolling, transit-related improvements, Transportation Systems Management (TSM)/Transportation Demand Management (TDM), stormwater management, utilities, and truck weigh and inspection stations. These common items, in addition to the improvements associated with each build alternative, informed the development of the limit of disturbance (LOD) for each build alternative. Additional detail on the ARDS can be found in the Tier 2 Study Draft EIS.

3.1 Alternative A: No-Build

Alternative A (6-5-6), the No-Build Alternative, would retain the existing Bay Bridge, the U.S. 50/301 alignment, and the existing number of lanes. This alternative would retain six lanes on the approaches on the Eastern and Western Shores and five lanes on the two-span Bay Bridge. The No-Build Alternative will include regular maintenance of the Bay Bridge and U.S. 50/301, but no capital improvements other than currently planned and programmed projects.

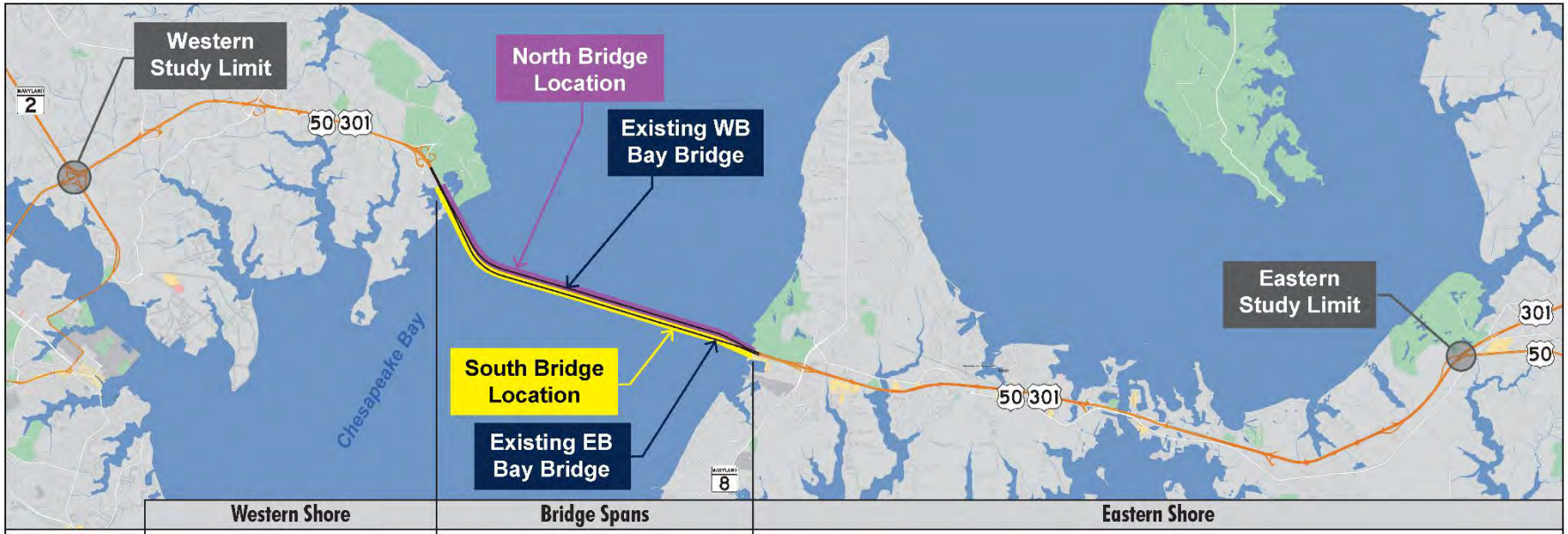
3.2 Alternative B: 6-8-6 North

Alternative B (6-8-6 North) would replace the existing Bay Bridge spans with two new bridge spans and would consist of six lanes along U.S. 50/301 on the Western Shore (three per direction), eight lanes on a new bridge (four per direction), and six lanes along U.S. 50/301 on the Eastern Shore (three per direction). The two new bridge spans would consist of one span to the north and one span in between the location of the existing bridge spans. The approach roadways would remain on the existing roadway alignment, except where necessary to connect to the new bridge spans. Thus, with Alternative B, the five existing bridge lanes would be increased to eight bridge lanes; however, the number of lanes on the Western Shore and Eastern Shore would not change and would remain at six total travel lanes beyond the immediate tie-ins to the new bridge spans.

3.3 Alternative C: 6-8-6 South

Alternative C (6-8-6 South) would replace the existing Bay Bridge spans with two new bridge spans and would consist of six lanes along U.S. 50/301 on the Western Shore (three per direction), eight lanes on a new bridge (four per direction), and six lanes along U.S. 50/301 on the Eastern Shore (three per direction). The two new bridge spans would include one span to the south and one span in between the location of the existing bridge spans. The approach roadways would remain on the existing roadway alignment, except where necessary to connect to the new bridge spans. Thus, with Alternative C, the five existing bridge lanes would be increased to eight bridge lanes; however, the number of lanes on the Western Shore and Eastern Shore would not change and would remain at six total travel lanes beyond the immediate tie-ins to the new bridge spans.

Figure 3-1: Alternatives Summary



	Western Shore	Bridge Spans	Eastern Shore
Alternative A: No-Build	6 Lanes	5 Lanes	6 Lanes
Alternative B	6 Lanes	8 Lanes NORTH	6 Lanes
Alternative C	6 Lanes	8 Lanes SOUTH	6 Lanes
Alternative D	8 Lanes	8 Lanes NORTH	8 Lanes
Alternative E	8 Lanes	8 Lanes SOUTH	8 Lanes
Alternative F	8 Lanes	10 Lanes NORTH	8 Lanes
Alternative G	8 Lanes	10 Lanes SOUTH	8 Lanes

3.4 Alternative D: 8-8-8 North

Alternative D (8-8-8 North) would replace the existing Bay Bridge spans with two new bridge spans and would consist of eight lanes along U.S. 50/301 on the Western Shore (four per direction), eight lanes on a new bridge (four per direction), and eight lanes along U.S. 50/301 on the Eastern Shore (four per direction). The two new bridge spans would include one span to the north and one span in between the location of the existing bridge spans. Alternative D would increase the number of lanes along the U.S. 50/301 approaches to eight lanes from the MD 2/MD 450 interchange on the Western Shore to the U.S. 50/301 split on the Eastern Shore and would generally remain on the existing roadway alignment except where necessary to connect to the new bridge spans. Thus, with Alternative D, the five existing bridge lanes would be increased to eight bridge lanes and the number of lanes on the Western Shore and Eastern Shore would increase from six total travel lanes to eight total travel lanes.

3.5 Alternative E: 8-8-8 South

Alternative E (8-8-8 South) would replace the existing Bay Bridge spans with two new bridge spans and would consist of eight lanes along U.S. 50/301 on the Western Shore (four per direction), eight lanes on a new bridge (four per direction), and eight lanes along U.S. 50/301 on the Eastern Shore (four per direction). The two new bridge spans would include one span to the south and one span in between the location of the existing bridge spans. Alternative E would increase the number of lanes along the U.S. 50/301 roadway approaches to eight lanes from the MD 2/MD 450 interchange on the Western Shore to the U.S. 50/301 split on the Eastern Shore and would generally remain on the existing roadway alignment except where necessary to connect to the new bridge spans. Thus, with Alternative E, the five existing bridge lanes would be increased to eight bridge lanes and the number of lanes on the Western Shore and Eastern Shore would increase from six total travel lanes to eight total travel lanes.

3.6 Alternative F: 8-10-8 North

Alternative F (8-10-8 North) would replace the existing Bay Bridge spans with two new bridge spans and would consist of eight lanes along U.S. 50/301 on the Western Shore (four per direction), ten lanes on a new bridge (five per direction), and eight lanes along U.S. 50/301 on the Eastern Shore (four per direction). The two new bridge spans would include one span to the north and one span in between the location of the existing bridge spans. Alternative F would increase the number of lanes along the U.S. 50/301 approach roadway to eight lanes from the MD 2/MD 450 interchange on the Western Shore to the U.S. 50/301 split on the Eastern Shore and would generally remain on the existing roadway alignment except where necessary to connect to the new bridge spans. Thus, with Alternative F, the five existing bridge lanes would be increased to ten bridge lanes and the number of lanes on the Western Shore and Eastern Shore would increase from six total travel lanes to eight total travel lanes.

3.7 Alternative G: 8-10-8 South

Alternative G (8-10-8 South) would replace the existing Bay Bridge spans with two new bridge spans and would consist of eight lanes along U.S. 50/301 on the Western Shore (four per direction), ten lanes on a new bridge (five per direction), and eight lanes along U.S. 50/301 on the Eastern Shore (four per direction). The two new bridge spans would include one span to the south and one span in between the location of the existing bridge spans. Alternative G would increase the number of lanes along the U.S. 50/301 approach roadway to eight lanes from the

MD 2/MD 450 interchange on the Western Shore to the U.S. 50/301 split on the Eastern Shore and would generally remain on the existing roadway alignment except where necessary to connect to the new bridge spans. Thus, with Alternative G, the five existing bridge lanes would be increased to ten bridge lanes and the number of lanes on the Western Shore and Eastern Shore would increase from six total travel lanes to eight total travel lanes.

3.8 Other Components of the Build Alternatives

3.8.1 Optional Pedestrian / Bicycle Shared Use Path

All proposed build alternatives include the option for the safe inclusion of a pedestrian/bicycle shared use path (SUP) along a new bridge. The MDTA has identified connections to existing and proposed trails and recreational facilities on the Eastern Shore and Western Shore.

3.8.2 Tolling

The MDTA owns and operates the Bay Bridge and uses tolls from its eight facilities to maintain and operate all their facilities. The Bay Bridge will continue to be a tolled facility and the MDTA will continue to manage it and the toll to address the current and future traffic and the associated congestion.

3.8.3 Transit-related Improvements

Transit-related improvements would be made through a financial commitment from the MDTA that would focus on providing a one-time investment for local transit agencies near the Bay Bridge. The same commitment would be made for all alternatives and would not be used to differentiate between alternatives.

All transit-related opportunities would be determined in the future, closer to the time of construction. The MDTA would coordinate with the Maryland Transit Administration (MTA), local governments, and local transit agencies to help determine the opportunities. However, these agencies would determine the transit-related improvements that would be most beneficial for them at that time, and they would be separate and distinct projects from the Bay Crossing.

3.8.4 TSM TDM Considerations

Two TSM/TDM improvements were considered with the retained build alternatives for potential implementation: congestion pricing and part-time shoulder use (PTSU) lanes.

The Bay Bridge will continue to be a tolled facility. If a build alternative is selected, congestion pricing could be used in the future to provide flexibility for toll management strategies that the MDTA could use to further reduce congestion and achieve transportation goals.

The shoulders on the bridge would be full width (12 feet wide) to accommodate future maintenance needs and incident management; therefore, they would also be wide enough to accommodate a PTSU lane. Although the build alternatives have been developed to accommodate PTSU, the operation of PTSU lanes is not being included as part of the alternatives. Future implementation of PTSU is not precluded.

3.8.5 Stormwater Management (SWM)

A planning-level, conceptual SWM analysis was completed that identified the stormwater needs and potential treatment locations throughout the study area for each build alternative.

3.8.6 Utilities

The study area along U.S. 50/301 contains public utilities including: potable water, sanitary sewer, natural gas, electric power/distribution, communications, and cable television. The build alternatives would impact some of these utilities that are in close proximity to U.S. 50/301, and the impacts to these utilities and associated replacements have been included in the build alternatives.

3.8.7 Truck Weigh and Inspection Station

There are two existing Truck Weigh and Inspection Stations (TWIS) along U.S. 50/301 between Oceanic Drive and the Bay Bridge, one in each direction. As part of the build alternatives, these facilities would be upgraded and relocated where necessary.

3.8.8 Limits of Disturbance (LOD)

The LOD is the proposed boundary that would include all construction, erosion and sediment control, SWM, and right-of-way offsets. The LODs for the alternatives were developed from the proposed horizontal and vertical geometry, typical sections, roadside design, and proposed interchange modifications. For Alternatives B and C, the number of lanes on the Western Shore and Eastern Shore would not change and would remain at six total travel lanes beyond the immediate tie-ins to the new bridge spans. This would mean the limits of roadway improvements associated with Alternatives B and C would end at the immediate tie-ins to the new bridge spans, compared with the limits of roadway improvements for Alternatives D through G, which would end at the study limits (MD 2/MD 450 and the U.S. 50/301 Split). Due to the shorter distance of proposed roadway modifications associated with Alternatives B and C, the LODs associated with these two build alternatives are smaller than the LODs associated with the other build alternatives.

4 REGULATORY CONTEXT

This Socioeconomic & Land Use Analysis evaluated impacts to the human environment (social and economic) based on the following federal/state statutes and regulations, as well as guidance and policy statements.

Federal and State Statutes:

- **Title VI of the Civil Rights Act of 1964, 42 United States Code (U.S.C.) §2000(d)** – "no person in the U.S. shall, on the ground of race, color, national origin, sex, age or disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."
- **NEPA of 1969, 42 U.S.C. §4321 et seq.** – establishes the national framework policy to assure all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.
- **Federal-Aid Highway Act of 1970, 23 U.S.C. §109(h)** – assures that possible adverse economic, social, and environmental effects relating to any proposed project on any federal-aid system have been fully considered in developing such project, and that the final decisions on the project are made in the best overall public interest, taking into consideration the need for fast, safe, and efficient transportation, public services, the costs of eliminating or minimizing such adverse effects, and the following:

  (1) air, noise, and water pollution;
  (2) destruction or disruption of man-made and natural resources, aesthetic values, community cohesion, and the availability of public facilities and services;
  (3) adverse employment effects and tax and property value losses;
  (4) injurious displacement of people, businesses, and farms; and
  (5) disruption of desirable community and regional growth.

- **Federal Uniform Relocation and Real Estate Acquisition Policies Act of 1970, as amended by 42 U.S.C. §4601-4655 (Uniform Act)** – enacted to ensure property owners and tenants are treated fairly and equitably and receive relocation assistance payments and advisory services when eligible individuals are displaced from their homes, businesses, farms, or non-profit organizations, or private property acquisition is required as a result of federally funded programs or projects designed to benefit the public. All Maryland Department of Transportation (MDOT) projects utilizing federal funds must comply with the provisions of this Act. The State Highway Administration's (SHA) Office of Real Estate administers the Relocation Assistance Program for the MDOT. A summary of the Relocation Assistance Program of SHA (revised February 10, 2016) is provided in **Appendix B.**
- **Age Discrimination Act of 1975, 42 U.S.C. §6101-6170** – "no person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity receiving Federal financial assistance."
- **Farmland Protection Policy Act of 1981 (7 U.S.C. §4201 and 7 Code of Federal Regulations [CFR] Ch. VI Part 658) (FPPA)** – intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are

administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Farmland includes "prime or unique farmlands as defined in Section 1540(c)(1) of the Act or farmland that is determined by the appropriate state or unit of local government agency or agencies with concurrence of the Secretary to be farmland of statewide or local importance. Farmland does not include land already in or committed to urban development or water storage."

- **Americans with Disabilities Act of 1990 (ADA), as amended by the ADA Amendments Act of 2008, 42 U.S.C. §12101-12213** – "subject to the provisions of this subchapter, no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of services, programs, or activities of a public entity, or be subjected to discrimination by any such entity."

- **Integration of Planning and Environmental Review, 23 U.S.C. § 168 –** provides a framework for integrating transportation planning processes and products into the environmental review process, particularly under the National Environmental Policy Act (NEPA), in order to streamline project development.
- **Economic Growth, Resource Protection and Planning Act of 1992** – establishes Maryland's Sustainable Growth Policy, which through subsequent legislation has evolved to the 8 Planning Principles codified in Subtitle 5-7A-01 of the State Finance and Procurement Article for advancing Sustainable Growth in the state. The 8 Planning Principles are collectively intended to create equitable and sustainable communities and to protect the environment in order to foster a high quality of life for all residents of the State. Among them, the transportation principle "prioritizes transportation networks that create energy efficient, affordable, and reliable access to jobs, housing, and services." The Planning Act requires local jurisdictions to address the 8 Planning Principles in their comprehensive plans. The Planning Act also requires state-funded major transportation or other capital improvement projects to be consistent with the 8 Planning Principles.
- **Maryland Smart Growth Priority Funding Areas (PFA) Act of 1997** – directs State funding for growth-related infrastructure to PFAs, providing a geographic focus for State investment in growth.
- **Maryland Smart and Sustainable Growth Act of 2009** – clarifies the link between local and comprehensive plans and local land use ordinances. The act defines "consistency" as when an action is required to be consistent with or have consistency with a local plan, and states that local jurisdictions must implement and follow the comprehensive plans they adopt.
- **Maryland Sustainable Growth and Agricultural Preservation Act of 2012** – also known as the "septics" law, limits the spread of septic systems on large-lot residential development outside PFAs in Maryland to reduce the last unchecked major source of nitrogen pollution into the Chesapeake Bay and other waterways.

Regulations:

- **49 CFR §21 – Nondiscrimination in Federally-Assisted Programs of the Department of Transportation** – Effectuates United States Department of Transportation's (U.S.DOT) Title VI program.
- **23 CFR §200 – FHWA's Title VI Program and Related Statutes** – Provides the implementation and review procedures for the FHWA's Title VI Program and related statutes.

- **23 CFR §771** – Provides joint NEPA regulations for the Federal Transit Administration (FTA), FHWA, and the Federal Railroad Administration.

Guidance Documents and Policy Statements:

- **FHWA Technical Advisory T6640.8A** – Guidance for Preparing and Processing Environmental and Section 4(f) Documents (1987).
- **U.S.DOT FTA, Circular C 4702.1B** – Title VI Requirements and Guidelines for FTA Recipients (2012).
- **FHWA Community Impact Assessment: A Quick Reference for Transportation** – Guidance for conducting community impact assessment for transportation projects (2018).
- **U.S.DOT Title VI Order 1000.12C** – U.S.DOT's Title VI Program provides policy direction, practices, and standards for establishing and maintaining an enforcement program that ensures Title VI compliance (2021).
- **U.S. DOT Order 2100.7 - Ensuring Reliance Upon Sound Economic Analysis in Department of Transportation Policies, Programs, and Activities** – updates and resets the principles and standards underpinning U.S. Department of Transportation (Department or DOT) policies, programs, and activities to mandate reliance on rigorous economic analysis and positive cost-benefit calculations and ensure that all DOT grants, loans, contracts, and DOT-supported or -assisted State contracts bolster the American economy and benefit the American people.
- **SHA Maryland Action Plan** – Public involvement and public hearing procedures for highway project development (2011).
- Local jurisdiction, comprehensive plans, master plans, sector plans, six-year capital improvement programs, zoning ordinances, and relevant county planning publications (see *References* cited at the end of this document).

5 METHODOLOGY

The socioeconomic resources and land use analysis is based on resource identification within an analysis area as detailed in **Section 5.1**. Resources are primarily identified using desktop-level assessment of U.S. Census data, Maryland iMap Geographic Information Systems (GIS) data, field reconnaissance, and other readily available data sources, such as County Master Plans and Google Maps. A detailed discussion of existing socioeconomic resources and land use, as well as potential impacts (benefits and burdens) of the ARDS, including the No-Build Alternative (**Section 3**), is presented in **Section 6**. Resource identification also incorporated information obtained through the public engagement process, as presented in **Section 8** and **Appendix F.**

Impacts could include potential changes to land use, population, housing, labor force, employment, community cohesion, community facilities, business centers, recreational activities, viewsheds and aesthetics (**Appendix E**), travel patterns (roadway and maritime), access, and parking. An economic analysis to discuss regional economic impacts is also included in this technical report.

This analysis contributes to and supports separate analyses concerning recreational facilities and historic resources (Section 4(f) resources), as well as traffic and transportation. For in-depth and focused analyses on these topics, refer to the following Tier 2 Study documents:

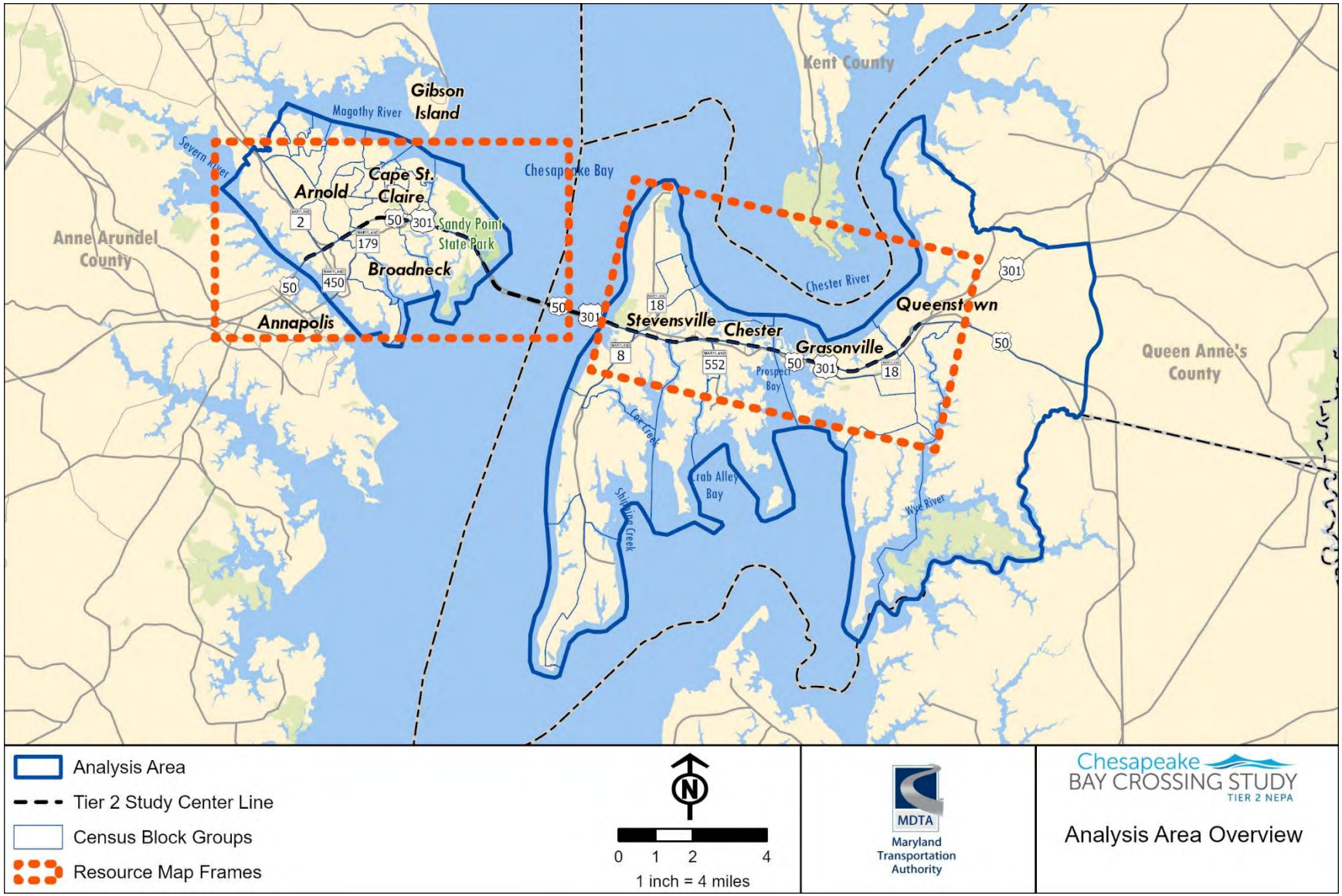
- *Draft Section 4(f) Evaluation*
- *Traffic and Transportation Technical Report*
- *Noise Technical Report*
- *Natural Environment Technical Report*

5.1 Socioeconomics and Land Use Analysis Area

The analysis area for identifying resources with foreseeable direct impacts related to the ARDS is based on the Bay Crossing Study Tier 2 Study limits, which extend along U.S. 50/301 from east of the Severn River at the MD 2/MD 450 interchange in Anne Arundel County, eastward across the Chesapeake Bay and Kent Island in Queen Anne's County, ending at the U.S. 50/301 split near Queenstown. The Severn River is the western boundary of the analysis area because it forms the natural geographic boundary of the Broadneck Peninsula. The socioeconomic and land use analysis includes the review of U.S. Census Tract Block Groups (block groups) (2022) that are within or intersecting a one-quarter-mile buffer of U.S. 50/301 within the study limits. Given the rural composition of Queen Anne's County, block groups are larger in size than those in the Anne Arundel County portion of the analysis area. Further, due to the unique geography of the area, there are communities on peninsulas that must travel along U.S. 50/301 within the study limits to access workplaces, goods, and services. For these reasons, the socioeconomic and land use analysis also provides a demographic overview of the population characteristics of block groups dependent on U.S. 50/301 within the study limits for transportation, including those geographically isolated on peninsulas. The collective block groups represent the socioeconomic and land use analysis area (**Figure 5-1**).

The impacts analysis of this document is focused on the direct impacts that may result along U.S. 50/301 within the study limits. To better illustrate existing conditions along U.S. 50/301 within the study limits, scaled resource mapping is provided throughout this analysis. **Figure 5-1** displays the full extent of the analysis area as well as the resource map frames.

Figure 5-1: Analysis Area Overview



To enhance the communication of potential benefits and environmental consequences to a localized audience, the 42 block groups located within the analysis area were overlayed with the municipality, census designated place (CDP), or community planning area in which they are primarily located to define the individual communities that may be affected by the ARDS (see **Section 7**). Block groups are assembled into communities identified through review of relevant local county plans, local service districts, Maryland Department of Planning (MDP), and county GIS, as well as local knowledge and field reconnaissance.

Section 7 includes a brief community profile outlining the unique characteristics of the community, including economic and socioeconomic; present conditions, masterplans, and future developments; and travel patterns; as well as potential impacts (benefits and burdens). These communities represent the smallest scale (i.e., narrowest focus) of aggregated data for the purpose of demographic and community analysis.

5.2 Data Collection

A variety of data sources and documents were used to provide information for the analyses, including:

- GIS data from Anne Arundel and Queen Anne's counties;
- Comprehensive plans, master plans, sector plans, transportation plans, zoning ordinances, and relevant planning publications from Anne Arundel and Queen Anne's counties;
- Approved Development Projects from Anne Arundel and Queen Anne's counties;
- Maryland Department of Commerce;
- U.S. Census Bureau (2020);
- U.S. Census American Community Survey (ACS) Five-Year Estimates (2018-2022); and
- Field reconnaissance.

5.3 Environmental Consequences

In accordance with 23 U.S.C. 109(h), this document assesses the impact of the ARDS on the following socioeconomic resources: land use and planning; population and demographics; ROW and property; housing; community facilities; and economic, employment, and commuting patterns. Initial mitigation measures and strategies are outlined along with the impacts. Mitigation measures and strategies will continue to be refined where necessary in the DEIS and subsequent environmental documentation.

The environmental impacts of the ARDS, as described in **Section 3**, are presented immediately following the description of the affected environment for each of the resource types in **Section 6**. The environmental impacts were assessed based on the limit of disturbance (LOD) and proposed right-of-way limits of the ARDS. The discussion of consequences focuses on the general impacts of the alternatives with specific impact differences depicted in an impact summary table. Environmental impacts are further summarized for the communities along U.S. 50/301 within the study limits in **Section 7**.

6 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The study limits within Anne Arundel County stretch across several CDPs and unincorporated areas. Beginning from the western study limit at the MD 2/MD 450 interchange, U.S. 50/301 extends through the communities of Broadneck, Arnold, and Cape St. Claire. East of the Bay Bridge in Queen Anne's County, the U.S. 50/301 study limits extend through several CDPs, including Stevensville, Chester, Kent Narrows, and Grasonville, ending at the U.S. 50/301 split in Queenstown.

6.1 Land Use and Planning

6.1.1 Affected Environment

6.1.1.1 Land Use

Maryland Department of Planning (MDP) released 2018 Statewide land use data in December 2024. This data was used to provide consistency across jurisdictions for the analysis of general land use. Land use types, as defined by MDP, are presented in **Table 6-1**. Supporting mapping depicting land use is provided in **Figure 6-1** and **Figure 6-2**.

Along U.S. 50/301 within the Anne Arundel County portion of the study limits, Other Land (i.e., land not covered under another category [unbuilt lots, rural land, etc.]; see **Table 6-1**) and Commercial land uses are widely spread, with Commercial land use being clustered near interchanges. Low-Density Residential land use is spread along U.S. 50/301, especially within the western portion of the Anne Arundel County study limits, while Medium-Density Residential and High-Density Residential land use occur in small areas north of U.S. 50/301 (**Figure 6-1**). Small areas of Institutional land use associated with educational facilities are dispersed along U.S. 50/301, including near the MD 2 interchange.

As depicted in **Figure 6-2**, land use along U.S. 50/301 within the Queen Anne's County study limits is mainly classified as Commercial and Other Land. Institutional, Industrial, and Open Urban Land use classifications are also located along U.S. 50/301. The western portion of the Queen Anne's County study limits has a higher concentration of Medium-Density Residential land use, with some High-Density Residential land use. East of Kent Narrows, Low-Density Residential land use is more prevalent along U.S. 50/301.

Table 6-1: Land Use Classification Definitions

Land Use Classification	Description
Very Low-Density Residential	Clustered residential parcels that have lot sizes less than 20 acres but at least five acres (0.2 to 0.05 dwelling units/acre).
Low-Density Residential	Detached single-family/duplex dwelling units, yards, and associated areas. Includes generalized areas with lot sizes of less than five acres but at least one-half acre (0.2 to 2 dwelling units/acre).
Medium-Density Residential	Detached single-family/duplex, attached single-unit row housing, yards, and associated areas. Includes generalized areas with lot sizes of less than one-half acre but at least one-eighth acre (2 to 8 dwelling units/acre).
High-Density Residential	Attached single-unit row housing, garden apartments, high-rise apartments/condominiums, mobile home and trailer parks, yards, and associated areas. Includes generalized areas with more than eight dwelling units per acre. This may include subsidized housing.
Commercial	Retail and wholesale services. Areas used primarily for the sale of products and services, including associated yards and parking areas. This category may include airports, welcome houses, telecommunication towers, and boat marinas.
Industrial	Manufacturing and industrial parks, including associated warehouses, storage yards, research laboratories, and parking areas. Warehouses that are returned by a commercial query should be categorized as industrial. This also includes power plants.
Institutional	Elementary and secondary schools, middle schools, junior and senior high schools, public and private colleges and universities, military installations (built-up areas only, including buildings and storage, training, and similar areas), churches, medical and health facilities, correctional facilities, government offices and facilities that are clearly separable from any surrounding natural or agricultural land cover, and other non-profit uses.
Extractive	Surface mining operations, including sand and gravel pits, quarries, coal surface mines, and deep coal mines. Status of activity (active vs. abandoned) is not distinguished.
Open Urban Land	Includes parks, open spaces, recreational areas not classified as institutional, golf courses, and cemeteries. Includes only built-up and turf-dominated areas that are clearly separable from any surrounding natural or agricultural land cover.
Water	Water
Transportation	Transportation features include impervious roads, roadway rights-of-way, and parcels primarily containing light rail or metro stations and park-and-ride lots.
Other Land	Remaining land not covered under another category. Examples include unbuilt lots, rural land, single-family residential parcels greater than or equal to 20 acres in size, and undeveloped portions of large parcels containing urban uses. May include undeveloped land that is either developable or constrained from further development.

Source: MDP 2018 Statewide Land Use Classification definitions (2024 Edition).

Figure 6-1: Land Use in Anne Arundel County

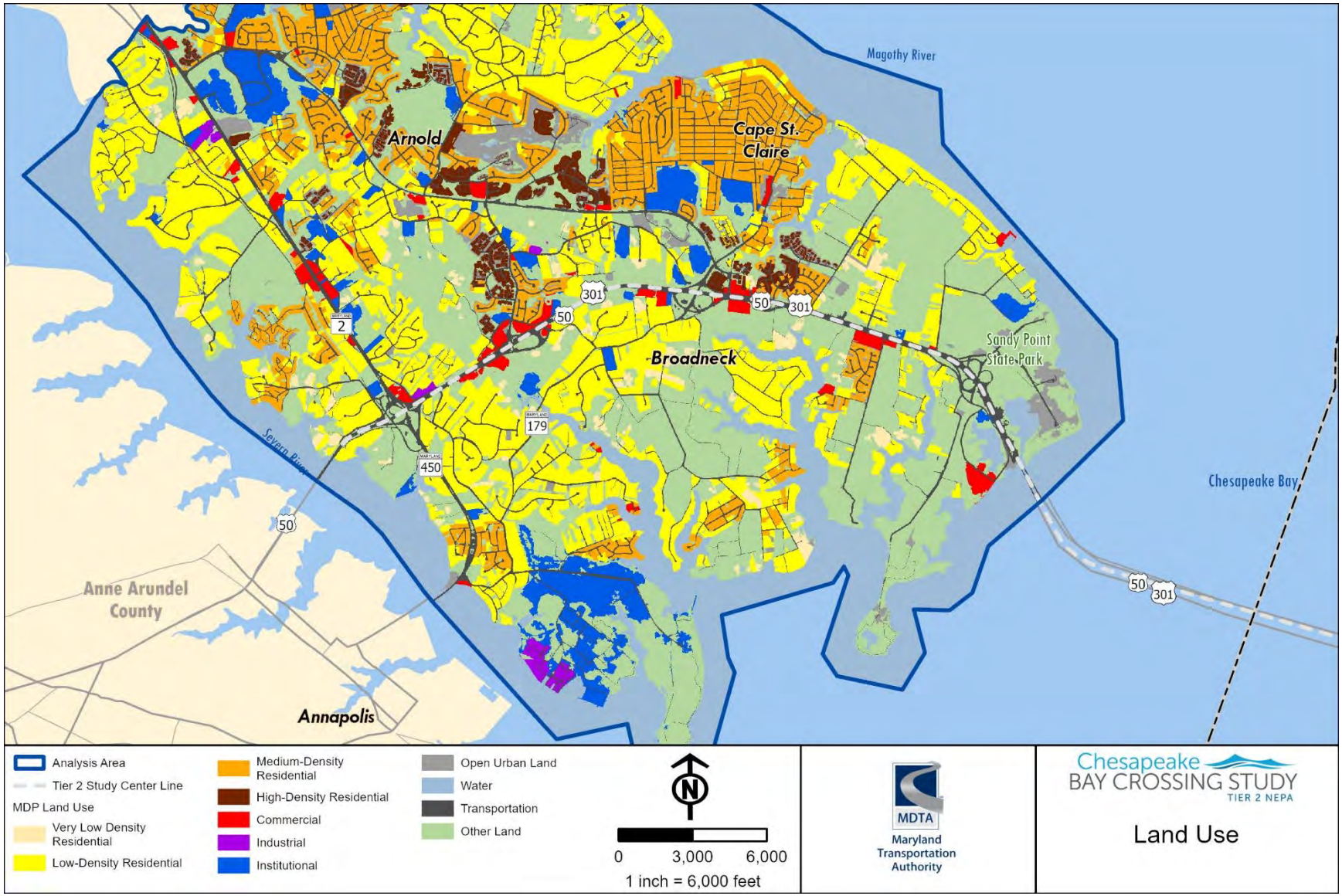
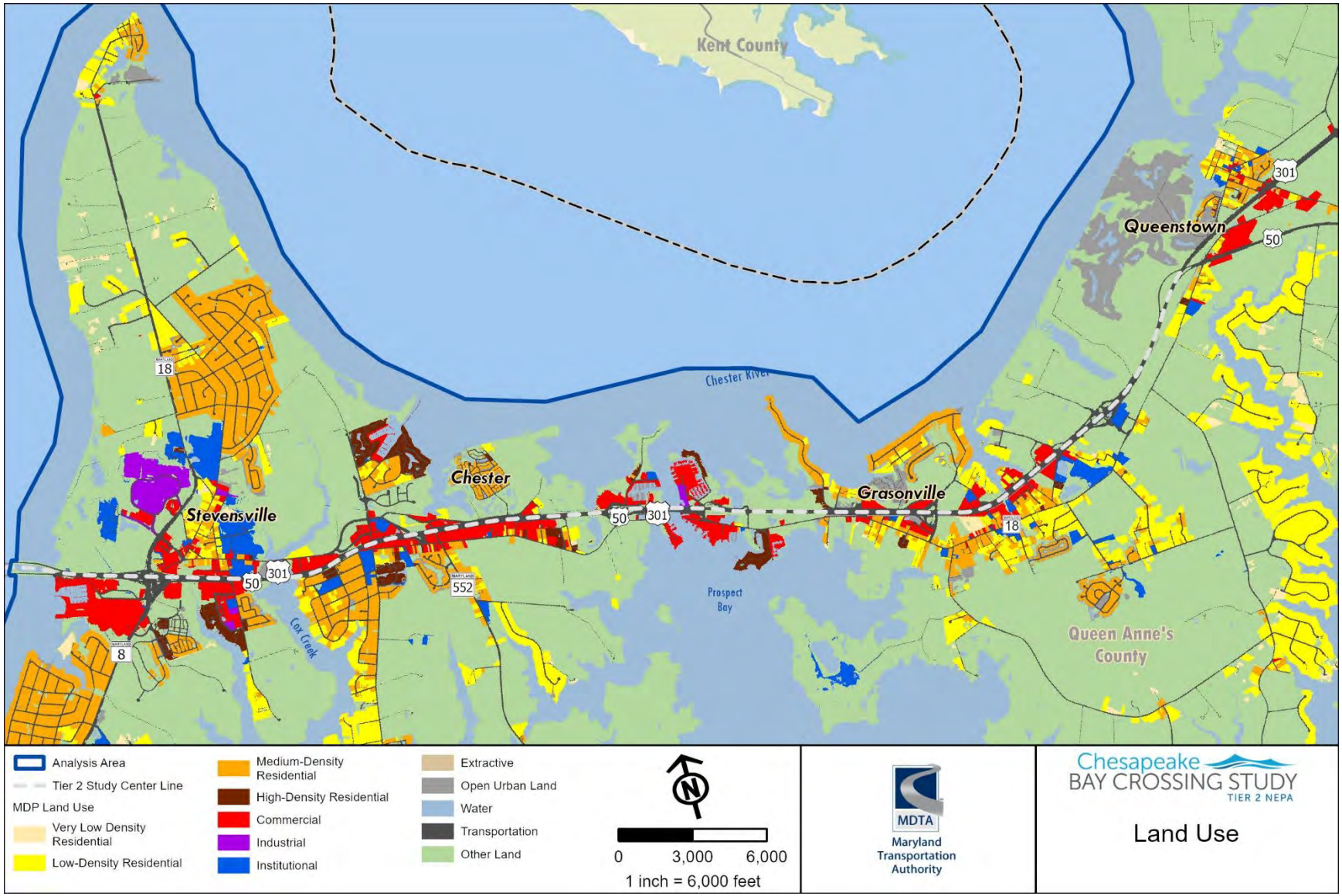


Figure 6-2: Land Use in Queen Anne's County



Protected Lands, PFAs, and Sustainable Growth

The following addresses protected lands, PFAs, and smart and sustainable growth. These State initiatives are included in the SELU analysis from a resource standpoint as part of the broader environmental review required under NEPA. These State programs are an important factor in the human environment and affect land use along U.S. 50/301 within the study limits.

Protected lands include environmental trusts, conservation easements, forest conservation, and transfer development rights, as well as local protected lands. Statewide Maryland conservation programs include:

- The Maryland Agricultural Land Preservation Foundation (MALPF);
- The Maryland Environmental Trust;
- The Maryland Forest Conservation Act;
- Maryland Department of Natural Resources (DNR) -owned lands and conservation easements;
- The Coastal and Estuarine Land Conservation Program (CELCP); and
- Transfer Development Rights Program.

Prime or unique farmland, farmlands of statewide importance, and the Farmland Protection Policy Act (FPPA) of 1981 are addressed in the *Natural Environment Technical Report*. No lands protected in the Maryland Rural Legacy Areas Program are located within the analysis area. Protected lands within the analysis area and active farmlands along U.S. 50/301 within the study limits are displayed in **Figure 6-3** and **Figure 6-4.**

Along U.S. 50/301 within the Anne Arundel County study limits, protected lands are mostly associated with parks detailed in **Section 6.5**. Protected lands also include some small areas of Forest Conservation Act preserved lands. Bay Head Park is identified as a Local Protected Land and is located along the north side of U.S. 50/301.

In Queen Anne's County, Local Protected Lands along U.S. 50/301 within the study limits are associated with parks detailed in **Section 6.5** as well as development-related open space reservations. Additionally, MD Environmental Trust Easement properties are located along the north side of U.S. 50/301 in the eastern portion of the study limits.

Active agricultural lands along U.S. 50/301 within the study limits primarily support row crops and hay/forage crops based on review of aerial imagery. Areas of active agriculture along U.S. 50/301 within the Anne Arundel County study limits were identified in Broadneck on the south side of U.S. 50/301 near Jenkins Lane and between Whitehall Road and Colbert Road. Areas of active agriculture along U.S. 50/301 within the Queen Anne's County study limits include one location north of U.S. 50/301 between Cox Creek and Cox Neck Road and two locations south of U.S. 50/301 between Dominion Road and Gardners Purchase Lane and near Scherr Lane. A fourth active agricultural land area is located east of the U.S. 50/301 split south of the Queenstown Premium Outlets business cluster; however, this area has been proposed for development, as noted in **Section 6.1.1.2**.

Figure 6-3: Protected Lands in Anne Arundel County

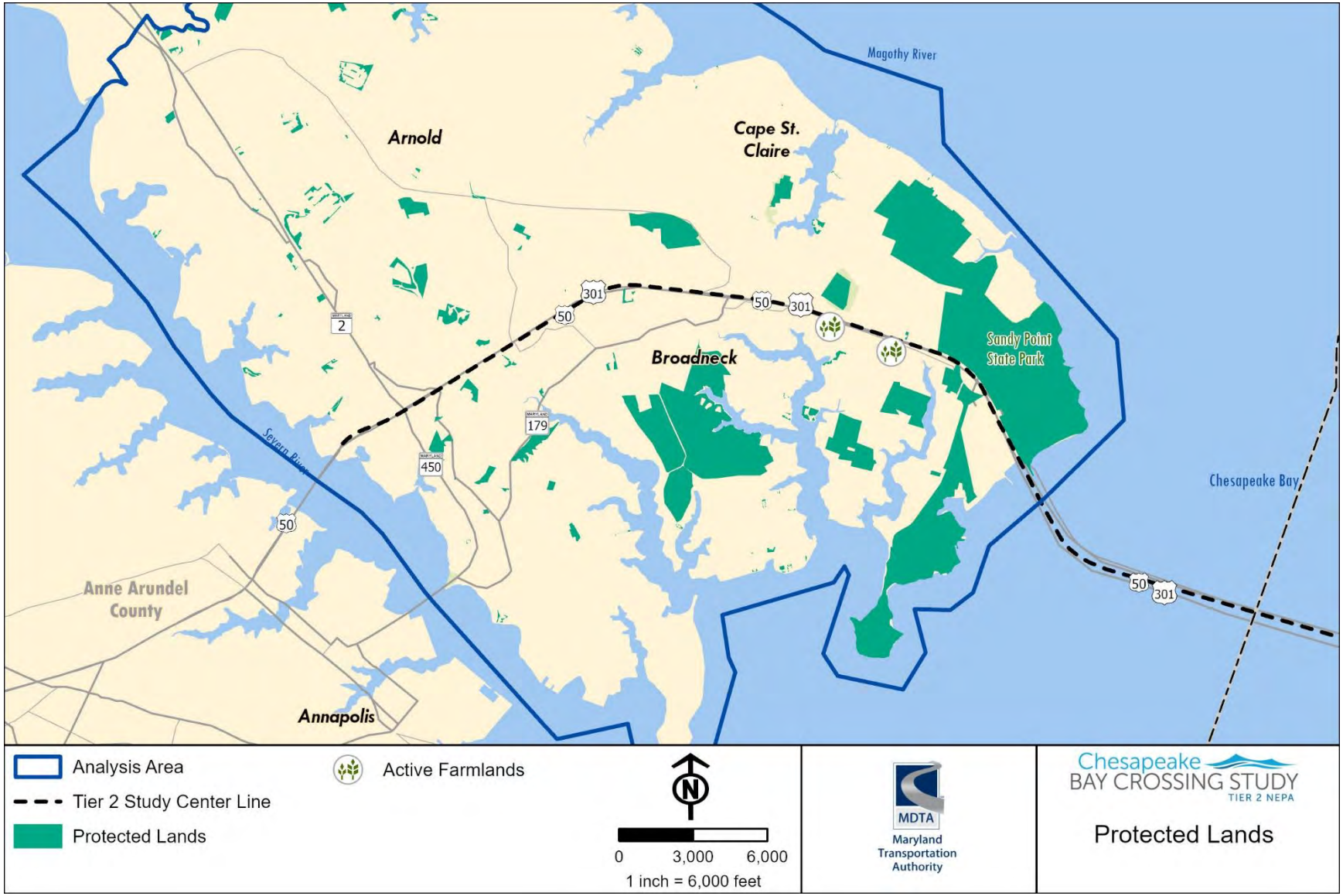
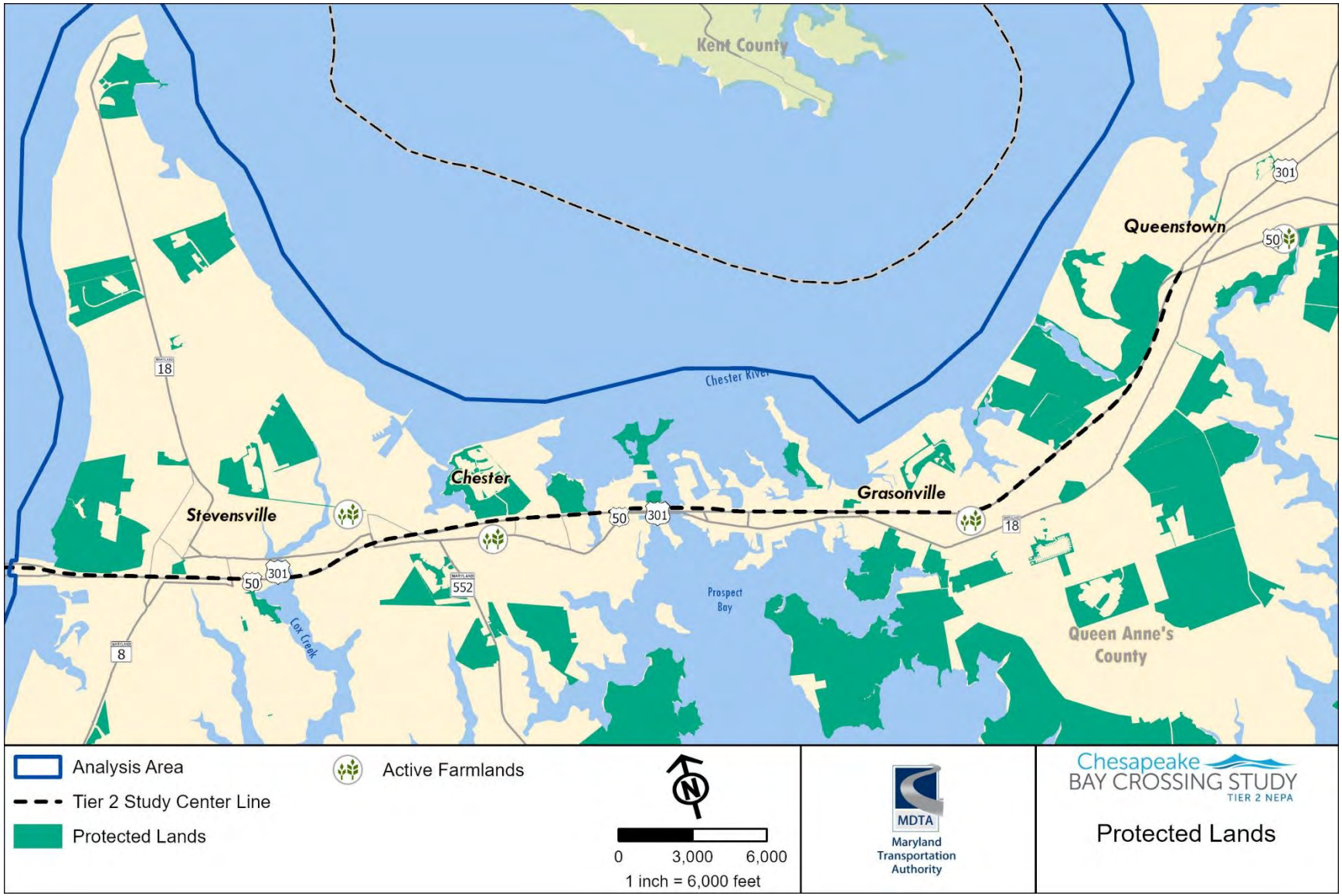


Figure 6-4: Protected Lands in Queen Anne's County



The Economic Growth, Resource Protection and Planning Act of 1992 established Maryland's Sustainable Growth Policy. This policy was furthered by Maryland's *Smart Growth Priority Funding Areas Act of 1997* (the PFA law), which directs Maryland state infrastructure funds to areas within, or connecting with, local jurisdiction-designated and State-certified PFAs. Maryland's *Smart and Sustainable Growth Act of 2009*[1] subsequently clarifies the link between local comprehensive plans and local land use ordinances. Growth-related projects include most State programs that encourage growth and development, such as highways, sewer and water construction, economic development assistance, and State leases or construction of new office facilities. The PFA law designated certain areas as PFAs and established criteria for locally designated PFAs. Through the PFA law, Maryland is committed to limiting sprawl development by directing funds where they can help to revitalize older neighborhoods and redirect growth to already developed areas, preserving the State's farmland, open spaces, and natural resources. The PFA law directs efficient use of land, water, and air; creates a sense of community and place; expands transportation, employment, and housing choices; distributes the costs and benefits of development in an equitable manner; and promotes the public health.[2] Section 5-7B-01 of the PFA law exempts from the definition of "growth-related project" any existing transportation facilities project, as that term is defined in § 4-101(h) of the Transportation Article, which includes the Bay Bridge.

As shown **Figure 6-5**, along U.S. 50/301 within the Anne Arundel County study limits, PFAs primarily encompass communities north of U.S. 50/301 near the interchanges with MD 2, Bay Dale Drive, and Cape St. Claire Road. Smaller PFA's extend south of U.S. 50/301 near Busch's Frontage Road and Whitehall Road.

PFAs encompass nearly the entire area along U.S. 50/301 within the Queen Anne's County study limits (**Figure 6-6**), excluding the portion immediately north of U.S. 50/301 in the vicinity of Terrapin Nature Park and the area east of Grasonville to the U.S. 50/301 split. Through Kent Narrows the PFA encompasses U.S. 50/301 right-of-way, not the adjacent land. Queen Anne's County's 2022 Comprehensive Plan (*PlanQAC 2022)* also identifies growth areas that overlap heavily with PFAs in an attempt to functionally build up existing communities using smart growth principles. The *PlanQAC 2022* growth area includes the area along U.S. 50/301 between Grasonville and the U.S. 50/301 split that is excluded by MDP's PFA.

[1] https://planning.maryland.gov/Documents/OurWork/sgg/SGG3.pdf
[2] https://msa.maryland.gov/msa/mdmanual/08conoff/coord/defunct/20sm.html

Figure 6-5: PFAs and Growth Areas in Anne Arundel County

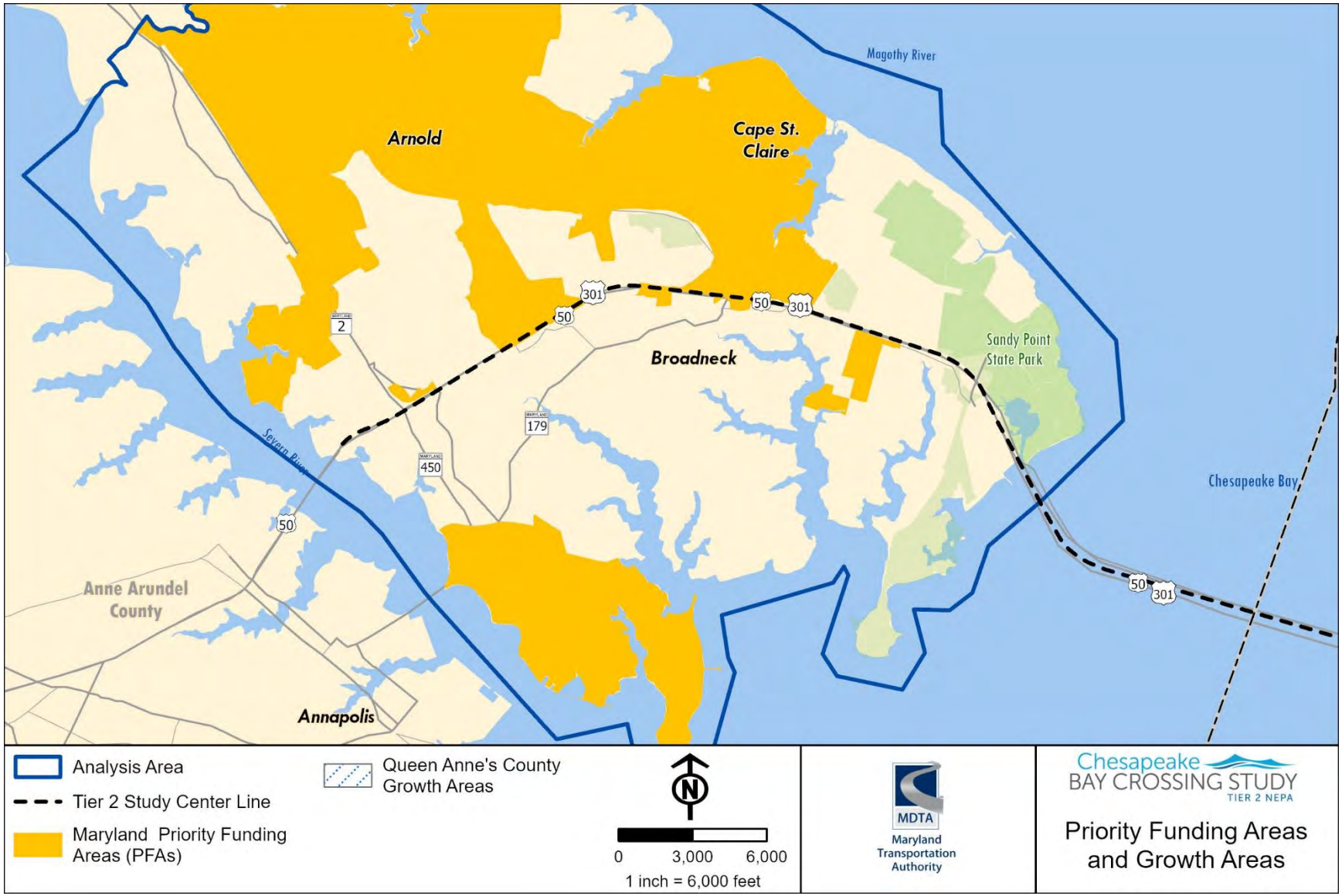
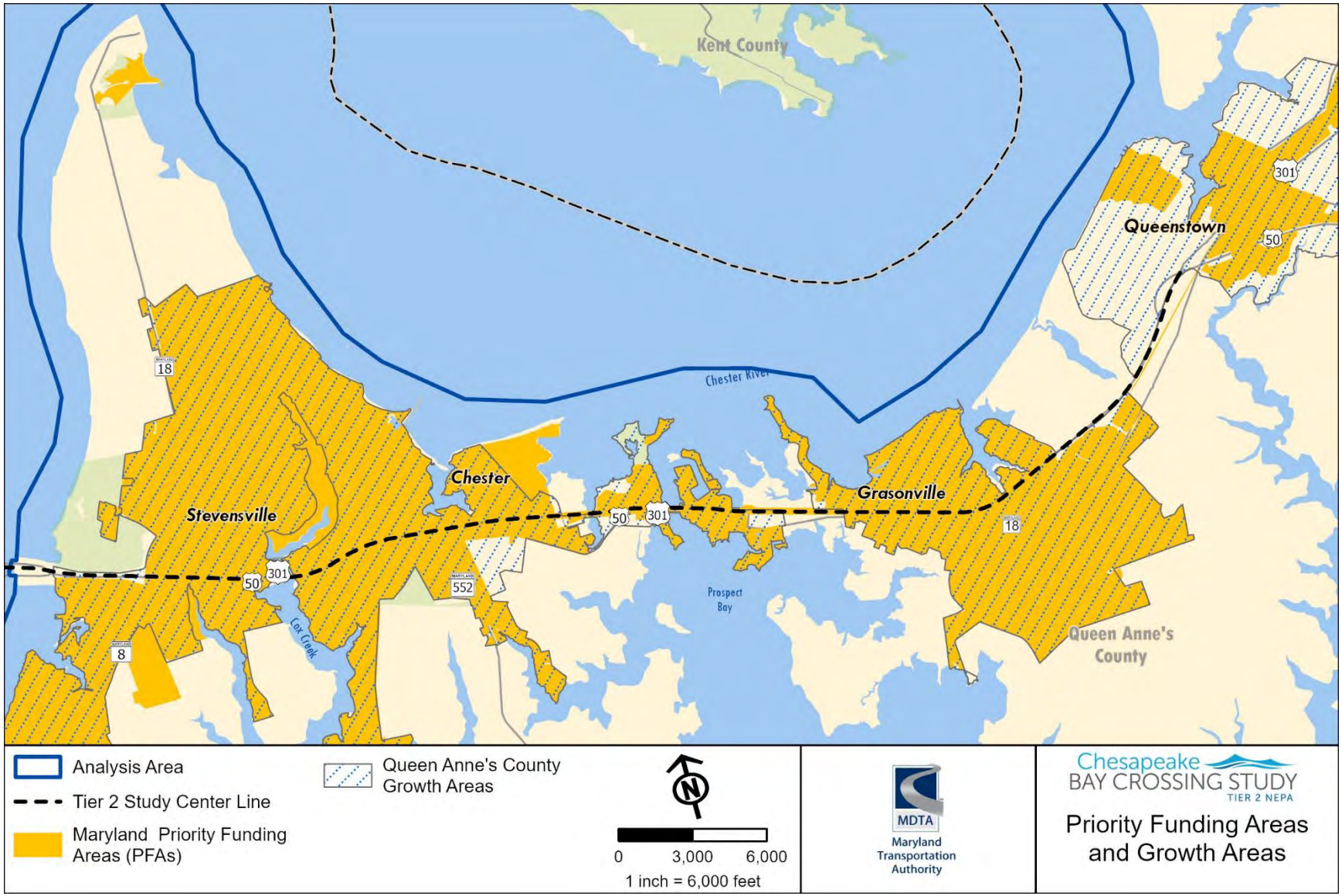


Figure 6-6: PFAs and Growth Areas in Queen Anne's County



6.1.1.2 Planning

Comprehensive, Master, and Sector Plans

Planning and development goals along U.S. 50/301 within the study limits are guided by a variety of comprehensive, master, and sector plans. Relevant local, county, regional, and State plans are listed in **Table 6-2**. These plans generally set goals to improve transportation system safety and enhance transportation efficiency by promoting the use of major highways and arterial networks to limit traffic impacts on local and neighborhood streets and improve multimodal connectivity.

Table 6-2: Relevant Roadway-Related Comprehensive, Master, and Sector Plan Recommendations

Planning Document	Roadway-Related Recommendation
Anne Arundel County Documents (including individual community/area level plans)	
Anne Arundel County Region 4 *[Comprised of the Pasadena, Severna Park, Arnold, Gibson Island, Cape St. Claire, and Broadneck communities.]* Plan (2024)	Coordinate with State and County agencies to ensure that Bay Bridge project alternatives include investments that minimize adverse impacts to surrounding communities and improve local mobility during and after construction.
	Provide traffic calming and intersection improvements on high collision roads throughout Region 4 and at Broadneck trail crossings. Existing Broadneck Trail crossings occur within the analysis area along College Parkway from Old Cape St. Claire Road to just east of Bay Dale Drive. Programmed Broadneck Trail crossings occur along East College Parkway from State Park Road to Old Cape St. Claire Road.
Walk & Roll Anne Arundel! (2023)	Additional multimodal connections through large parcels and across major barriers, such as U.S. 50/301 and MD 665.
	Proposed SUPs: • along Long Inn Road and MD 179 from Sandy Point State Park to the Broadneck Trail. • on South Beach Road, from East College Parkway to Sandy Point Playground. • on St. Margarets/Whitehall Road from MD 179, along U.S. 50/301, Skidmore Drive, Old Ferry Slip Road, then both segments of Oceanic Road to reach the shoreline. • along St. Margaret's Road/MD 179 from East College Parkway to MD 648.
Plan 2040: Anne Arundel County General Development Plan (2021)	Repeated the recommendations from Move Anne Arundel! County Master Transportation Plan cited below.
Small Area Plans (SAP) *Implementation Status Report*: Plan 2040 Background Report (2021)	Maintain and improve U.S. 50/301 service roads while preserving buffers and space for bike and pedestrian trails.
	Improve the appearance of U.S. 50/301 with landscaping, particularly at intersections, on medians, and at commercial establishments.
	State and county officials and citizen representatives should plan for increased through traffic and protection of local roads from being used as alternative routes.
Move Anne Arundel! County Transportation Master Plan (2019)	Widen College Parkway between MD 2 and U.S. 50/301 to address traffic congestion and incorporate the Broadneck Peninsula Trail.

Planning Document	Roadway-Related Recommendation
Corridor Growth Management Plan (2012)	Widen U.S. 50/301 from six (6) to eight (8) lanes between I-97 and the Bay Bridge, including the Severn River Bridge.
	Bicycles and pedestrians will remain prohibited along U.S. 50/301.
	The MDTA should initiate necessary environmental and engineering studies to determine location and design feasibility of an additional Bay crossing.
Broadneck SAP (2001)	Plan now for significant increase in U.S. 50/301 traffic and for growth of local traffic. • Plan for traffic increase from improvements to U.S. 50/301 in order to protect local roads from being used as alternate routes when the interstate highway is congested. • Improve the intersection at College Parkway and MD 2, and as necessary, at other intersections on College Parkway.
Queen Anne's County Documents (including individual community/area level plans)	
Queen Anne's Cross County Connector Trail Feasibility Study (Ongoing)	A feasibility study evaluating a potential future extension from Long Point Park in Grasonville to the Town of Queenstown. *This study is currently in process and is anticipated to be completed in Summer 2025.*
Queen Anne's County Pedestrian and Bicycle Master Plan (2024)	Establish a bicycle and pedestrian connection along MD 18 from Queenstown Harbor Golf Course to Centreville.
	Extend the Cross Island Trail from the Long Point Park to Queenstown Harbor Golf Course along roadways north of U.S. 50/301, including Saddler Road, Chester River Beach Road, VFW Avenue, and Winchester Creek Road.
	Extend the Cross Island Trail between U.S. 50/301 intersections with Nesbit Road and Chester River Beach, running primarily along MD 18.
	Construct a South Island Trail extension north to the Thompson Creek Road and Kent Landing intersection.
	Establish a bicycle and pedestrian connection along MD 18 and Bennett Point Road from Nesbit Road to Bennetts Point Landing.
	Provide a bicycle and pedestrian route along Cox Neck Road from Postal Road to Gunners Rest Lane.
	Construct a bicycle and pedestrian connection along Dominion Road from MD 18 to Parson Island Road.
	Establish a bicycle and pedestrian route from Piney Narrows Road to Cox Neck Road along MD 18 and Postal Road.
	Extend the Cross Island Trail from Queenstown Harbor Golf Course to downtown Queenstown.
	Incorporate multimodal options and improved bicycle pedestrian connectivity in the Bay Crossing Study design.
	Queen Anne's County is concerned about a highway dividing the community further along U.S. 50/301 and supports providing pedestrian and bicycle connectivity throughout the entire corridor as a transportation alternative to reduce trips on the roads and through local intersections.
	The County should proceed with feasibility studies for bicycle and pedestrian crossings at two locations along U.S. 50/301: MD 8 and in between Thompson Creek Road and Cox Creek.
	A feasibility study should be conducted for a Cox Creek Road Connector to provide bicycle and pedestrian opportunities from Kent Narrows to the South Island.

Planning Document	Roadway-Related Recommendation
PlanQAC 2022 - Queen Anne's County Comprehensive Plan (2022)	Evaluate the creation of a U.S. 50/301 Corridor Plan that considers buffer, signage, and architectural standards, as well as helps move traffic through the County.
	Provide alternative routes (i.e., local access and frontage points) for local restaurants and businesses, especially in areas around U.S. 50/301.
	Monitor and participate in the MDTA Bay Crossing Study NEPA Process.
	Improve MD 8 and its interchange with U.S. 50/301 with assistance from the State.
	Support a new overpass in Queenstown to connect MD 18 on the south side of U.S. 50 and the north side of U.S. 301.
	Consider shared multi-use trails along MD 18 and the abandoned rail right-of-way along U.S. 50/301.
Queen Anne's County Land Preservation, Parks, and Recreation Plan (2022)	Construct and pave a trail extension for the MD 8 trail system including a pedestrian overpass crossing U.S. 50/301 on Kent Island near the U.S. 50/301 and MD 8 interchange connecting the Cross Island Trail with the South Island Trail on MD 8.
Kent Narrows Community Plan (2022)	Improve signage along U.S. 50/301 to include attraction signage.
	Improve and simplify existing gateway signage at U.S. 50/301 exits 41 and 42.
	Identify better options to control runoff from the Kent Narrow U.S. 50/301 Bridge.
	Identify opportunities to improve parking and access to boat ramps in the western lots beneath the U.S. 50/301 Bridge.
Queenstown Trails Master Plan (2021)	Lobby SHA to construct two (2) elevated pedestrian trail overpasses across U.S. 50/301.
Queenstown Comprehensive Plan (2017)	Support the development of a "hiker/biker lane" on the existing U.S. 50/301 overpass at Nesbit Road and through to the golf course property.
	Implement a mix of overpasses and roadway improvements to enable the community to access U.S. 50/301 in either direction without entering an at-grade intersection.
Kent Island Transportation Plan (2016)	MD 18 improvements include: widening at the U.S. 50/301 overpass, between Dominion and Postal Road, and between Piney Creek Road and Wharf Drive; installation or reconstruction of traffic signals at the Piney Creek Road, Postal Road, and Dominion Road intersections; installation of interconnect and communication between traffic signals; and restriping the northbound approach of the Dominion Road.
	U.S. 50/301-related improvements include: construction of dual right-turn lanes at the off-ramp onto Dominion Road, a new pedestrian bridge to connect county-owned parkland on the north side of U.S. 50/301 with the shopping center located along Thompson Creek Service Road (south of U.S. 50/301), and a new two-lane overpass connecting Shamrock Road and Piney Creek Road over U.S. 50/301.
	MD 8 improvements include: reconstructing the existing U.S. 50/301 and MD 8 interchange to a diverging diamond interchange (DDI), with reserved right-of-way for pedestrian and bicycle facilities in the median of the interchange, and construction of a two-way road connection to the commercial shopping area along Thompson Creek Road.
	Construct a new one-lane roundabout at the existing intersection of Main Street and Kent Narrows Way South/Kent Narrows Way North and include a pedestrian path and sidewalk connecting Kent Narrows North with Kent Narrows South.

Planning Document	Roadway-Related Recommendation
	Construct a new two-lane roadway from Thompson Creek Road to Cox Neck Road following the alignment of U.S. 50/301.
Grasonville Community Plan (2010)	Install shared-use trails along MD 18 and the abandoned rail right-of-way along U.S. 50/301, as an extension of the Cross Island Trail project.
	Install a shared-use trail along Chester River Beach Road from Main Street to Chester River Drive. Add a barrier to separate the trail from traffic if it is installed along the U.S. 50/301 overpass.
	Improve Main Street from U.S. 50/301 to Wilson Road to be a closed section street with sidewalks on both sides.
	Improve turning movement safety at important intersections along Main Street. The need for signalization and/or turn lanes should be evaluated for the intersection of Main Street and Chester River Beach Road.
Chester/Stevensville Community Plan (2007)	Upgrade MD 8 and MD 18 to four (4) lanes from Kent Island High School to Davidson Road. Improvements should include a third or slip lane from Davidson Road to U.S. 50/301.
	Improve MD 18 (Main Street) from Old Love Point Road to Duke Street to include left turn lanes at key intersections, sidewalks, and streetscape amenities under the SHA Urban Revitalization Program.
	Construct the Cox Creek Connector to link Thompson Creek Road to Cox Neck Road to provide a "relief valve" and emergency route when U.S. 50/301 is closed.
	Construct an overpass that connects Piney Creek Road (north of U.S. 50/301) to Shamrock Road (south of U.S. 50/301).
	Upgrade MD 18 from Dominion Road to Kent Narrows to contain turn lanes at key intersections, pavement reconstruction, intersection and driveway improvements, signs, sidewalks, and signalization.
	Consider a loop road/ramp improvement from the MD 18 overpass to U.S. 50/301 to facilitate access to westbound U.S. 50/301 and relieve congestion on the Castle Marina Circle.
	Consider and study a new cloverleaf at the intersection of MD 8 and U.S. 50/301 to improve local mobility.
	Improve the intersection of Thomspon Creek Road and U.S. 50/301 to improve safety.
	Provide a pedestrian/bicycle trail connection over U.S. 50/301.
	Complete sidewalk networks within both village core areas, particularly along Postal Road/MD 18 between Cox Neck Road and Dominion Road.
	Create pedestrian/bicycle connections between key Village Center destinations, such as schools, library, and Love Point Park.
	Utilize traffic calming measures to better support pedestrian crossing across Business Parkway at MD 18 and Bateau Road intersection.
	Improve the pedestrian climate along MD 18 from Cox Neck Road to downtown Stevensville incorporating better sidewalks and traffic calming measures.
	Further develop pedestrian connections between Chester and Kent Narrows along MD 18, south of U.S. 50/301, through sidewalks and expansion of the Cross Island Trail.

Planning Document	Roadway-Related Recommendation
Regional / State Documents	
MD 18 (Main St) between Castle Marina Rd and Kent Narrows Planning and Environmental Linkages (PEL) Study (Ongoing)	The purpose of this ongoing SHA planning study is to assess the transportation needs along MD 18, enhance traffic capacity and safety, improve bicycle and pedestrian connectivity, and support development and existing businesses. Concepts include intersection improvements, and a new two-lane overpass connecting Shamrock Road and Piney Creek Road over U.S. 50/301, among others.
US 50/301 (Blue Star Memorial Hwy) Kent Island Traffic Management (Ongoing)	SHA pilot ramp management project along westbound U.S. 50/301 from Castle Marina Road to MD 8.
The Playbook: 2050 Maryland Transportation Plan (2024)	This MDOT plan contains broad system-wide recommendations. The Bay Crossing Tier 2 Study is referenced as a "Game Changing Project," but the plan did not list specific recommendations.
Resilience 2050: Regional Long-Range Transportation Plan (Baltimore Regional Transportation Board [BRTB]) (2023)	Convert MD 8 overpass to a DDI with U.S. 50/301, widen from two (2) to four (4) lanes, and add Thompson Creek and Cox Creek service roads. Provide bike and pedestrian improvements along existing and new routes.
	From Kent Narrows to Bay Bridge, widen MD 18 to four (4) lanes, including new pedestrian improvements and intersection reconstruction to improve capacity, safety, and mobility.
	Widen U.S. 50/301 from I-97 to MD 2 from six (6) to eight (8) lanes.
	Construct new crossing of the Chesapeake Bay Bridge and widen approach roadways is included as an illustrative project.
Maryland Statewide Transit Plan (2022)	Contains a 50-year transit vision, including an intercity transit connection between Eastern Shore and Baltimore/DC utilizing the Bay Bridge.
Maximize 2045: Regional Long-Range Transportation Plan (BRTB) (2019)	Convert MD 8 overpass to a DDI with U.S. 50/301, widen from two (2) to four (4) lanes, and add Thompson Creek and Cox Creek service roads. Provide bike and pedestrian improvements along existing and new routes.
	From Kent Narrows to Bay Bridge, widen MD 18 to four (4) lanes, including new pedestrian improvements and intersection reconstruction to improve capacity, safety, and mobility.
	Widen U.S. 50/301 from I-97 to MD 2 from six (6) to eight (8) lanes.
2040 Maryland Transportation Plan (2019)	Widen U.S. 50/301 from U.S. 301 to MD 404.
	Upgrade truck weigh facilities at the Bay Bridge to accommodate increased truck traffic.
Maryland Consolidated Transportation Program FY 2025 – FY 2030	Improve safety, accessibility, and operations along northbound MD 2 from U.S. 50/301 to Arnold Road by providing a continuous third lane and a sidewalk along northbound MD 2 from Chautaugua Road to Arnold Road and along Arnold Road from the B&A Trail to MD 2.
Maryland State Transportation Trails Strategic Plan (2025)	The Chesapeake Bay Bridge Crossing trail was identified as a statewide or regionally significant project. It is currently being tracked by MDOT and is in the planning phase.

Maryland's Vision Zero legislation, established in 2019, sets a goal of zero vehicle-related deaths or serious injuries on state roadways by the year 2030 by establishing strategies that enhance roadway safety for all users.[3] While vision zero initiatives do not provide recommendations specific to the study

[3] https://zerodeathsmd.gov/highway-safety-office/vision-zero/

limits, they are important principles to consider for regional efforts to improve roadway safety. Anne Arundel County developed their *Vision Zero Plan* (2022), which outlines a mission to reduce the number of traffic-related crashes, injuries, and fatalities using a comprehensive, strategic approach and promote a culture of collaboration amongst government agencies and the community to ensure traffic safety for all. Queen Anne's County was awarded a 'Safe Streets and Roads for All' (SS4A) grant through the U.S.DOT in 2023, which will be used by County Commissioners to develop a comprehensive safety action plan.[4]

Proposed Development Projects

Various residential, mixed-use, commercial, and retail development projects are proposed along U.S. 50/301 within the study limits. Development projects that have been approved by their respective County Planning Board but not yet constructed are summarized below.

The most readily available information from the Anne Arundel Office of Planning and Zoning lists nine approved development projects along U.S. 50/301 within the Anne Arundel County study limits as of July 2025. These projects are six site development plans (non-residential or mixed-use development) and three preliminary site development plans (non-residential or mixed-use development) (Anne Arundel County Office of Planning and Zoning, 2025).

Coordination with Queen Anne's County Planning and Zoning Department and the Town of Queenstown identified approved development projects along U.S. 50/301 within the Queen Anne's County study limits as of July 2025. There are 19 total projects, which include three major subdivisions, 15 major site plans, and one concept plan. **Table 6-3** details the development activity projects along U.S. 50/301 within the study limits, which are also depicted in **Figure 6-7** and **Figure 6-8** as well as **Appendix A**.

Table 6-3: Approved Development Projects

Map ID	Property Type	Plan Type	Project Name	Address
Anne Arundel County				
1	Commercial	Site Development Plan	Whitehall Road Property, Lot 3 (Modification)	1430 Whitehall Road Annapolis, MD 21409
2	Commercial	Site Development Plan	Moon Vine Ventures, LLC Property (Modification)	1686 Baltimore Annapolis Boulevard Arnold, MD 21012
3	Commercial	Preliminary Site Plan	Taco Bell, 1440 Whitehall Road	1440 Whitehall Road Annapolis, MD 21409
4	Commercial (Church)	Preliminary Site Plan	Unity By The Bay	4 Pointless Forest Trail Annapolis, MD 21409
5	Commercial	Site Development Plan	Eight Ten (810) East College Parkway Par 256	810 East College Parkway Annapolis, MD 21409
6	Residential	Site Development Plan	Element at Mill Creek (Age Restricted)	40 North Old Bottom Mill Road Annapolis, MD 21409
7	Commercial	Site Development Plan	Group One Automotive – BMW, 31 Old Mill Bottom Road	31 North Old Bottom Mill Road Annapolis, MD 21409
8	Industrial	Site Development Plan	Network Towers II – Bay Bridge Cell Tower	899 Oceanic Drive Annapolis, MD 21409

[4] https://www.transportation.gov/sites/dot.gov/files/2023-10/FY23-SS4A_PDG-Awards-by-State_Oct2023.pdf

Map ID	Property Type	Plan Type	Project Name	Address
9	Commercial	Preliminary Site Plan	Village Inn 69 North Old Mill Bottom Road (Modification)	69 North Old Mill Bottom Road Annapolis, MD 21409
Queen Anne's County				
10	Mixed Use	Major Subdivision	Bay Bridge Marina, LLLP	Parcel 273, Lot 2 Pier One Road Stevensville, MD 21666
11	Commercial	Major Site Plan	N/A	Parcel 280, Lot 4 Pier One Road Stevensville, MD 21666
12	Commercial	Major Site Plan	N/A	Parcel 20, Lot 209 Ellendale Farm Lane Stevensville, MD 21666
13	Commercial	Major Site Plan	Joban, Inc	107 Hissey Road Grasonville, MD 21638
14	Residential	Major Site Plan	Parcel 24 Holding, LLC	1138 Main Street Stevensville, MD 21666
15	Residential	Major Site Plan	Chesapeake Square	Parcel 481 Main Street Chester, MD 21619
16	Commercial	Major Site Plan	Armored Storage Kent Island	Parcels 287, 351, and 352 Piney Creek Road Chester, MD 21619
17	Mixed Use	Major Site Plan	Chesapeake Bay Beach Club, LLC	Parcel 273, Lot 2Pier One Road Stevensville, MD 21666
18	Mixed Use	Major Site Plan	Bay Bridge Marina, LLP	Parcel 273, Lot 2 Pier One Road Stevensville, MD 21666
19	Commercial	Major Site Plan	Waterfront Marine	310 Long Point Road Grasonville, MD 21638
20	Mixed Use	Concept Plan	Wheatlands Development	Ocean Gateway (U.S. 50) Queenstown, MD 21658
21	Mixed Use	Major Site Plan	Kent Island Crossing	1700 Piney Creek Road Chester, MD 21619
22	Residential	Major Site Plan	N/A	Parcel 495 Piney Creek Road Chester, MD 21619
23	Residential	Major Site Plan	N/A	Parcel 43, Lot 1, and Parcel 68 Main Street Chester, MD 21619
24	Residential	Major Subdivision	N/A	2501 Piney Creek Road Chester, MD 21619
25	Mixed Use	Major Site Plan	N/A	2403 Main Street Chester, MD 21619
26	Commercial	Major Site Plan	Dock House Restaurant	Parcel 429 Lot 2 Piney Narrows Road Chester, MD 21619
27	Residential	Major Subdivision and Site Plan	N/A	5400 Main Street Grasonville, MD 21638
28	Residential	Major Site Plan	N/A	Parcel 820 Lot 3 Leonard Smith Drive Grasonville, MD 21638

**Developments without complete addresses were located using the parcel ID.*

Figure 6-7: Approved Development Projects Along U.S. 50/301 in Anne Arundel County



Figure 6-8: Approved Development Projects Along U.S. 50/301 in Queen Anne's County



6.1.2 Environmental Consequences

Potential long-term impacts from the ARDS are described herein, along with a description of the alternatives' consistency with Community Master Plans and other documents that guide land use and development along U.S. 50/301 within the study limits. The potential for impacts to land use and development to affect community character, sense of place, cohesion, and isolation within the six communities is detailed in **Section 7**.

6.1.2.1 Alternative A: No-Build

The No-Build Alternative requires no right-of-way acquisition and no conversion of existing land uses to right-of-way for transportation use. The No-Build Alternative would not provide consistency with the Anne Arundel County Corridor Growth Management Plan (2012) at this time since it would not provide additional lanes to add capacity along U.S. 50/301 on the Western Shore. However, the No-Build Alternative wouldn't preclude eventual widening of U.S. 50/301 to eight lanes.

6.1.2.2 Build Alternatives

The build alternatives would result in the conversion of existing land use to right-of-way for transportation use, including the alteration of transportation right-of-way from non-highway facilities (e.g., county right-of-way) outside of the SHA right-of-way. The impacts to land use differ slightly under each of the build alternatives, with Alternative B having the least impact and Alternative G having the greatest impact. The land use impacts of Alternatives D, E, F, and G would be more than double those associated with Alternatives B and C. Land use impacts for the build alternatives are summarized in **Table 6-4**.

Table 6-4: Land Use Converted to Transportation Right-of-Way

Land Use	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G
Transportation*	NA	NA	NA	NA	NA	NA
Very Low-Density Residential	0.0 acre	0.0 acre	<0.1 acre	<0.1 acre	<0.1 acre	<0.1 acre
Low-Density Residential	0.7 acres	0.7 acres	4.3 acres	4.3 acres	4.5 acres	4.5 acres
Medium-Density Residential	<0.1 acre	<0.1 acre	0.5 acre	0.5 acre	0.5 acre	0.5 acre
High-Density Residential	0.0 acre	0.0 acre	1.0 acre	1.0 acre	1.0 acre	1.0 acre
Commercial	4.0 acres	4.3 acres	16.7 acres	17.1 acres	18.0 acres	18.4 acres
Industrial	0.0 acre	0.0 acre	0.9 acre	0.9 acre	0.9 acre	0.9 acre
Institutional	0.8 acre	0.8 acre	1.5 acres	1.5 acres	1.6 acres	1.6 acres
Extractive	0.0 acre	0.0 acre	0.0 acre	0.0 acre	0.0 acre	0.0 acre
Open Urban Land	1.2 acres	1.2 acres	5.3 acres	5.3 acres	5.3 acres	5.3 acres
Water*	NA	NA	NA	NA	NA	NA
Other Land	18.9 acres	18.9 acres	54.1 acres	54.2 acres	56.1 acres	55.9 acres
TOTAL CHANGE IN LAND USE	**25.6 acres**	**25.9 acres**	**84.3 acres**	**84.8 acres**	**87.9 acres**	**88.1 acres**

Note: Numerical values presented are rounded to the nearest 0.1 acre.

** Impacts to Transportation and Water Land Use types are not applicable for this analysis. Land designated for Transportation use will remain Transportation under each of the build alternatives. Impacts to water resources are documented in the Natural Environment Technical Report.*

With the exception of displacements described in **Section 6.3**, the build alternatives would primarily convert strips of land from undeveloped areas or areas of landscaping and trees, and paved areas associated with commercial developments along U.S. 50/301 to Transportation land use. As demonstrated in **Table 6-4**, for most land use types, land use conversions are five acres or less. For all build alternatives, Other Land (between 19 and 56 acres, depending on the alternative) and Commercial (between 4 and 18 acres) would be the most common land use types converted to Transportation. Impacts converting Residential land use types (Very Low-Density, Low-Density, Medium-Density, and High-Density Residential) to Transportation land use would be 6 or fewer acres.

The addition of the optional SUP would increase total land use conversions by less than 3 acres. For all build alternatives, Institutional (less than 0.1 to 0.2 acres), Open Urban Land (0.1 acres), and Other Land (1 to 2 acres) would be the only land use types converted to Transportation.

The build alternatives would impact protected lands through conversion to Transportation land use as shown in **Table 6-5**. The protected lands data includes DNR-owned and local parks. Impacts to parks are detailed in the *Draft Section 4(f) Evaluation* and briefly described in **Section 6.5**. Note, some land use areas are protected under multiple conservation programs and easements.

Table 6-5: Protected Lands Converted to Transportation Right-of-way

Protected Lands	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G
MD Agricultural Land Preservation Foundation	0.0 acre	0.0 acre	0.0 acre	0.0 acre	0.0 acre	0.0 acre
MD Environmental Trust Easements	0.0 acre	0.0 acre	4.7 acres	4.7 acres	4.7 acres	4.7 acres
MD Forest Conservation Act	0.1 acre	0.1 acre	0.1 acre	0.1 acre	0.1 acre	0.1 acre
DNR Owned and Conservation Easements	2.1 acres	1.7 acres	2.1 acres	1.7 acres	2.3 acres	1.7 acres
Coastal and Estuarine Land Conservation Program	0.0 acre	0.0 acre	0.0 acre	0.0 acre	0.0 acre	0.0 acre
Transfer Development Rights Program	0.0 acre	0.0 acre	0.1 acre	0.1 acre	0.1 acre	0.1 acre
Local Protected Land	0.7 acre	0.7 acre	1.4 acres	1.4 acres	1.9 acres	1.9 acres
TOTAL CHANGE IN PROTECTED LANDS	**2.9 acres**	**2.5 acres**	**8.4 acres**	**8.0 acres**	**9.1 acres**	**8.5 acres**

Note: Numerical values presented are rounded to the nearest 0.1 acre.

The addition of the optional SUP would increase impacts to protected lands through conversion to Transportation of less than 2.0 acres. For all build alternatives, DNR Owned and Conservation Easements (between 0.6 and 0.7 acres) and Local Protected Land (between 0.6 and 1.3 acres) would be the only protected lands impacted by the optional SUP.

All build alternatives would result in impacts to one actively farmed property, located southeast of the Whitehall Road and Jenkins Lane intersection in Anne Arundel County. Impacts to this parcel would range from less than one acre (Alternatives B and C) to two acres (Alternatives D, E, F and G). Alternatives D, E, F, and G would impact two acres of an additional actively farmed property, located east of the U.S. 50/301 split south of the Queenstown Premium Outlets business cluster in Queen Anne's County. As noted in **Section 6.1.1.2,** this area has been proposed for development. The addition of the optional SUP would not impact actively farmed lands for any of the build alternatives.

Currently, the MDTA and SHA operate and maintain U.S. 50/301. As previously detailed, § 4-101(h) of the Transportation Article, defines the Bay Bridge as an existing facility, which Section 5-7B-01 of the PFA law exempts from the definition of "growth-related project." However, Alternatives D, E, F, and G would include widening and improvements to the U.S. 50/301 approaches. Further coordination would be required to establish applicability of the PFA law to the U.S. 50/301 approaches if Maryland state infrastructure funds are utilized.

The improvements associated with the build alternatives would be compatible with planned and approved future development in Anne Arundel and Queen Anne's counties, including those listed in **Section 6.1.1.2.** Continuing coordination with both counties and appropriate local jurisdictions will occur to identify appropriate elements to maximize community safety, cohesion, and economic vitality, consistent with U.S. DOT Order 2100.7. Where appropriate, design elements may integrate signage and enhanced access improvements consistent with or that do not preclude enhancements outlined in related planning documents The Anne Arundel County Corridor Growth Management Plan (2012) recommends widening U.S. 50/301 to eight lanes from the Chesapeake Bay Bridge to I-97. Alternatives B and C would consist of six lanes along U.S. 50/301 on the Western Shore and therefore, would not be consistent with the Anne Arundel County Corridor Growth Management Plan (2012) at this time; however, they would not preclude the eventual widening of U.S. 50/301 to eight lanes. Alternatives D, E, F, and G would be consistent with the Anne Arundel County Corridor Growth Management Plan (2012). Additional roadway capacity would accommodate existing traffic and long-term traffic growth. Additional capacity would provide enhanced trip reliability and improved movement of goods and services, including maritime navigation, consistent with the Tier 2 Study's purpose and need. Improvements proposed with the build alternatives would, to varying degrees, continue to make the area desirable for business and residential development and tourism access along U.S. 50/301 within the study limits. All proposed build alternatives include the option for the safe inclusion of a SUP along a new bridge. The MDTA has identified connections to existing and proposed trails and recreational facilities on the Eastern Shore and Western Shore. The inclusion of the optional SUP would enhance safe pedestrian and bicycle access while connecting communities to each other and to services along U.S. 50/301, consistent with both Walk & Roll Anne Arundel! (2023) and Queen Anne's County Pedestrian and Bicycle Master Plan (2024), as well as other Queen Anne's County plans. Coordination considering consistency with local master plans, Maryland State Transportation Trails Strategic Plan (2025), and Maryland's Complete Streets policy guidelines will continue in final design.

Should transit-related improvements or TSM/TDM measures be advanced in the future, they would be subject to additional environmental studies, analysis, and collaboration with the public, stakeholders, and local agencies.

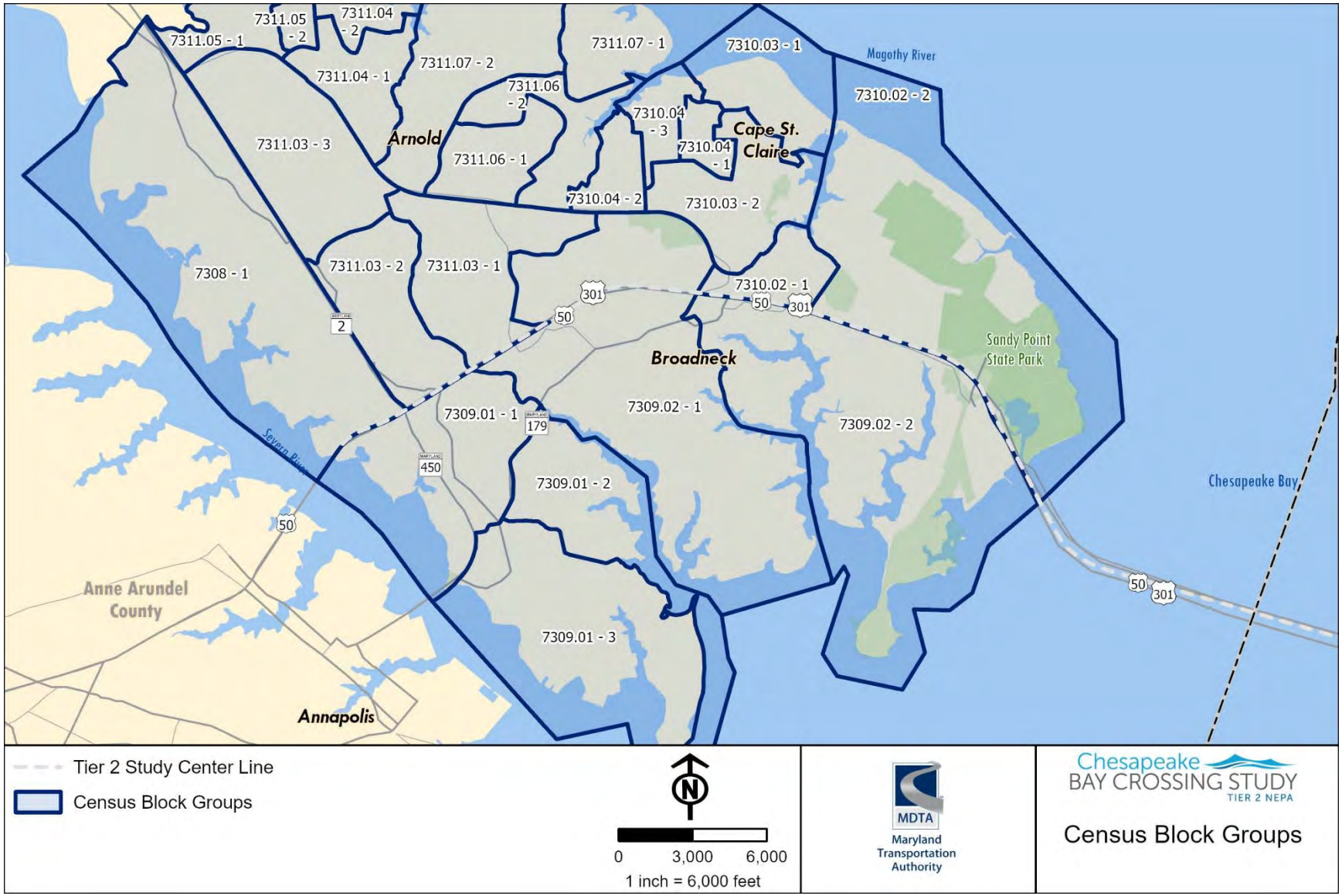
The build alternatives would generally support already approved development projects, despite property impacts. Build Alternatives B and C would result in impacts to three properties containing five approved developments. Build Alternatives D, E, F, and G would impact an additional eight properties with approved developments. Property impacts at these locations would require only partial acquisitions, as detailed in **Section 6.3.2**.

6.2 Population and Demographics

6.2.1 Affected Environment

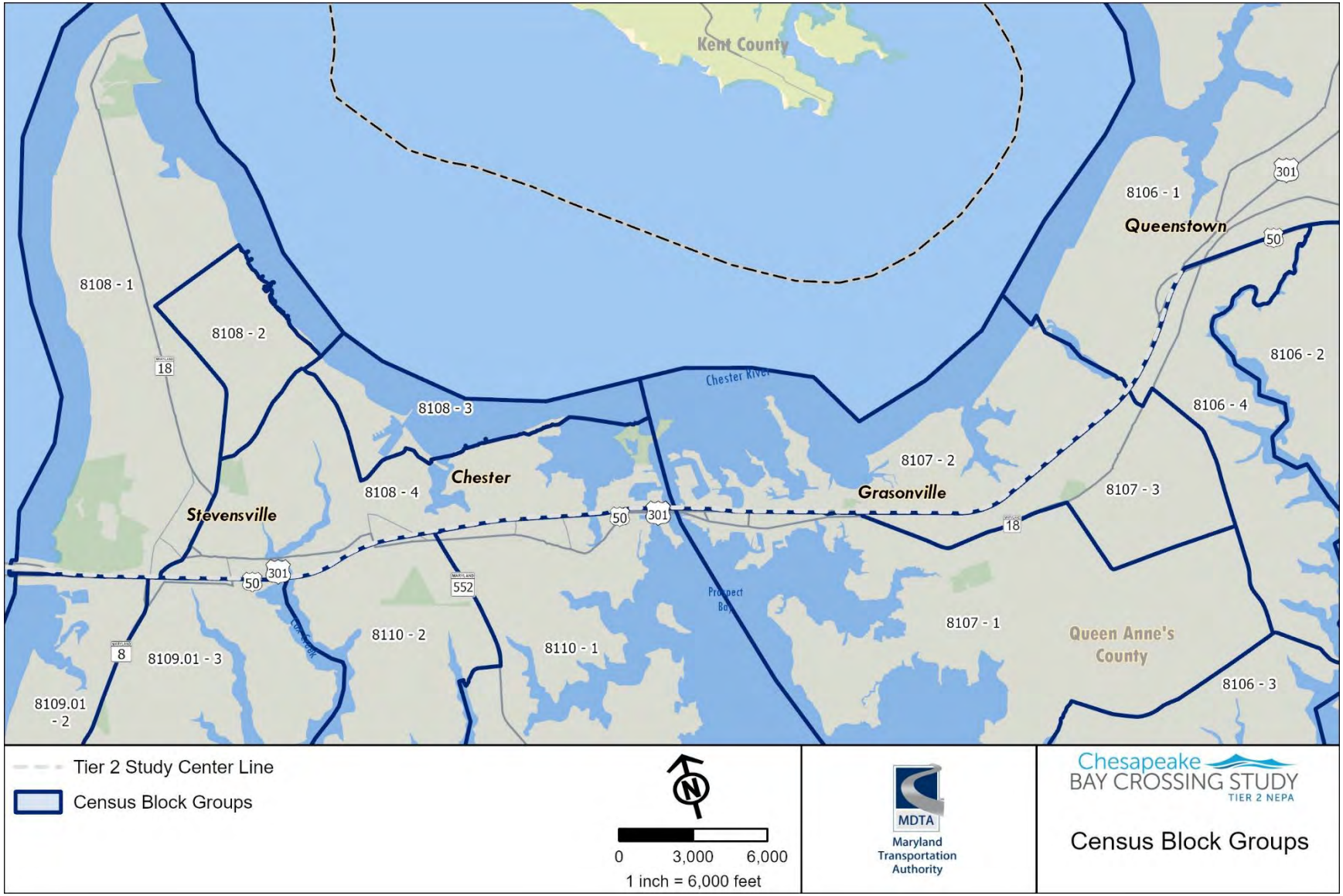
The information presented in this section is based on data from the U.S. Census ACS Five-Year Estimates (2018-2022). The following describes the population and demographic character of the analysis area, Anne Arundel and Queen Anne's counties, and Maryland. For this assessment, block group data (**Figure 6-9** and **Figure 6-10**) was used to provide the highest level of comparable data. Where available, detailed block group data is presented in **Appendix C**. Demographic data is also presented for individual communities within the analysis area in **Section 7**.

Figure 6-9: Analysis Area Block Groups in Anne Arundel County



Source: U.S. Census Bureau

Figure 6-10: Analysis Area Block Groups in Queen Anne's County



Source: U.S. Census Bureau

6.2.1.1 Population

According to the 2018-2022 ACS data, the total population of the analysis area is approximately 73,415 people, which represents one percent of Maryland's total population (**Table 6-6**). Of the 73,415 individuals within the analysis area, 31,561 live in block groups along U.S. 50/301 within the study limits. Block Group 7310.02-1 (**Figure 6-9**), located northeast of the U.S. 50/301 and MD 179 interchange in Anne Arundel County, is the most populous with 2,735 residents. Block Group 8106-4 (**Figure 6-10**), located southeast of the U.S. 50/301 interchange in Queen Anne's County, is the least populous with 579 residents. The average population of block groups in the analysis area is 1,748 people. Detailed block group data is presented in **Appendix C, Table 1**.

Table 6-6: 2022 Population and Population Density

Geography	2022 Total Population	Population Density per Square Mile
Analysis Area	73,415	659
Anne Arundel County, Maryland	588,109	1,418
Queen Anne's County, Maryland	50,316	135
Maryland	6,161,707	634

Source: ACS Five-Year Estimates (2018-2022)

Population density of the analysis area is 659 people per square mile, which is less than half the population density of Anne Arundel County, but nearly five times that of Queen Anne's County. Population density for each block group within the analysis area is depicted in **Figure 6-11**.

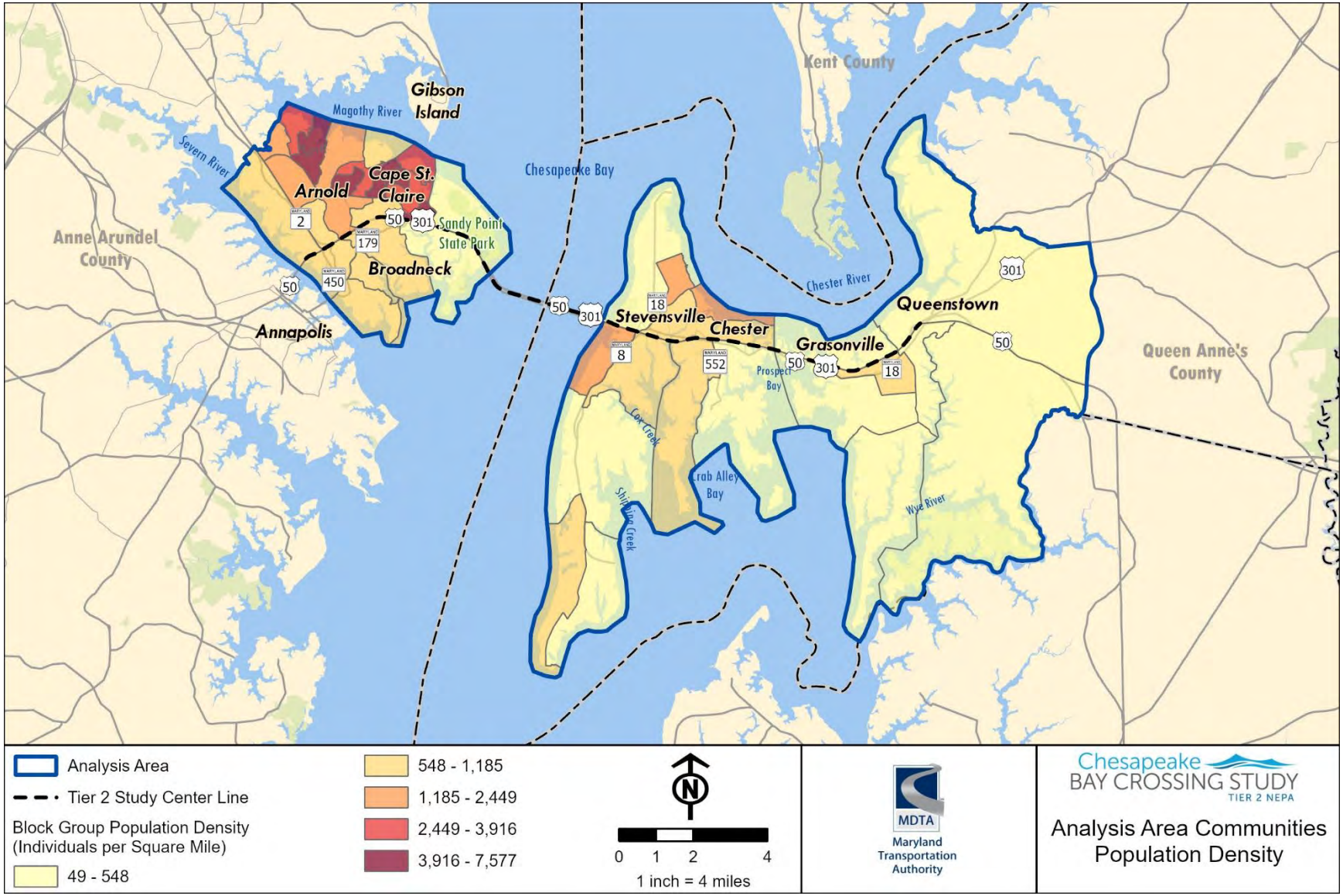
Historic trends and projections for the population of Anne Arundel County, Queen Anne's County, and Maryland are shown on **Table 6-7**. Projection data is not available at the block group level. Over the 20-year period between 2000 and 2020, Queen Anne's County saw the greatest increase in population growth, with its population increasing by 23 percent. During the same period, Anne Arundel County saw its population increase by 20 percent, while Maryland's population grew by 17 percent. Through 2040, population growth in Queen Anne's County is expected to increase by 24 percent, while population growth in Anne Arundel County and Maryland are projected to slow to seven percent and nine percent, respectively.

Table 6-7: Historic and Projected Population Totals by County and State

Geography	2000	2010	2020*	Projected 2030	Projected 2040	Percent Change 2000-2020	Percent Change 2020-2040
Anne Arundel County	489,656	537,656	588,261	608,990	632,200	20%	7%
Queen Anne's County	40,563	47,798	49,874	56,320	62,040	23%	24%
Maryland	5,296,486	5,773,552	6,177,224	6,413,690	6,739,410	17%	9%

Source: Historical and Projected Total Population by Maryland's Jurisdictions, MDP, 2020
**Source: 2020 Decennial Census*

Figure 6-11: Population Density by Block Group (Individuals per Square Mile)

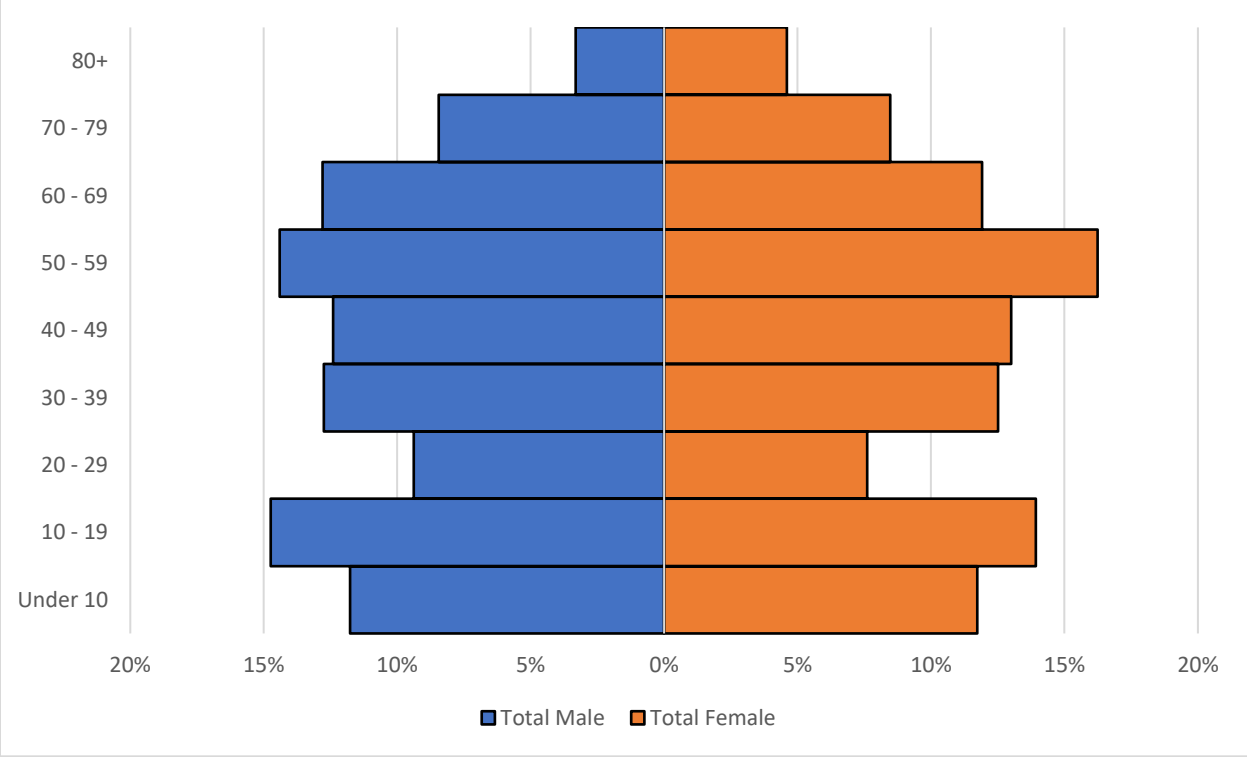


6.2.1.2 Age and Sex

Age distribution of male and female populations are presented in **Figure 6-12**, **Figure 6-13**, **Figure 6-14**, and **Figure 6-15** for the analysis area, Anne Arundel County, Queen Anne's County, and Maryland. The most populous age cohort in the analysis area is age 50-59 for females and 10-19 for males. In Anne Arundel County, the most populous age cohort is 30-39 for both males and females. The most populous age cohort in Queen Anne's County is 50-59 for both males and females. In Maryland, the most prevelant age cohorts are 30-39 for males and 50-59 for females. Detailed block group data is presented in **Appendix C, Tables 1** and **2.**

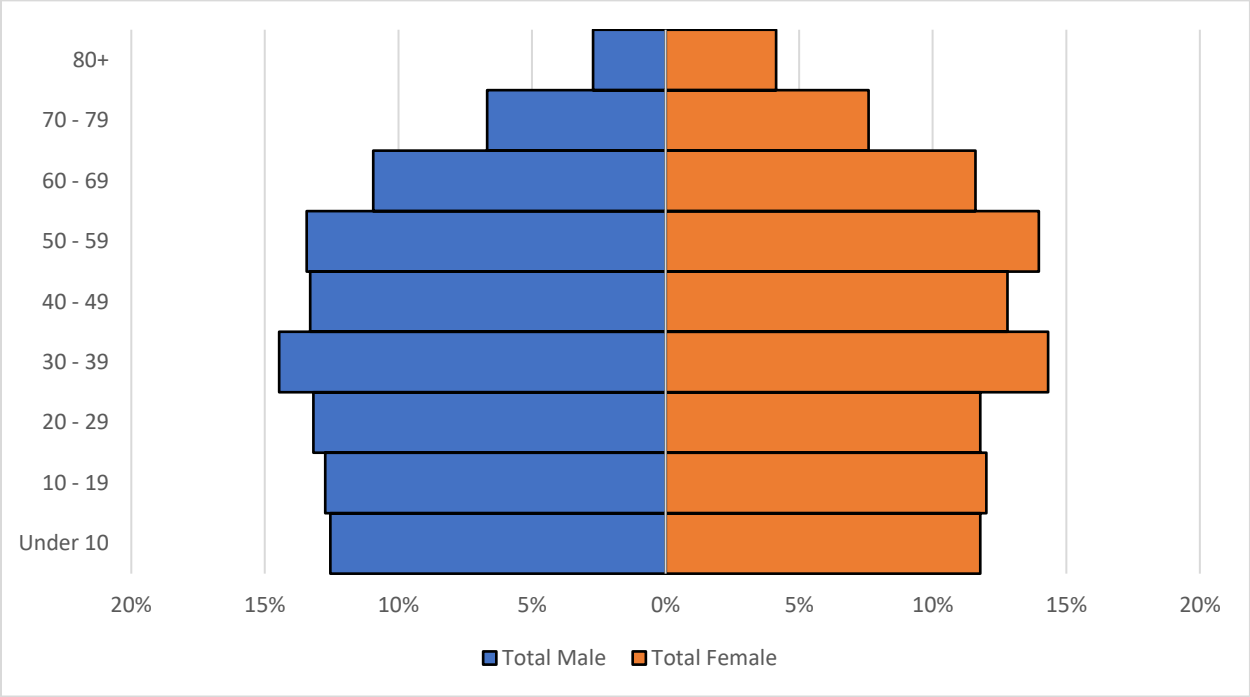
Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children. Children are included in two US Census age brackets presented in the figures below: ages under 10 and ages 10 to 19. In the analysis area, children under age 10 are 12 percent of the population and children ages 10 to 19 are 14 percent of the population.

Figure 6-12: Analysis Area Age Distribution of Male and Female Populations



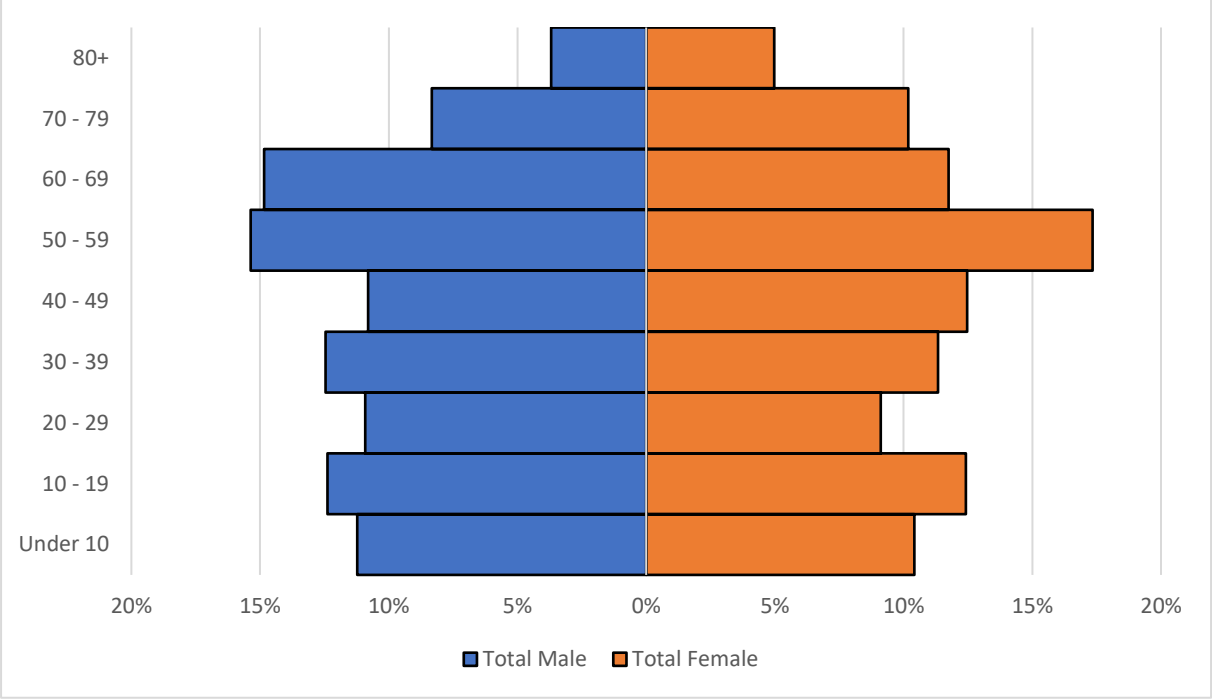
Source: ACS Five-Year Estimates (2018-2022)

Figure 6-13: Anne Arundel County Age Distribution of Male and Female Populations



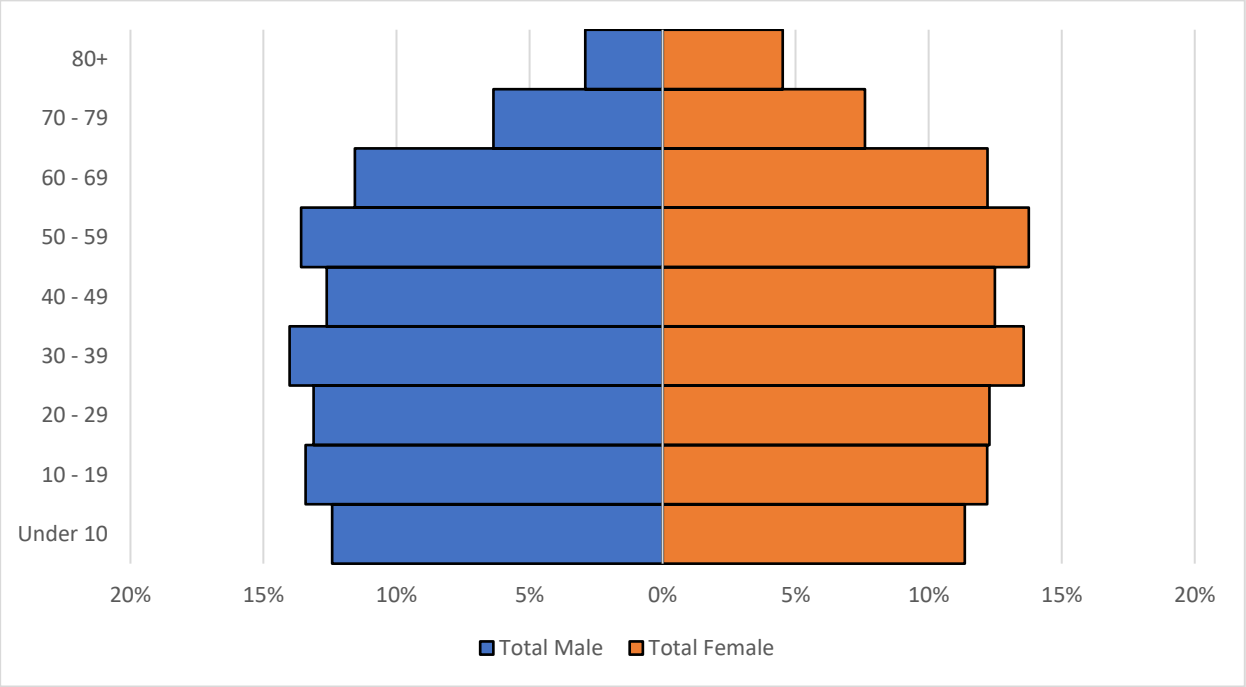
Source: ACS Five-Year Estimates (2018-2022)

Figure 6-14: Queen Anne's County Age Distribution of Male and Female Populations



Source: ACS Five-Year Estimates (2018-2022)

Figure 6-15: Maryland Age Distribution of Male and Female Populations



Source: ACS Five-Year Estimates (2018-2022)

6.2.1.3 Households

The U.S. Census Bureau collects information on households, which includes related family members and all unrelated people, if any, who share the housing unit. **Table 6-8** presents total households within the analysis area, Anne Arundel County, Queen Anne's County, and Maryland. Detailed block group data is presented in **Appendix C, Table 3.**

As reflected in **Table 6-8**, the analysis area has a higher rate of owner-occupied households (83 percent) than Anne Arundel County (75 percent), Queen Anne's County (81 percent), and Maryland (67 percent). Among the block groups along U.S. 50/301 within the study limits, Block Group 8107-3, located south of U.S. 50/301 from Exit 43A to the University of Maryland Shore Medical Campus and Emergency Center (**Figure 6-10**), has the lowest percent of owner-occupied housing units (51 percent). See **Appendix C, Table 3** for detailed block group data.

Table 6-8: Total Households

Geography	Total Households	Percent Owner-Occupied	Percent Renter-Occupied
Analysis Area	27,234	83%	17%
Anne Arundel County	221,704	75%	25%
Queen Anne's County	19,351	81%	19%
Maryland	2,318,124	67%	33%

Source: ACS Five-Year Estimates (2018-2022)

6.2.1.4 Disability

The 2018-2022 ACS data on disability for households within the analysis area, Anne Arundel and Queen Anne's counties, and the State is shown in **Table 6-9**. Twenty-one (21) percent of households within the analysis area and Queen Anne's County have one or more persons with a disability; for Anne Arundel County and the State, a respective 22 percent and 23 percent of households have one or more persons with a disability. There are eight block groups that have a higher percentage of households with one or more persons with a disability than the analysis area average of 21 percent. Of these, Block Group 8106-2 has the highest percentage (36 percent) of households with one or more persons with a disability. Detailed block group data is presented in **Appendix C, Table 3**.

Table 6-9: Households with One or More Persons with a Disability

Geography	Households with One or More Persons with a Disability
Analysis Area	21%
Anne Arundel County	22%
Queen Anne's County	21%
Maryland	23%

Source: ACS Five-Year Estimates (2018-2022)

6.2.1.5 Transit Dependent Individuals

According to the U.S. Census Bureau, Commute (or Journey to Work) refers to a worker's travel from home to work. Place of work refers to the geographic location of the worker's job. As displayed in **Table 6-10**, 76 percent of people within the analysis area drove alone to get to work; this is higher than Anne Arundel County (74 percent) and the statewide average (68 percent), but lower than Queen Anne's County (79 percent). Of the block groups located along U.S. 50/301, Block Groups 8108-1 and 8109.01-2 within Queen Anne's County (see **Figure 6-10**) have the highest percentage of people who drove to work alone (95 percent).

There are four block groups along U.S. 50/301 within the study limits in which the percentage of the population who commute to work via public transit exceed the analysis area average of one percent. Three of these, Block Group 8107-3 (four percent); Block Group 8110-2 (three percent); and Block Group 8106-1 (three percent) are located in Queen Anne's County. Block Group 7311.03-2 (two percent) is located in Anne Arundel County. See **Figure 6-9** and **Figure 6-10** to reference Block Group locations. Approximately 16 percent of the population in the analysis area worked from home compared to Anne Arundel County (15 percent), Queen Anne's County (12 percent), and the State (15 percent). Detailed block group data is presented in **Appendix C, Table 3**.

Table 6-10: Means of Commute

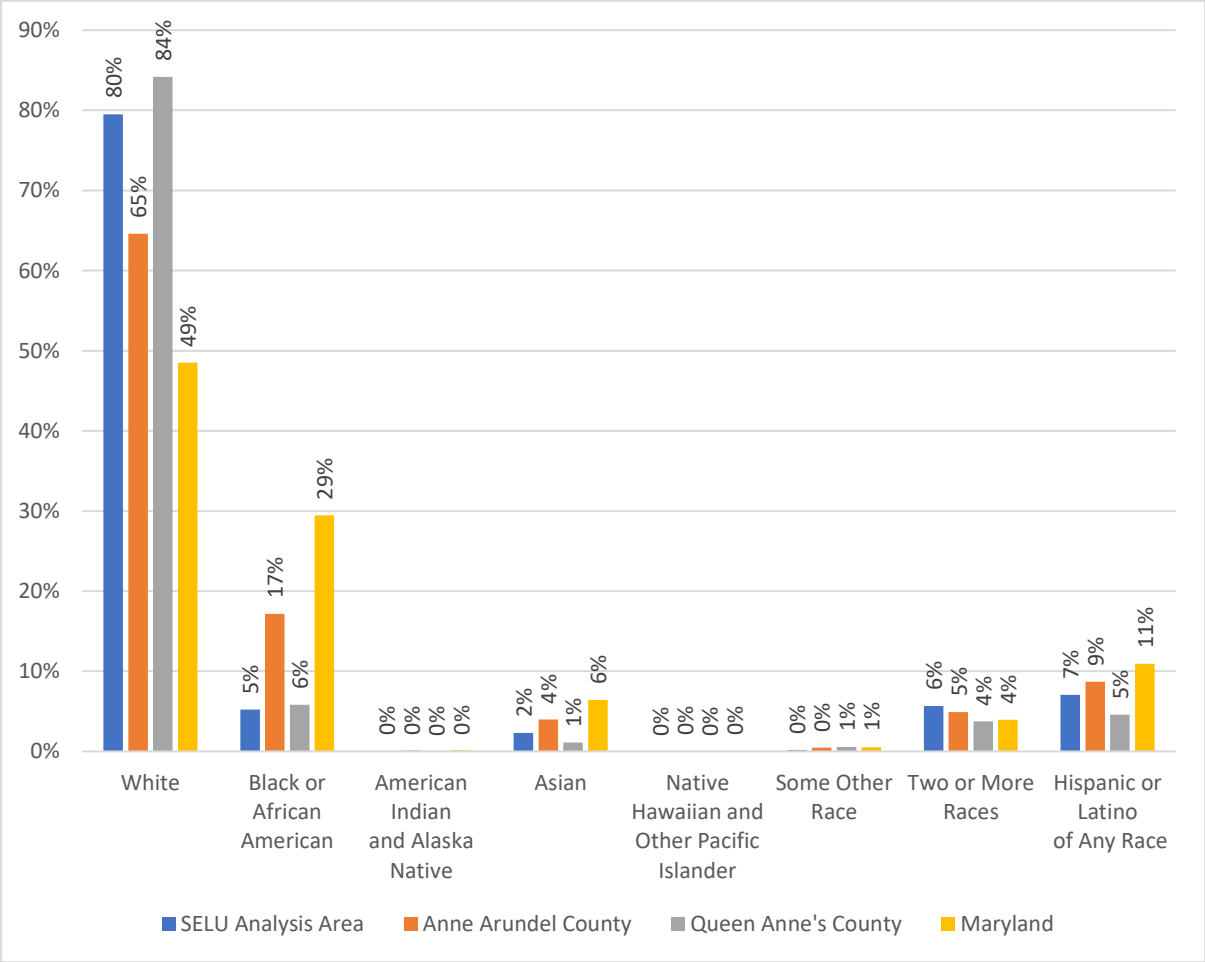
Geography	Total	Drove Alone	Total Carpool	Total Public Transportation (excluding taxicab)	Other means*	Worked from home
Analysis Area	37,267	76%	5%	1%	2%	16%
Anne Arundel County	306,689	74%	6%	3%	3%	15%
Queen Anne's County	25,693	79%	7%	1%	2%	12%
Maryland	3,101,081	68%	8%	6%	4%	15%

**Other Means includes taxicab, motorcycle, bicycle, walked, and other modes of travel.*
Source: ACS Five-Year Estimates (2018-2022)

6.2.1.6 Race and Ethnicity

Figure 6-16 presents a summary of the racial and ethnic composition of the analysis area, Anne Arundel County, Queen Anne's County, and Maryland. The largest race by percentage is White for the SELU analysis area (80 percent), Anne Arundel County (65 percent), Queen Anne's County (84 percent), and Maryland (49 percent). According to the 2018-2022 ACS data, additional races and ethnicities within the analysis area include Hispanic or Latino of Any Race (7 percent), Two or More Races (6 percent), Black or African American (5 percent), Asian (2 percent), Some Other Race (less than 1 percent), and American Indian and Alaska Native (less than 1 percent). Detailed block group data is presented in **Appendix C, Table 4**. Details related to race and ethnicity composition are presented for each community in **Section 7.**

Figure 6-16: Racial and Ethnic Composition



Source: ACS Five-Year Estimates (2018-2022)

6.2.1.7 Limited English Proficiency

Title VI of the Civil Rights Act of 1964 prohibits discrimination based on national origin, including denying language assistance to limited English-speaking populations. A "limited English-speaking household" is defined by the U.S. Census Bureau as: "…one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English 'very well'. In other words, all members 14 years old and over have at least some difficulty with English." Limited English proficiency

can be a barrier to full participation in understanding environmental studies and limit opportunities to provide feedback. Information on English proficiency and the majority languages in limited English-speaking households within the analysis area were reviewed in conjunction with the Study's public engagement activities, summarized in **Section 8**. The Study Public Engagement Plan (**Appendix F**) outlines the community engagement approach for the Tier 2 Study.

According to the 2018-2022 ACS data, there are approximately 185 limited English-speaking households in the analysis area, less than one percent of the total households. This is slightly lower than Anne Arundel County (two percent), Queen Anne's County (one percent), or statewide (three percent). There are three block groups along U.S. 50/301 within the study limits in which limited English proficiency households exceed one percent of the total households. In limited English proficiency households within the analysis area, the majority of languages present are Spanish, Asian and Pacific Island languages, and other Indo-European languages. Detailed block group data is presented in **Appendix C, Table 5**.

6.2.1.8 Income and Poverty Level

The median household income within the analysis area is greater than that of Anne Arundel County, Queen Anne's County, and Maryland (**Table 6-11**). Median household income for block groups immediately along U.S. 50/301 within the study limits ranges from $57,778 to $250,000. There are eleven block groups immediately along U.S. 50/301 within the study limits that have a median household income lower than the analysis area average of $129,121. Detailed block group data is presented in **Appendix C, Table 6**.

Table 6-11: Median Annual Household Income

Geography	Median household income in the past 12 months (in 2022 inflation-adjusted dollars)
Analysis Area	$129,121
Anne Arundel County	$116,009
Queen Anne's County	$108,332
Maryland	$98,461

Source: ACS Five-Year Estimates (2018-2022)

Census poverty level refers to income levels that are considered too low to meet essential living requirements, based on family size, age of householder, and the number of children under 18 years old. The criteria for determining poverty level are applied nationally (except for Alaska and Hawaii), without regard to the local cost of living. Following those guidelines, **Table 6-12** includes the percentage of persons living below the poverty level within the analysis area, Anne Arundel County, Queen Anne's County, and Maryland.

Table 6-12: Percent of Persons Living Below the Poverty Level

Geography	Percent of persons living with income below poverty level in the past 12 months
Analysis Area	5%
Anne Arundel County	6%
Queen Anne's County	7%
Maryland	9%

Source: ACS Five-Year Estimates (2018-2022)

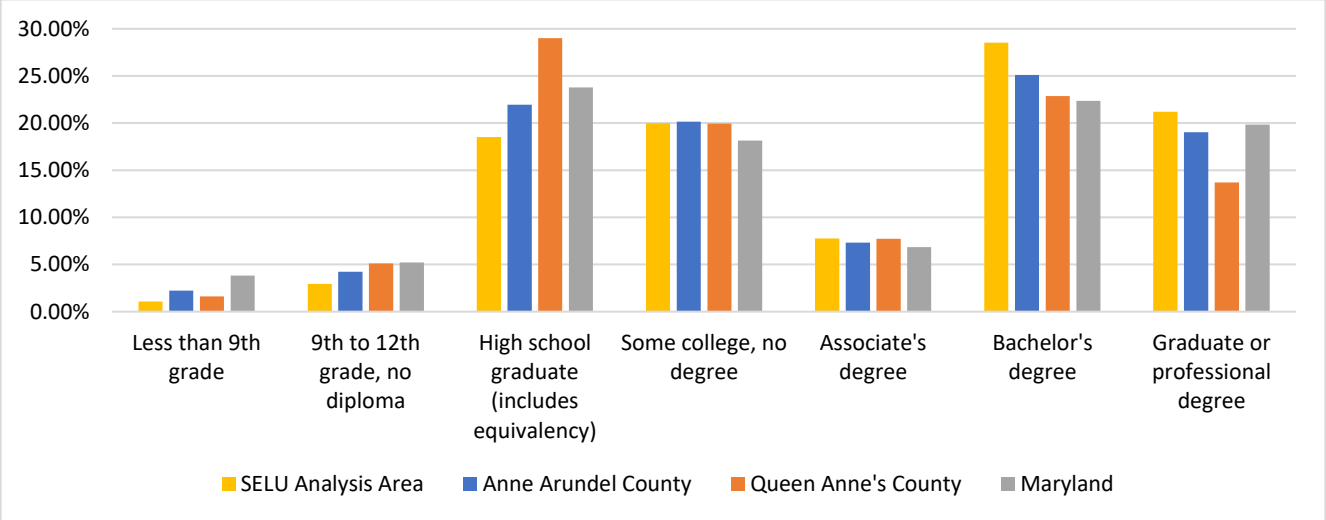
The analysis area (five percent), Anne Arundel County (six percent), and Queen Anne's County (seven percent) all have a lower percentage of people living below poverty compared to those statewide (nine percent). Along U.S. 50/301 within the study limits, there are eight block groups that have a higher percentage of people living below the poverty rate than the analysis area average (five percent). Four of these have a poverty rate three or more times than the analysis area average. Detailed block group data is presented in **Appendix C, Table 6**.

See **Section 6.6** for additional information describing the labor force, major employers, and labor sectors in the analysis area.

6.2.1.9 Educational Attainment

Figure 6-17 shows the highest level of educational attainment of the analysis area, Anne Arundel County, Queen Anne's County, and Maryland for the population of 25 years and over. Approximately 28 percent of the analysis area individuals have a bachelor's degree as their highest level of educational attainment, slightly higher than Anne Arundel County (25 percent), Queen Anne's County (22 percent), and statewide (22 percent). A graduate or professional degree as the highest degree attainment is also higher in the analysis area (21 percent) than in Anne Arundel County (19 percent), Queen Anne's County (13 percent), or statewide (19 percent). Of the block groups along U.S. 50/301 within the study limits, educational attainment ranges from 19 percent of individuals over 25 years attaining less than a high school diploma or equivalent to 90 percent of the population over 25 years achieving at least a bachelor's degree. Detailed block group data is presented in **Appendix C, Table 7**.

Figure 6-17: Education Attainment



Source: ACS Five-Year Estimates (2018-2022)

6.2.2 Environmental Consequences

Impacts to the population and demographics along U.S. 50/301 within the study limits were assessed in terms of potential impact to the overall demographic composition throughout the analysis area. Potential impacts include displacements, which may result in changes to population or demographic composition. The potential for impacts to population and demographics to affect community character, sense of place, cohesion, and isolation within the six analysis area communities is detailed in **Section 7**.

6.2.2.1 Alternative A: No-Build

The No-Build Alternative would have no impact on population or demographics throughout the analysis area. The regional population is projected to continue to grow. Population growth in Queen Anne's County is expected to outpace that of Anne Arundel County through 2040. The population of Queen Anne's County is projected to increase by 24 percent, while population growth in Anne Arundel County is projected to slow to seven percent (**Table 6-7**). The resultant increase in congestion may contribute to a reduction in the planned growth along U.S. 50/301 within the study limits.

6.2.2.2 Build Alternatives

Alternatives F and G would result in one residential displacement in the Broadneck community and the effect on the total population demographics would be a small proportion of the overall population throughout the analysis area. Residential property owners would receive relocation assistance in accordance with federal and state requirements as detailed in **Section 6.3.2.2**, where eligible.

By providing additional roadway capacity, the build alternatives, to varying degrees, would accommodate increased traffic attributed to the projected regional population growth through 2040 (**Table 6-7**).

6.3 Right-of-Way and Property

6.3.1 Affected Environment

Within the highly developed study limits are well-established communities, parklands and open space, and commercial and industrial areas that are traversed by state and local transportation right-of-way. The existing U.S. 50/301 right-of-way within the study limits accommodates a six-lane limited access freeway (three lanes in each direction), plus auxiliary lanes in some locations.

The existing U.S. 50/301 right-of-way is under MDTA jurisdiction adjacent to the Bridge, and SHA jurisdiction elsewhere. The existing right-of-way includes features such as existing roadway travel lanes; shoulders; interchange ramps and structures; traffic barriers; cut and fill slopes; stormwater management facilities; retaining walls; noise walls; and utilities.

Zoning data was downloaded from Anne Arundel County and Queen Anne's County GIS portals. Based on the County code and parcel data, the zones were consolidated into the following categories: Agriculture, Commercial, Industrial, Mixed-Use, Municipal, Open Space, and Residential. The generalized zoning designations for properties along U.S. 50/301 within the study limits are presented in **Table 6-13.** Generalized zoning is mapped for each community profile in **Section 7.**

Table 6-13: Generalized Zoning Along U.S. 50/301 Within the Study Limits

County	Generalized Zoning Classification (# of Properties)						
	Agriculture	Commercial	Industrial	Mixed-Use	Municipal	Open Space	Residential
Anne Arundel County	2	61	1	0	0	7	81
Queen Anne's County	24	123	6	119	8	0	55

Generalized Residential zoning districts are spread along U.S. 50/301 within the Anne Arundel County portion of the study limits. Generalized Commercial zoned properties are also present along U.S. 50/301 within the study limits, with higher concentrations near the interchanges. Properties within zones classified as Generalized Open Space occur mostly on the eastern portion of the Anne Arundel County study limits. Generalized Agriculture zoned properties are located just south of U.S. 50/301 and east of Colbert Road. There is one property located at the easternmost portion of the study limits in Anne Arundel County, immediately south of U.S. 50/301, that is zoned Generalized Industrial.

Along U.S. 50/301 within the Queen Anne's County portion of the study limits, Generalized Commercial zones are mainly concentrated at the U.S. 50/301 interchange with MD 18 and between Long Point Road and Hissey Road. Generalized Mixed-Use zones mainly occur along U.S. 50/301 in Chester and Kent Narrows. Generalized Residential zoned properties are primarily located between Nesbitt Road and the U.S. 50/301 split at the eastern portion of the study limits. Generalized Agriculture zoned properties are evenly distributed along U.S. 301/501 within the Queen Anne's County study limits. Properties zoned as Generalized Municipal or Industrial are located along U.S. 50/301 at the eastern end of the study limits.

6.3.2 Environmental Consequences

Property impacts were assessed based on the LOD and proposed right-of-way limits of the ARDS and their potential to impact properties. Property impacts for conversion to transportation right-of-way under the build alternatives can include partial acquisitions or displacements. A partial acquisition is considered one that would not cause a residential or business displacement, and where it is not anticipated that the conceptual design would prohibit property access. A displacement has been assumed where a principal building property access is anticipated to be impacted by construction activities attributed to the build alternatives based on conceptual engineering. Descriptions of conversion to transportation right-of-way should not be interpreted as a change in the official Zoning Code designation, which is subject to county and municipal regulations and not an element of the study. Specific avoidance and minimization measures will continue to be explored in coordination with property owners to avoid or minimize property impacts to the extent practicable. All property owners, from whom partial or total property right-of-way would be obtained, would be compensated and paid fair market value for the affected property. Residential property owners would receive relocation assistance in accordance with federal and state requirements, where eligible.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the Uniform Act), as amended, requires that the project not proceed into any phase that will cause the displacement of any persons or proceed with any construction project, until it has furnished assurance that all displaced persons will be satisfactorily relocated in comparable decent, safe, and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced person. Payments for the cost of moving are also provided. The Uniform Act further requires that relocation resources are available to displaced persons without discrimination. The Uniform Act would be executed in a timely and humane fashion. A summary of the Relocation Assistance Program (revised February 10, 2016) is provided in **Appendix B**.

It is the policy of MDOT to ensure compliance with the provisions of *Title VI of the Civil Rights Act of 1964,* and related civil rights laws and regulations which prohibit discrimination on the grounds of race, color, sex, national origin, age, religion, or physical or mental handicap. MDOT will not discriminate in highway planning, highway design, highway construction, right-of-way acquisitions, or provision of

relocation advisory assistance. This policy has been incorporated into all levels of the highway planning process to ensure that proper consideration may be given to the social, economic, and environmental effects of all highway projects. Alleged discriminatory actions should be addressed for investigation by the MDOT Office of Equal Opportunity.

Properties impacted by the build alternatives are dispersed throughout the six communities along U.S. 50/301 within the study limits. The impacts of partial acquisitions as well as business displacements on individual communities are evaluated in **Section 7**.

6.3.2.1 Alternative A: No-Build

The No-Build Alternative requires no right-of-way acquisition, as it would include only routine maintenance and safety improvements along U.S. 50/301.

6.3.2.2 Build Alternatives

Property impacts for right-of-way differ under each of the build alternatives, with Alternative B requiring the least amount of additional right-of-way (21 acres) and Alternative G requiring the most (86 acres). Property impacts, including residential and business displacements for each of the build alternatives are summarized below and in **Table 6-14**.

- Alternatives B and C would result in two business/other displacements, both of which are commercial or retail businesses located in Broadneck.
- Alternatives D and E would result in seven business/other displacements: four business offices, and three commercial or retail businesses.
- Alternatives F and G would result in one residential displacement and seven business/other displacements: five business offices, and two commercial or retail businesses.
- For Alternatives B, D, and F, the optional SUP would increase the acreage required for partial acquisition by 1.8 to 1.9 acres.
- For Alternatives C, E, and G, the optional SUP would increase the acreage required for partial acquisition by 1.2 acres.

Table 6-14: Property Impacts of the Build Alternatives

Property Impact Type	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G
Partial Acquisitions (# of properties)	46	46	204	204	207	207
Residential Displacements[1] (# of properties)	0	0	0	0	1	1
Business/Other Displacements[1, 2] (# of properties)	2	2	7	7	7	7
Total Property Impact (# of properties)	48	48	211	211	215	215

Property Impact Type	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G
Total Property Impact[3] (acres)	**20.5 acres**	**20.8 acres**	**82.0 acres**	**82.3 acres**	**86.2 acres**	**86.4 acres**

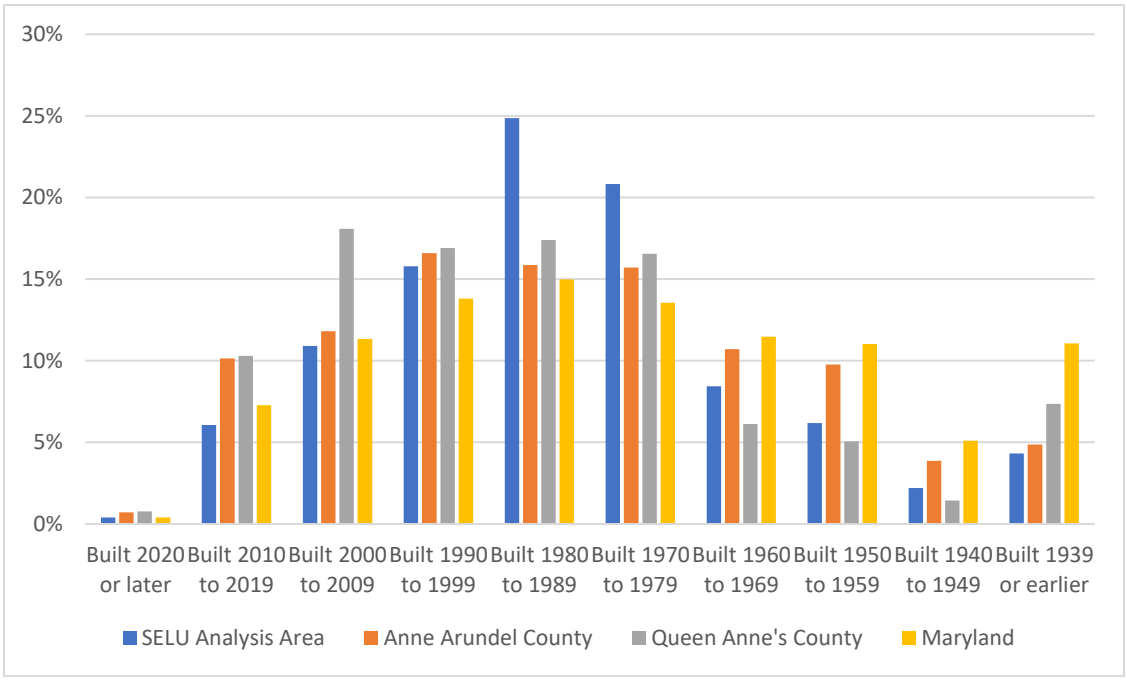
1. *Residential property owners would receive relocation assistance in accordance with federal and state requirements, where eligible.*
2. *Other Properties impacted is equal to the sum of impacted properties with non-residential zoning designations, including Commercial/Employment, Industrial, Mixed-Use, Park/Open Space, Planned Unit/Planned Community, and Transportation. These properties may include community facilities identified in* ***Section 6.5****.*
3. NOTE*: Total right-of-way acreage requirements differ from total land use conversion acreage due to differences in GIS base layer boundaries. Right-of-way acreage requirements are calculated by applying the LOD over precise property line boundaries, while land use conversion acreage is calculated by applying the LOD over the Maryland Department of Planning (MDP) 2018 Statewide land use data (released 2024).*

6.4 Housing

6.4.1 Affected Environment

U.S. Census Bureau defines a housing unit as "a house, an apartment, a mobile home or trailer, a group of rooms, or a single room that is occupied, or, if vacant, is intended for occupancy as separate living quarters." The analysis area contains 27,234 occupied housing units, plus an additional 1,981 vacant housing units (U.S. Census, ACS Five-Year Estimates, 2018-2022). **Figure 6-18** shows the percentage of housing units built each decade in the analysis area, Anne Arundel County, Queen Anne's County, and Maryland. Housing units built between 1980 and 1989 represent the largest percentage of housing units in the analysis area, followed closely by units built between 1970 and 1979 (21 percent) and between 1990 and 1999 (16 percent). Across all geographies, housing units built in 2020 or later make up the lowest percentage of the housing stock, representing less than one percent of the housing units in the analysis area and Maryland, and just one percent in Anne Arundel County and Queen Anne's County.

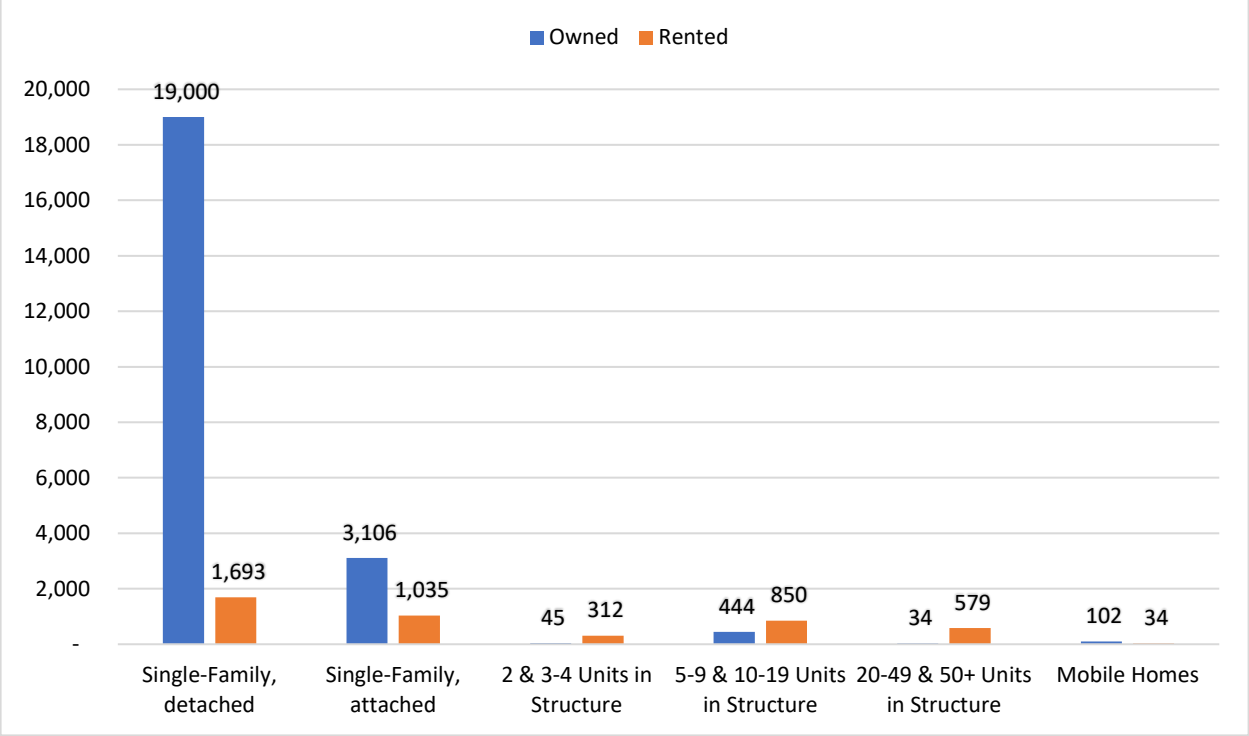
Figure 6-18: Percentage of Housing Units Built per Decade



Source: ACS Five-Year Estimates (2018-2022)

Figure 6-19 depicts the various types of housing structures and their occupancy status in the analysis area. As detailed in **Table 6-15**, owner-occupied single-family detached homes represent 70 percent of occupied housing structure within the analysis area. The total owner-occupied housing structures represent approximately 84 percent of occupied housing within the analysis area, with the remaining representing approximately 16 percent as rented housing structures, regardless of units. **Table 6-16** highlights the financial characteristics of housing units in the analysis area and comparison geographies. The value of housing units within the analysis area is nearly 25 percent greater than housing unit values in Maryland, 10 percent greater than housing unit values in Anne Arundel County and 12 percent greater than housing unit values in Queen Anne's County.

Figure 6-19: Household Structure Type and Occupancy Status within the Analysis Area



Source: ACS Five-Year Estimates (2018-2022)

Table 6-15: Housing Occupancy and Tenure (Owner-Occupied, Renter-Occupied)

Geography	Total Housing Units	Occupied Housing Units	Vacancy (%)	Owner Occupied Housing Units (%)	Renter Occupied Housing Units (%)	Average Persons Per Occupied Housing Unit
Analysis Area	29,215	27,234	7%	84%	16%	2.7
Anne Arundel County	233,163	221,704	5%	75%	25%	2.7
Queen Anne's County	21,405	19,351	10%	81%	19%	2.6
Maryland	2,531,075	2,318,124	8%	68%	32%	2.7

Source: ACS Five-Year Estimates (2018-2022)

Table 6-16: Financial Characteristics of Housing Units

Geography	Median Value (dollars)	Median gross rent
Analysis Area	$474,450	$2,068
Anne Arundel County	$432,000	$1,908
Queen Annes County	$421,900	$1,600
Maryland	$380,500	$1,598

Source: ACS Five-Year Estimates (2018-2022)

The U.S. Department of Housing and Urban Development Multifamily Assistance & Section 8 Database and both Anne Arundel and Queen Anne's County websites were consulted and verified with field reconnaissance to locate housing complexes with subsidized units generally referred to as *low-income subsidized housing*. With funding from federal, state, and local resources, there are two subsidized or Section 8 housing complexes located along U.S. 50/301 within the study limits. Low-income subsidized housing complexes include multi-family apartment complexes and single-family attached homes. Additionally, Anne Arundel and Queen Anne's counties administer rental housing vouchers for low-income households through various federal, state, and local affordable housing subsidy programs, including the federal Housing Choice Voucher Program. Low-income households with housing vouchers reside within market-rate and below-market-rate housing units throughout the analysis area. Additional details regarding low-income subsidized housing complexes within the six communities are also included in **Section 7**.

6.4.2 Environmental Consequences

Housing impacts were assessed based on the LOD and proposed right-of-way limits of the ARDS and their potential to impact properties zoned as residential. The potential for impacts to housing to affect community character, sense of place, cohesion, and isolation within the six communities are detailed in **Section 7**.

6.4.2.1 Alternative A: No-Build

The No-Build Alternative would not require residential relocations or right-of-way acquisition and would not affect the quantity, age, type, or tenure of housing stock.

6.4.2.2 Build Alternatives

A summary of the right-of-way impacts to residential properties for each of the build alternatives is provided in **Section 6.3.2** and **Table 6-14**. All property impacts, including the residential displacement attributed to Alternatives F and G and partial acquisition of parcels for each of the build alternatives, would occur along the existing roadway right-of-way at the periphery of any established communities, as detailed in **Section 6.3.2 & Section 7**. The proposed property acquisition for right-of-way would not bisect residential areas or create new impediments to travel through residential communities. Based on the review of housing stock within the analysis area, the loss of one residential property would have no effect on the overall distribution of age, type, or tenure of housing stock.

6.5 Community Facilities

6.5.1 Affected Environment

Public and private community facilities within the analysis area provide services to residents and businesses in the surrounding communities. Community facilities include the following categories:

- Educational Facilities
- Places of Worship, Religious Facilities, and Cemeteries
- Health Care Facilities
- Parks, Trails, and Recreation Facilities
- Public Institutions (Libraries, Museums, and Post Offices)
- Fire and Emergency Medical Services (EMS), Law Enforcement, and Correctional Facilities
- Transportation
- Public Utilities
- Other Community and Social Services

Figure 6-20 and **Figure 6-21** present an overview of the community facilities within the analysis area; demonstrating that community facilities in Anne Arundel are interspersed throughout the area, while facilities in Queen Anne's County are concentrated along U.S. 50/301. The text that follows includes an overview of community facilities within the analysis area, with greater detail included for community facilities along U.S. 50/301 within the study limits. Community facilities along U.S. 50/301 within the study limits are also labelled in **Appendix A**. Additional information on community facilities along U.S. 50/301 within each community is provided in **Section 7**.

Figure 6-20: Overview of Community Facilities in Anne Arundel County



Figure 6-21: Overview of Community Facilities in Queen Anne's County



6.5.1.1 Educational Facilities

There are 30 educational facilities within the analysis area. Of those, 22 are located within Anne Arundel County, including four preschools, nine elementary schools, four middle schools, two high schools, one higher education institution, and two special education facilities. The remaining eight educational facilities are located within Queen Anne's County, including four elementary schools, two middle schools, one high school, and one higher education institution.

Of the 30 educational facilities within the analysis area, four are located along U.S. 50/301 within the study limits, including Chesapeake Montessori School and Montessori International Children's House in Anne Arundel County, and Stevensville Middle School and Kent Island High School in Queen Anne's County.

6.5.1.2 Places of Worship, Religious Facilities, and Cemeteries

A total of 43 places of worship are located within the analysis area, including 18 in Anne Arundel County and 25 in Queen Anne's County. Eleven places of worship are located along U.S. 50/301 within the study limits, with three in Anne Arundel County and eight in Queen Anne's County.

Eight cemeteries are located within the analysis area, including four in Anne Arundel County and four in Queen Anne's County. Asbury United Methodist Church Cemetery of Annapolis in Anne Arundel County and Stevensville Cemetery and Garnder Family Cemetery in Queen Anne's County are located along U.S. 50/301 within the study limits.

6.5.1.3 Health Care Facilities

There are 24 health care facilities within the analysis area. Sixteen facilities are located within Anne Arundel County, including eleven assisted living facilities or nursing homes and five medical centers. Eight facilities are located within Queen Anne's County, including three assisted living facilities or nursing homes; one urgent care; three additional medical centers; and the University of Maryland Shore Medical Campus and Emergency Center, a combination urgent care facility and medical center.

Of the 24 health care facilities in the analysis area, six are located along U.S. 50/301 within the study limits. Mid Atlantic Health Institute, Annapolitan Care Center, and Riva Terrace III are within Anne Arundel County, and Anne Arundel Medical Center Pavilion/Annapolis Pediatrics - Kent Island, University of Maryland Urgent Care – Kent Island, and University of Maryland Shore Medical Campus and Emergency Center are within Queen Anne's County.

6.5.1.4 Parks, Recreational Areas, and Trails

A total of 58 parks and recreational areas are located within the analysis area, including local, county, and state parks, trails, and recreational paths; golf courses; community centers; and senior activity centers. Twenty-one facilities are located within Anne Arundel County, with 13 parks, three trails, three golf courses, one community center, and one senior activity center. Within Queen Anne's County are 37 facilities, including 24 parks, one land trail network (Cross Island Trail), three water trails, five golf courses, two community centers, and two senior activity centers. Two additional water-based national historic trails (Star-Spangled Banner National Historic Trail and Captain John Smith Chesapeake National Historic Trail) follow the Chesapeake Bay, providing north to south maritime transportation. In addition to these recreational areas, the existing Chesapeake Bay Bridge is an area of significant fishing activity, including recreational shore angling, boating, charter fishing, oystering, and crabbing.

Seventeen parks and recreational areas are located along U.S. 50/301 within the study limits, including four in Anne Arundel County, eleven in Queen Anne's County, and the two water trails within the Chesapeake Bay. Apart from Queenstown Harbor Golf Links, all are publicly owned parks or trails. Sandy Point State Park, Holly Beach Farm Park, and Terrapin Nature Park are the largest publicly owned parks and recreational areas along U.S. 50/301. Queenstown Harbor Golf Links, is a recreational commercial property that is not protected by Section 4(f).

The Sandy Point State Park, north of U.S. 50/301 within the Anne Arundel County study limits, is a thriving recreation and tourism attraction within the Chesapeake Bay region. The park, among Maryland's top 10 most visited state parks in 2023 (*Maryland Department of Natural Resources 2024*) has 786 acres that accommodate activities, including hiking, hunting, fishing, and crabbing, as well as beaches and swimming. Sandy Point State Park attractions include scenic views of the Bay, the mansion, and lighthouse.[5] Park facilities include multiple water access points, including Sandy Point State Park Marina, one of the largest public marinas on the East Coast, with 22 launches. The park is open year-round and hosts over one million visitors annually. The largest attraction is the beaches, which reach capacity every weekend in the summer months. Visitors by the thousands coming into the small community often overwhelm the local roadways, resulting in long delays to enter the park. Despite the transportation challenges, visitors are attracted to the park's various amenities. Visits to Sandy Point State Park and other tourist attractions support the local economy.

Detailed information regarding individual publicly owned parks and recreation facilities is provided in the *Draft Section 4(f) Evaluation.* Additional details regarding trail and bike-pedestrian facilities are included with the discussion of the transportation facilities (**Section 6.5.1.7**.).

6.5.1.5 Public Institutions

Public institutions located within the analysis area include museums, libraries, and post offices. A total of ten public institutions are located within the analysis area, with three in Anne Arundel County and seven in Queen Anne's County.

Two public institutions are located along U.S. 50/301 within the study limits, including the Stevensville and Chester Post Offices within Queen Anne's County.

6.5.1.6 Emergency Services, Law Enforcement, and Correctional Facilities

A total of 17 emergency services and law enforcement facilities are located within the analysis area, including three fire/EMS stations, three police stations, and two military facilities in Anne Arundel County and eight fire/EMS stations and one police station in Queen Anne's County. No correctional facilities are located within the analysis area.

Five emergency and law enforcement facilities are located immediately along U.S. 50/301 within the study limits. These include MDTA Police – William Preston Lane Jr. Memorial Bridge Police Station, DNR Police - Southern Region Broadneck Office, and U.S. Army Reserve Center within Anne Arundel County and Kent Island Volunteer Fire Department (VFD) and Kent Island EMS Station within Queen Anne's County.

[5] Maryland DNR, Sandy Point State Park, https://dnr.maryland.gov/publiclands/pages/southern/sandypoint.aspx

The analysis area is under the jurisdiction of four law enforcement providers: the Anne Arundel County Police District, the Queen Anne's County Sheriff's Office, the MDTA Police on the Bay Bridge and along MDTA's highways, and Maryland State Police across the State. Fire/EMS are provided by Anne Arundel County Fire Department within Anne Arundel County, and by the Queen Anne's County Department of EMS volunteer fire/ EMS services within Queen Anne's County.

6.5.1.7 Transportation

The analysis area is served regionally by a network of major highways primarily under the jurisdiction of MDOT. U.S. 50/301 across the existing Bay Bridge serves as the primary connection between the Eastern and Western shores. The Bay Bridge is a key piece of regional transportation infrastructure that provides social and economic connection as the only crossing of the Chesapeake Bay in Maryland. Major highways intersecting U.S. 50/301 within the study limits include MD 2, MD 179, and MD 648 in Anne Arundel County and MD 8, MD 18, and MD 552 in Queen Anne's County. These highways provide critical north-south transportation to the analysis area as well as network redundancy. A network of mostly county-maintained arterial and residential routes accommodates the movement of residents, goods, and services throughout the analysis area. From the Bay Bridge to MD 18 in Kent Island, U.S. 50/301 is part of the Chesapeake Country National Scenic Byway, which extends from Kent Island at the Chesapeake Bay Bridge north to Chesapeake City on the Chesapeake and Delaware Canal. The Chesapeake Country National Scenic Byway was officially designated by FHWA in June 2002, to celebrate life on Maryland's Eastern Shore. The Byway links many of the region's most unique resources and provides travelers with opportunities to enjoy and learn about the area's rich history and culture, ensuring that the Bay Bridge, itself, is a destination for tourism.

In addition to roadways, SHA Park & Ride facilities provide free parking to transit users and accommodate carpools. No park & ride lots are located along U.S. 50/301 within the study limits in Anne Arundel County. Two park & ride lots are located along U.S. 50/301 Queen Anne's County within the study limits:

- Kent Island Park & Ride, located at U.S. 50 and Castle Marina Road; and
- Stevensville Park & Ride, located at U.S. 50 and MD 8.

Public transportation services within the analysis area consist of buses and shuttles. There are six Maryland Transit Administration (MTA)-operated commuter bus routes that offer regional transportation within the analysis area. Three lines serve both Anne Arundel County and Queen Anne's County: Kent Island to Annapolis/Baltimore (Route 210), Kent Island to Washington, DC (Route 240), and Kent Island and Davidsonville to Washington, DC (Route 250). Three routes intersect only within Anne Arundel County, including Annapolis to Washington, DC (Route 220), Severna Park and Annapolis to Washington, DC (Route 230), and Severna Park and Davidsonville to DC (Route 260). One MTA-operated local bus route, Patapsco Station to Annapolis (Route 70), intersects within Anne Arundel County. In addition to MTA public transit, Queen Anne's County within the analysis area is served by three County Ride-operated bus lines: Kent Island to Easton (Route 1), Centreville to Stevensville (Route 2) and Centreville to Annapolis (Route 3). All County Ride routes can deviate up to three quarters of a mile from their typical path to provide specialized transportation services for older adults and/or individuals with disabilities. All of these public transportation routes either intersect with, or run along, U.S. 50/301. No active railroads are located near or along U.S. 50/301 within the study limits.

Along U.S. 50/301 within the study limits, Baydale Road Bike Path and the Broadneck Peninsula Trail (with additional segments planned) serve as major bicycle and pedestrian facilities in Anne Arundel County. Within Queen Anne's County, the Cross Island Trail network, including the Cross County Connector Trail and Kent Island South Trail, serves as a major bicycle and pedestrian route along U.S. 50/301 within the study limits. The Cross Island Trail network is a part of the American Discovery Trail is a 6,800+ mile cross-nation multi-use route stretching from Delaware to California, which utilizes various roadways where trails are not connected. In addition to major trailways, the bicycle and pedestrian infrastructure includes networks of sidewalks, bike lanes and shared lanes.

There are two airports or landing facilities located along U.S. 50/301 within the study limits in Queen Anne's County, including the Bay Bridge Airport and University of Maryland Shore Medical Campus Heliport.

In addition to water access points within parks, a variety of maritime facilities and public water access points exist within the analysis area, such as public landings, fishing piers, and marinas. Within Anne Arundel County, there are two public water access points. Within Queen Anne's County, there are 17 public water access points and eight designated water trails. Except for water access points within parks, none are located along U.S. 50/301 within the study limits. Two water trails cross below U.S. 50/301 in Queen Anne's County. There are two navigable waterways that provide north-south maritime transport under U.S. 50/301: the Chesapeake Bay in Anne Arundel and Queen Anne's County, and Kent Narrows in Queen Anne's County.

Seven marinas are located along U.S. 50/301 within the study limits, all of which are in Queen Anne's County. In addition to marinas, there are waterfront residences within the analysis area that contain their own private docks. Within Anne Arundel County, these are distributed along most tributaries emptying into the Chesapeake Bay. Within Queen Anne's County, these are most concentrated along Kent Island, south of U.S. 50/301, and Kent Narrows/Grasonville, north of U.S. 50/301. Along with docks, there are a series of private beaches associated with individual residences, clubs, and private communities.

6.5.1.8 Public Utilities

According to the 2022 Anne Arundel County Master Plan for Water Supply and Sewerage Systems, areas along U.S. 50/301 within the study limits are within the W-7 Water Pressure Zone and S-7 Sewer Service Area. Anne Arundel County's Department of Public Works currently services or plans to provide service to most of U.S. 50/301. East of the U.S. 50/301 and MD 179 interchange, there are areas scattered along the south side along U.S. 50/301 within the study limits that do not have public water service or sewer service and are characterized as rural. The Amberly Water Treatment Plant is southwest of the U.S. 50/301 and MD 179 interchange in Broadneck.

The Queen Anne's County's Department of Public Works Kent Narrows/Stevensville/Grasonville service area offers public water and sewer services to properties along U.S. 50/301 within the study limits in Queen Anne's County. There is one water treatment plant located along U.S. 50/301 in the Kent Narrows/Grasonville community.

Electricity and natural gas services are provided to Anne Arundel County by Baltimore Gas and Electric (BGE) and to Queen Anne's County by Delmarva Power. There is one BGE substation located in Cape St. Claire and one Delmarva substation located in Kent Island. Broadband service is available from a

variety of providers in the areas along U.S. 50/301 within both Anne Arundel and Queen Anne's counties. There are two cell towers located along U.S. 50/30, one in Broadneck and another in Chester.

In addition to the major public utilities identified, there is additional infrastructure for water, sewer, electric, and natural gas service along and across U.S. 50/301 in both Anne Arundel County and Queen Anne's County. These facilities will be comprehensively detailed in engineering reports.

6.5.1.9 Other Community and Social Services

Additional community service facilities located within the analysis area include public and private childcare and daycare centers; affordable or subsidized housing; senior housing and communities; disabilities support and services; and veterans affairs centers or offices. Ten such community and social services are located along U.S. 50/301 within the study limits. Additional details about these facilities are provided in **Section 7**.

Four facilities are within Anne Arundel County:

- Three childcare or daycare centers, and;
- One senior housing facility.

Six facilities are within Queen Anne's County:

- One childcare or daycare center;
- Two subsidized or Section 8 housing complexes;
- Two senior housing facilities; and
- One veteran's affairs center or office.

6.5.2 Environmental Consequences

Impacts to community facilities and services were assessed based on the LOD and proposed right-of-way limits of the ARDS and their potential to impact properties where community facilities and services are located. Potential impacts include relocations, partial property acquisitions for right-of-way, and changes in access to the facilities. Changes to viewsheds and visual impacts are detailed in **Appendix E**. Potential impacts, including changes in traffic volumes and patterns that could affect ease of access, the service provided by the facility, or response times are assessed in the *Traffic and Transportation Technical Report*. Potential changes to the noise environment are assessed in the *Noise Technical Report.* The potential for impacts to facilities and services to affect community character, sense of place, cohesion, and isolation under the No-Build and build alternatives are highlighted by community in **Section 7.**

6.5.2.1 Alternative A: No-Build

The No-Build Alternative would not result in any direct impact to community facilities.

6.5.2.2 Build Alternatives

A summary of the right-of-way impacts to business/other properties, which include community facility properties, for each of the build alternatives is provided in **Section 6.3.2**. Community facilities impacted under the build alternatives are summarized in **Table 6-17**. Discussion of community-specific impacts is provided in **Section 7**.

Table 6-17: Impacts to Community Facilities

Type of Community Facility	Alternatives B and C	Alternatives D, E, F, and G
Educational Facilities (# Properties Impacted)	**1**	**1**
Stevensville Middle School (Impact Type)	Partial acquisition	Partial acquisition
Places of Worship, Religious Facilities, and Cemeteries	**1**	**5**
Kent Island United Methodist Church	Partial acquisition	Partial acquisition
New Walk Community Church	--	Partial acquisition
St. Andrew by the Bay	--	Partial acquisition
Unity by the Bay	--	Partial acquisition
Gardner Family Cemetery	--	Partial acquisition
Health Care Facilities	**0**	**5**
Annapolitan Care Center	--	Partial acquisition
Anne Arundel Medical Center Pavilion/Annapolis Pediatrics - Kent Island	--	Partial acquisition
Mid Atlantic Health Institute	--	Partial acquisition
University of Maryland Shore Medical Campus and Emergency Center	--	Partial acquisition
University of Maryland Urgent Care - Kent Island	--	Partial acquisition
Parks and Recreational Areas and Trails[1]	**4**	**9**
Broadneck Trail	Partial acquisition	Partial acquisition
Sandy Point State Park	Partial acquisition	Partial acquisition
Terrapin Nature Park	Partial acquisition	Partial acquisition
Chesapeake Bay Trail	Partial acquisition	Partial acquisition
Cross Island Trail	--	Partial acquisition
Kent Narrows Trail South	--	Partial acquisition
Kent Narrows Landing[2]	--	Partial acquisition
Piney Creek Nature Area	--	Partial acquisition
Queenstown Harbor Golf Links	--	Partial acquisition
Public Institutions	**0**	**1**
Chester Post Office	--	Partial acquisition
Emergency Services, Law Enforcement, and Correctional Facilities	**1**	**1**
DNR Police - Southern Region Broadneck Office	Partial acquisition	Partial acquisition
Transportation	**2**	**4**
Stevensville Park & Ride	Partial acquisition	Partial acquisition
Kent Island Castle Marina Road Park & Ride[3]	--	Partial acquisition
Bay Bridge Marina	Partial acquisition	Partial acquisition
Kent Narrows Boatel	--	Partial acquisition
Public Utility Facilities	**1**	**3**
Delmarva Power & Light Co	Partial acquisition	Partial acquisition

Type of Community Facility	Alternatives B and C	Alternatives D, E, F, and G
Amberly Water Treatment Plant	--	Partial acquisition
Cellular Tower	--	Partial acquisition
Other Community and Social Services	**0**	**1**
St. Andrew by the Bay Preschool	--	Partial acquisition
Total Community Facilities Impacted[4]	**10**	**30**

1. Impacts noted include impacts to recreation areas, recreational trails, and water trails. Detailed impacts are fully documented in the Draft Section 4(f) Evaluation.
2. Kent Narrows Landing is located in existing ROW.
3. Kent Island Castle Marina Road Park & Ride is located in existing ROW.
4. The build alternatives would not result in the displacement of any community facilities.

A total of ten community facilities are located on properties that would be impacted by Alternatives B and C and 30 community facilities are on properties that would be impacted by Alternatives D, E, F, and G. All impacts to community facility properties are in the form of partial acquisition of right-of-way to accommodate construction activities and the proposed build alternatives. It is not expected that any of the partial acquisitions would result in permanent impacts to access or function of these community facilities. As noted previously, the existing Chesapeake Bay Bridge is an area of significant fishing activity, including recreational shore angling, boating, charter fishing, oystering, and crabbing. These activities may be temporarily disrupted by the build alternatives during construction of new bridge spans and demolition of the existing Bay Bridge spans. Notification protocols would be followed throughout the construction duration to inform recreational and commercial fisheries of restriction periods.

The optional SUP would require additional partial acquisition acreage from Sandy Point State Park and Terrapin Nature Park for each of the build alternatives. Inclusion of the optional SUP could include or enhance access to existing and proposed trails and recreational areas including the Baydale Road Bike Path, the Broadneck Peninsula Trail and planned segments, the Cross Island Trail network, and Cross County Connector Trail.

The optional SUP is expected to increase pedestrian and cyclist counts in the area by providing safe, dedicated routes for active transportation users. This could generate additional foot traffic for nearby businesses and enhance tourism beyond what would be expected from vehicle traffic alone. Depending on the route, connectivity to the wider active transportation network, and adjacent development density, the SUP could also provide an alternative commuting option, improving access to employment for households without vehicles. In addition, the health benefits associated with increased walking, cycling, and running on the SUP—though not quantified in this analysis—are an important co-benefit to highlight.

The build alternatives would not result in the displacement of community facilities. **Section 7** documents impacts to community facility properties within each of the communities along U.S. 50/301. Impacted properties under the built alternatives are shown in **Appendix A.**

Coordination with transit agencies would be required to identify the scope of impacts to MTA public transit and Queen Anne's County Ride operations, and bus stops under each of the build alternatives.

Minor utility relocations may occur; however, these would be coordinated with the appropriate service providers during design and construction to ensure there is minimal disruption to utility customers.

Impacts to community facilities where children are most likely to congregate or frequently attend, other than residences along the right-of-way, vary depending on the alternative. These properties would be impacted with partial acquisition of right-of-way, and it is not expected that any of the partial acquisitions would result in permanent impacts to access or function of these community facilities and the children they may serve.

6.6 Economic, Employment, and Commuting Patterns

6.6.1 Affected Environment

The economic analysis was performed using the same geographic footprint as the analysis area as described in **Section 5.1**. The information presented in this section is based on data from AtoZDatabase (*AtoZDatabase 2025*), a comprehensive data collection site which provides localized information on businesses and households, in addition to the U.S. Census ACS Five-Year Estimates (2017-2021 and 2018-2022) and the U.S. Census Bureau's OnTheMap tool. All information collected from these sources is publicly available data. The following describes the economic, employment, and commuting patterns of the analysis area. The demographic data utilized in this section focuses solely on the working population and may pertain to specific age cohorts; therefore, the presented information differs slightly from the information discussed in **Section 6.2**.

The economic impacts analysis is focused on the direct impacts that may result along U.S. 50/301 within the study limits. In addition, the analysis area was used in the economic modeling tools to estimate the effects of the ARDS investments on regional economies, capturing changes in employment, income, and output across industries, described in **Section 6.6.2**.

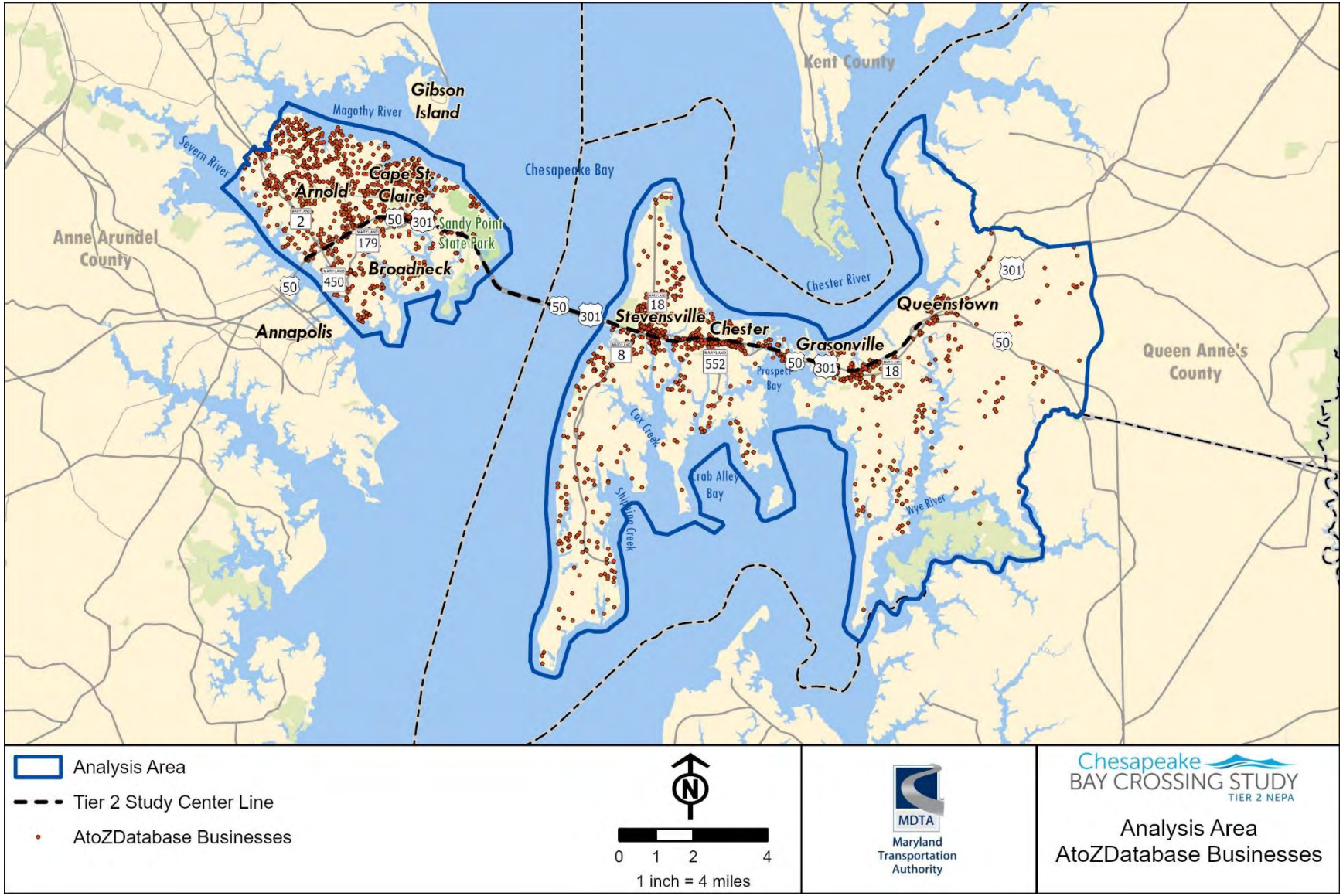
6.6.1.1 Economic Base

The Analysis Area contains a variety of industries which contribute to the economic health of the region. The following sections detail the revenue totals of major industries, top employers, and water-based businesses which fall within the analysis area.

Revenue

Revenue data was sourced from *AtoZDatabase*. Businesses located within the analysis area are presented in **Figure 6-22**. **Figure 6-23** and **Figure 6-24** display businesses along U.S. 50/301 within the study limits.

Figure 6-22: AtoZDatabase Businesses within the Analysis Area



Source: AtoZDatabase Business Data (2025)

Figure 6-23: Businesses Along U.S. 50/301 in Anne Arundel County



Source: AtoZDatabase Business Data (2025)

Figure 6-24: Businesses Along U.S. 50/301 in Queen Anne's County



Source: AtoZDatabase Business Data (2025)

According to *AtoZDatabase*, the 3,616 businesses located within the analysis area generate an annual revenue of $9,612 million. The top ten industries by annual revenue (rounded to the nearest million) are included in **Table 6-18**. Revenue is classified by Standard Industrial Classification (SIC) code in order to capture the impact of specific business industries. Top industries within the analysis area include residential building construction, restaurants, and physicians and surgeons.

Table 6-18: Top Industries by Revenue in the Analysis Area

Top Revenue Industry by SIC Code	Annual Revenue
Residential Building Construction	$909M
Restaurants	$450M
Physicians & Surgeons	$363M
Hospital & Medical Insurance Plan Carriers	$316M
New Car Dealers	$298M
Petroleum & Petroleum Products Wholesale (Except Bulk Station)	$277M
Non-Bank Holding Companies	$246M
Amusement & Recreation Services	$230M
Tank Testing & Inspection	$166M
Financial Planning Consultants	$160M

Source: AtoZDatabase Business Data (2025)

Along U.S. 50/301, within the study limits 804 businesses generate an annual revenue of $2,601 million. Top industries include petroleum wholesale, new car dealers, and restaurants as shown in **Table 6-19**.

Table 6-19: Top Industries by Revenue Along U.S. 50/301 Within the Study Limits

Top Revenue Industry by SIC Code	Annual Revenue
Petroleum & Petroleum Products Wholesale (Except Bulk Station)	$277M
New Car Dealers	$257M
Restaurants	$183M
Tank Testing & Inspection	$166M
Hospital & Medical Insurance Plan Carriers	$158M
Residential Building Construction	$120M
Physicians & Surgeons	$112M
Amusement & Recreation Services	$65M
Banks	$58M
Real Estate Agents & Managers	$54M

Source: AtoZDatabase Business Data (2025)

Employment/Unemployment and Labor Force

Labor force is defined as the total number of individuals who are either employed or actively seeking employment. Total employment increased and total unemployment decreased between 2021 and 2022. As a result, the unemployment rate, defined as the rate of members actively seeking work but unable to find employment, also decreased within the analysis area (**Table 6-20**).

Table 6-20: Employment Data –Analysis Area

Year	2021	2022	Year-over-Year Change
Employed Labor Force	69,825	70,031	+206
Unemployed Labor Force	2,869	2,638	-231
Unemployment Rate	4%	4%	-<1%

Source: ACS Five-Year Estimates (2017-2021 and 2018-2022)

Major Employers

Top employers, by employee count, within the analysis area and along U.S. 50/301 within the study limits are included in **Table 6-21** and **Table 6-22**.

Table 6-21: Top Employers by Employee Count – Analysis Area

Top Employers	Employee Count
Anne Arundel Community College	1,322
Northrop Grumman	388
New Covenant Christian College	300
U.S. Post Office	250
Annapolis Weathervanes	249
SEW Friel LLP	240
Future Care	200
Pepper Schlepper	183
Chesapeake Aerospace LLC	180
Broadneck High School	174

Source: AtoZDatabase Business Data (2025)

Table 6-22: Top Employers by Employee Count Along U.S. 50/301 Within the Study Limits

Top Employers	Employee Count
Chesapeake Bay Beach Club	166
McDonald's	91
Food Lion	90
U.S. Post Office	90
Kent Island Volunteer Fire Co	87
Networking Technology Inc HQ	87
Estate Treasures	80
Stevensville Middle School	77
Cracker Barrel Old Country Store	75
Wawa	73

Source: AtoZDatabase Business Data (2025)

Water-Based Businesses

Water-based businesses, including boat dealers, marinas, marine equipment, and boat repair services, as well as tourism and recreation, are responsible for approximately $145.2 million in annual revenue for the analysis area. Water-based businesses also employ 939 individuals, according to data sourced from *AtoZDatabase* (**Table 6-23**).

Table 6-23: Water-Based Businesses –Analysis Area

Water-Based Industries (by SIC)	Annual Revenue	Employee Count (#)
Boat Builders & Repair Services	$37.8M	122
Boat Dealers	$37.1M	258
Marinas	$25.7M	177
Recreational Vehicle Dealers	$13.9M	12
Membership Sports & Recreation Clubs	$4.4M	106
Sporting & Recreational Camps	$4.4M	126
Boat Accessories & Parts Wholesale	$4.1M	15
Boat Repairs	$3.2M	12
Boat Rental & Charter	$2.2M	14
Marine Surveyors	$2.1M	10
Recreational Vehicle Parks & Campsites	$2.1M	7
Boat Covers Tops & Upholstery Stores	$1.5M	5
Recreation Centers	$1.4M	26
Boat Equipment & Supplies Stores	$1.2M	10
Marine Equipment & Supplies Stores	$1.2M	10
Boat Yards & Storage	$1.1M	4
Recreational Vehicles Repair Shops	$1.0M	6
Recreational Sports Clubs	$0.8M	19
TOTAL	**$145.2M**	**939**

Source: AtoZDatabase Business Data (2025)

A variety of water-based businesses are located along U.S. 50/301 within the study limits. These businesses generate $35.6 million in annual revenue and have a total employment count of 178 (*AtoZDatabase 2025*). Top industries include boat dealers, recreational vehicle dealers, and marinas.

Table 6-24: Water-Based Businesses – Along U.S. 50/301 Within the Study Limits

Water-Based Industries (by SIC)	Annual Revenue	Employee Count (#)
Boat Dealers	$15.4M	94
Recreational Vehicle Dealers	$7.0M	6
Marinas	$3.9M	27
Marine Surveyors	$2.1	10
Boat Builders & Repair Services	$1.7M	4
Boat Covers Tops & Upholstery Stores	$1.5M	5
Boat Rental & Charter	$1.2M	9
Boat Equipment & Supplies Stores	$1.2M	10
Recreational Vehicles Repair Shops	$1.0M	6
Membership Sports & Recreation Clubs	$0.6M	7
TOTAL	**$35.6M**	**178**

Source: AtoZDatabase Business Data (2025)

6.6.1.2 Business Cluster Analysis

A variety of shopping centers and clusters of businesses are located along U.S. 50/301 within the study limits. These business clusters provide employment and economic activity for the surrounding region. This section identifies select business clusters along U.S. 50/301 within the study limits, see **Table 6-25**. **Table 6-25** details the total number of businesses, annual revenue, employment, and parking availability within each business cluster. Additional information on the business clusters evaluated is provided in **Appendix D**.

Table 6-25: Business Clusters Along U.S. 50/301 Within the Study Limits

Business Cluster	Business Count	Approximate Parking	Access Road	Total Annual Revenue	Total Employment
Exit 29A	24	350	Buschs Frontage Road	$80M	361
Jemals Bay 50 Outlet Shopping Center	14	400	St Margarets Road/ Whitehall Road	$21M	194
Exit 38A/Thompson Creek Shopping Center	92	1,200	Duke Street and Thompson Creek Road	$193M	1,008
Services Exit/Shopping Center Road	26	500	Main Street	$56M	246
Exit 39A	130	1,100	Postal Road and Castle Marina Road	$651M	1,062
Exit 39B	67	1,000	Chester Station Lane and Main Street	$156M	637
Exit 40A	102	890	Piney Creek Road and Main Street	$377M	968
Exit 41	14	900	Piney Narrows Road	$27M	157
Exit 42	7	1,020	Kent Narrows Road and Main Street	$16M	129
Exit 43A	33	330	Saddler Road and Main Street	$89M	219
Exit 44A	18	430	VFW Avenue and Station Lane	$55M	160
Exit 44B	17	250	Winchester Creek Road and Drummer Drive	$56M	164
Exit 45A	16	250	Hissey Road and Hess Road	$26M	135
Exit 45B	22	410	Nesbit Road	$28M	126
Queenstown Premium Outlets	28	850	Main Street	$64M	308
TOTAL	**610**	**9,880**		**$1,895M**	**5,874**

Source: AtoZDatabase Business Data (2025)

6.6.1.3 Employment Patterns

Employment data was collected from a variety of sources, including the 2011-2015, 2017-2021, and 2018-2022 ACS data, the U.S. Census Bureau's *OnTheMap* tool, and the *AtoZDatabase*. Worker data only includes individuals who physically work within the analysis area. Employment and unemployment data includes individuals who live within the analysis area.

Employment by Industry Sector

Employment by industry data was not available at the block group level. In this case, the analysis area was not used to evaluate employment by industry sector. Instead, total employment numbers by industry were collected and combined for both Anne Arundel and Queen Anne's counties. As of 2022, the industries within the two counties with the largest employment include educational services, health care and social assistance; professional, scientific, and management, and administrative and waste management services; public administration; and retail trade. Employment in these industries accounts for 59 percent of the employment in Anne Arundel and Queen Anne's counties. Employment by industry for 2015, 2021, and 2022, as well as the changes across those time periods, is shown in **Table 6-26**.

Table 6-26: Employment by Industry Sector – Anne Arundel and Queen Anne's Counties

Industry	2015	Change 2015 - 2021	2021	Change 2021 - 2022	2022
Agriculture, forestry, fishing and hunting, and mining	1,546	-64	1,482	-168	1,314
Construction	22,709	2,524	25,233	2,165	27,398
Manufacturing	15,951	537	16,488	-344	16,144
Wholesale trade	8,667	-37	8,630	-582	8,048
Retail trade	32,477	-621	31,856	118	31,974
Transportation and warehousing, and utilities	11,882	3,751	15,633	-146	15,487
Information	6,690	-1,192	5,498	-10	5,488
Finance and insurance, and real estate and rental and leasing	18,162	428	18,590	888	19,478
Professional, scientific, and management, and administrative and waste management services	46,916	6,294	53,210	879	54,089
Educational services, health care and social assistance	61,811	3,572	65,383	1,006	66,389
Arts, entertainment, and recreation and accommodation and food services	25,250	-83	25,167	-1,258	23,909
Other services, except public administration	15,526	-109	15,417	337	15,754
Public administration	41,810	-1,474	40,336	161	40,497
Total	**309,397**	**13,526**	**322,923**	**3,046**	**325,969**

Source: ACS Five-Year Estimates (2011-2015, 2017-2021, and 2018-2022)

6.6.1.4 Commuting Patterns

The majority of workers in the analysis area commute to employment from outside the analysis area. According to U.S. Census Bureau *OnTheMap* tool (2022), 11,813 workers commute into the analysis area for employment, while 25,575 residents commute outside of the analysis area for their primary place of work. Only 4,709 individuals both live and work within the analysis area. **Table 6-27** summarizes these commuting patterns.

Table 6-27: Commuting Patterns in the Analysis Area

Commuting Pattern	Count	Percentage
Employed in the Analysis Area	**16,522**	**100%**
Employed in the Analysis Area but Living Outside	11,813	71%
Employed and Living in the Analysis Area	4,709	29%
Living in the Analysis Area	**30,284**	**100%**
Living in the Analysis Area but Employed Outside	25,575	84%
Living and Employed in the Analysis Area	4,709	16%

Source: U.S. Census Bureau OnTheMap (2022 data)

Based on 2018-2022 ACS data for Anne Arundel and Queen Anne's counties, the majority of workers 16 years and older commute by car, truck, or van (74 and 79 percent respectively). An additional six percent for Anne Arundel and seven percent for Queen Anne's carpool. Only about three percent in Anne Arundel County and one percent in Queen Anne's County use public transportation. Among workers using public transportation, most work outside of Maryland, indicating that a small portion of residents commute by bus to jobs in neighboring states. **Table 6-28** summarizes the commute types for workers within Anne Arundel and Queen Anne's Counties, Maryland, and the U.S. This dataset is not available at the block group level.

Table 6-28: Worker Commute Type

Commute Type	Anne Arundel County	Queen Anne's County	Maryland	United States
Car, truck, or van – drove alone	74%	79%	68%	72%
Car, truck, or van - carpooled	6%	7%	8%	8%
Taxicab, motorcycle, or other	1%	<1%	2%	1%
Public transportation (excluding taxicab)	3%	1%	5%	4%
Walked or bicycle	2%	1%	2%	3%
Worked from home	15%	12%	15%	12%

Source: ACS Five-Year Estimates (2018-2022)

For information on seasonal variation of traffic, please refer to the *Traffic Analysis Technical Report*.

Where Workers are Employed

According to data provided by the *OnTheMap* tool (2022), many residents living within the analysis area commute to nearby city centers such as Annapolis and Baltimore. Other employment trends provided in **Table 6-29** show that many residents are employed outside of the analysis area.

Table 6-29: Residents in the Analysis Area by Place of Employment

Location of Employment	Count	Percentage
Parole CDP, MD	2,596	9%
Annapolis, MD	2,292	8%
Baltimore, MD	2,246	7%
Stevensville CDP, MD	1,051	4%
Arnold CDP, MD	1,026	3%
Washington, DC	862	3%
Columbia CDP, MD	791	3%
Severna Park CDP, MD	764	3%

Location of Employment	Count	Percentage
Glen Burnie CDP, MD	709	2%
Chester CDP, MD	581	2%
All Other Locations	17,366	57%

Source: U.S. Census Bureau OnTheMap (2022 data)

Where Workers Live

According to data provided by the *OnTheMap* tool (2022), a significant portion of individuals employed within the analysis area reside outside of the area. The top ten locations, by percentage of employment within the analysis area, are included in **Table 6-30**.

Table 6-30: Workers Employed in the Analysis Area by Place of Residence

Location of Residence	Count	Percentage
Arnold CDP, MD	1,011	6%
Stevensville CDP, MD	727	4%
Chester CDP, MD	551	3%
Annapolis City, MD	487	3%
Glen Burnie CDP, MD	473	3%
Severna Park CDP, MD	445	3%
Cape St. Claire CDP, MD	440	3%
Baltimore City, MD	428	3%
Grasonville CDP, MD	340	2%
Centreville town, MD	274	2%
All Other Locations	11,346	69%

Source: U.S. Census Bureau OnTheMap (2022 data)

6.6.2 Environmental Consequences

This section evaluates the economic impacts of the ARDS using the IMPLAN and Regional Input-Output Modeling System (RIMS II) for the "Economic Impact Area" which includes Anne Arundel, Queen Anne's, Talbot, and Caroline counties. These economic modeling tools estimate the direct, indirect, and induced economic effects of the ARDS investments on regional economies, capturing changes in employment, income, and output across industries. Although there may be some differences in expected economic outputs between the two models, both are included to provide additional insight into the potential economic impacts of each alternative. The results of both models provide a range of economic benefits to be expected from the construction and operation of the ARDS. This section also evaluates the property impacts for businesses within the LOD for each alternative.

Worker characteristics for those individuals who physically work within the analysis area, employment, and unemployment characteristics, as well as commuting patterns, are not expected to measurably change under the ARDS.

6.6.2.1 Analysis Methodology

IMPLAN

IMPLAN is a regional economic analysis software and data application that is designed to estimate the impact or "ripple effect" of a given economic activity or the contribution of some existing activity within a specific geographic area. IMPLAN uses an economic modeling technique called Input-Output analysis and a Social Accounting Matrix, which is a type of applied economic analysis that tracks the interdependence among various industries of an economy and household spending.

By analyzing the multiplier effect of an 'initial change' in the Economic Impact Area's economy, IMPLAN enables the estimation of the effect of an investment (such as the Tier 2 Study ARDS) on employment, earnings, output and taxation revenues for the area.

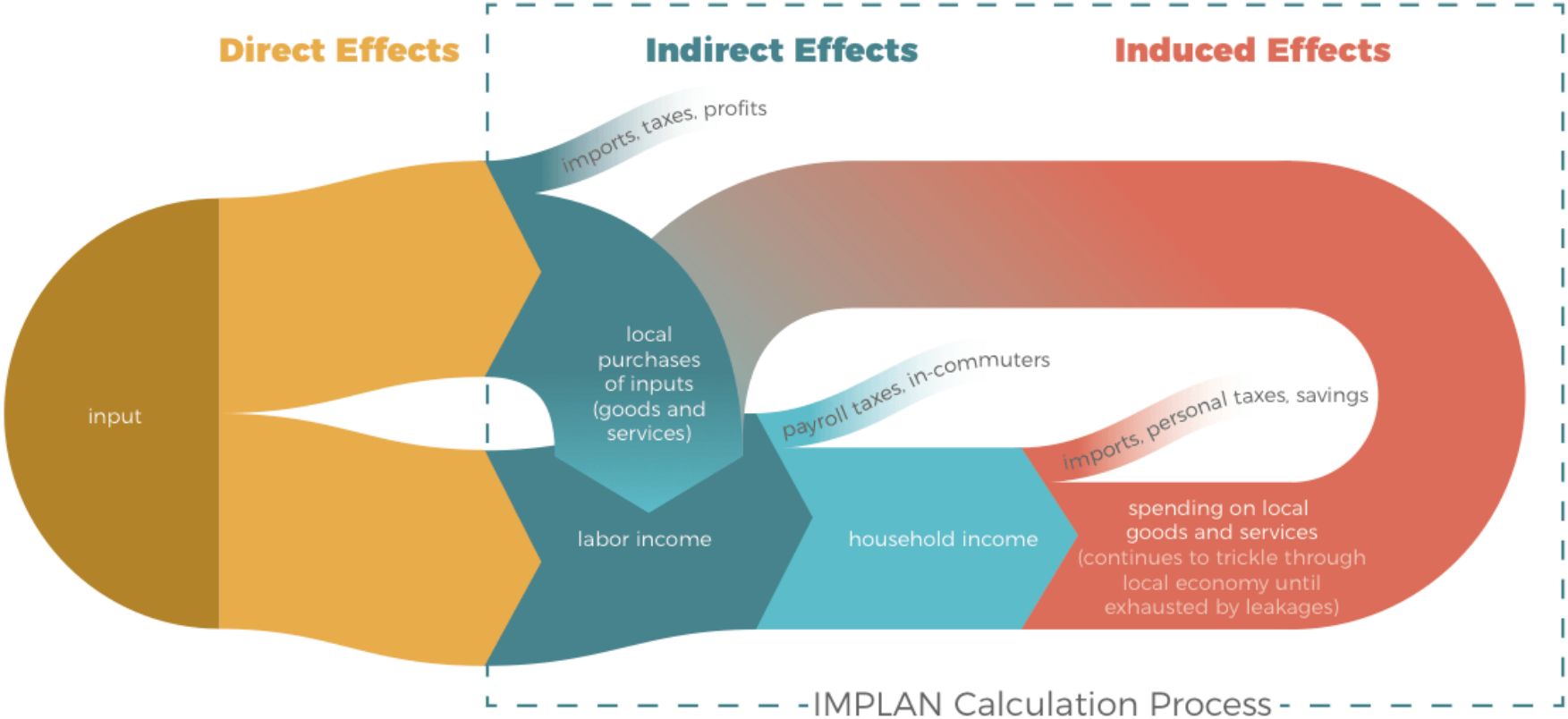
The results derived from the model are categorized into direct, indirect, and induced impacts.

- *Direct impacts* reflect the initial change in the economy and the underlying relationships.
- *Indirect impacts* are the impacts of the alternative's purchase of goods and services in the economy, and those businesses' purchases of supplies to produce those sales through various "ripples" until the dollars have completely leaked from the Economic Impact Area through the purchase of imports. Goods and services that are not produced within the Economic Impact Area are called "leakages" and represent dollars that flow to businesses and individuals outside of the Economic Impact Area.
- *Induced impacts* capture the expenditures of households employed through direct/indirect effects. The employees of the businesses receive compensation, which is then used to purchase additional local goods and services at the household level. These expenditures also circulate through the economy until all dollars have leaked from the Economic Impact Area.

There are several methods for determining the "initial change" in an economy. The initial change is the activity at the business being examined. In some cases, this may be the business's output, which can often be sales. In others, it is the expenditures a business makes on various goods and services. It is also possible, using the software, to use employment to estimate the business's output. The IMPLAN analysis focuses on one-time capital impacts, resulting from construction of the ARDS, and ongoing operations impacts from ongoing operations and maintenance (O&M) of the ARDS.

IMPLAN collects data from a variety of economic data sources to generate average output, employment, and productivity data for approximately 530 different industries. Using this information, IMPLAN then models the way a dollar spent in any given industry is re-spent in other segments of the economy, generating sequences of economic activity. An overview of this process can be seen in **Figure 6-25**. The IMPLAN model uses hundreds of region-specific multipliers to output these effects.

Figure 6-25: IMPLAN Calculation Process



Source: IMPLAN Group, LLC. "Great Buildings. Great Places: The Economic Benefits of a New Markets Tax Credit Program (NMTC)Funded Development Effort." IMPLAN Website. March 13, 2024. https://implan.com/resources/great-buildings-great-places/.

The results of the input-output analysis are categorized by labor income, value added, output, and employment.

- *Labor income* includes all forms of labor income, including wages, benefits, and proprietor income. It reflects the combined cost of total payroll paid to employees (e.g., wages and salaries, benefits, payroll taxes) and payments received by self-employed individuals and/or unincorporated business owners across the defined economy. Also referred to as earnings.

- *Value added* is the difference between an industry's total output and the cost of its intermediate inputs[6] (in other words, an industry's contribution to Gross Domestic Product).

- *Output* is the value of industry output, measured in purchaser prices.

- *Employment* numbers are considered an annual average of employment and treats full-time, part-time, and seasonal employment equally (in other words, employment data should not be considered full-time equivalent). IMPLAN calculates the labor income, value added, output, and employment for the direct, indirect, and induced effects of the ARDS.

The IMPLAN model also provides tax impact results of the ARDS based on the collected and reported taxes within the region for the given data year (2023). Tax analysis data and tax impacts are provided in **Appendix D**.

Regional Input-Output Modeling System (RIMS II)

The RIMS II, a regional economic model, is a tool used to objectively assess the potential economic impacts of various projects. This model produces multipliers that are used in economic impact studies to estimate the total impact of a project on a region. RIMS II is based on a set of national I-O accounts that show the goods and services produced by each industry and the use of these goods and services by industries and final users. Like most other regional I-O models, RIMS II adjusts these national relationships to account for regional supply conditions. The estimated economic impacts are based on the Bureau of Economic Analysis (BEA) RIMS II multipliers for Anne Arundel, Queen Anne's, Talbot, and Caroline counties—the four counties included in the "Economic Impact Area". These multipliers are derived from the 2017 U.S. Benchmark Input-Output (I-O) data and the 2022 Regional Data. As previously stated, the RIMS II analysis is included in conjunction with the IMPLAN modeling in order to provide a range of possible benefits to be expected as a result of an alternative's construction. **Table 6-31** provides the multiplier values for the relevant industry categories.

[6] Intermediate inputs are purchases of non-durable goods such as energy, materials, and purchased services that are used in the production of other goods and services, rather than for final consumption.

Table 6-31: Comparison of Regional Input-Output Modeling System (RIMS II) Multipliers

Expenditure Category	NAICS Industry	Final Demand Output	Final Demand Earnings	Final Demand Employment	Value Added	Direct Effect Earnings	Direct Effect Employment
Professional Services	Architectural, engineering, and related services	1.5615	0.341	4.7626	0.9786	1.4962	2.0083
Construction	Transportation structures and highways and streets	1.4635	0.2578	4.185	0.7935	1.4601	1.6223

Source: Bureau of Economic Analysis, 2022

As described for the IMPLAN model (**Section 6.6.2.1**), each dollar of cost from the ARDS is expected to yield an economic effect for the Economic Impact Area. Using spending for the construction industry as an example, the multipliers in **Table 6-31** are interpreted as follows:

- The Final Demand Output Multiplier represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the construction industry.
- The Final Demand Earnings Multiplier represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the construction industry.
- The Final Demand Employment Multiplier represents the total change in number of jobs that occurs in all industries for each $1 million of output delivered to final demand by the construction industry.
- The Value-Added Multiplier represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the corresponding industry.
- The Direct Effect Earnings Multiplier represents the total dollar change in earnings of households employed by all industries for each additional dollar of earnings paid directly to households employed by the construction industry.
- The Direct Effect Employment Multiplier represents the total change in number of jobs in all industries for each additional job in the construction industry.

Applying the Final Demand multipliers for the construction industry to the amount of funding allocated for capital expenditures provides estimates of the net output, value added, earnings (labor income), and employment effects generated in Economic Impact Area. It is important to note that these effects are one-time effects, lasting for the duration of construction. One job is defined as a job for one person with a duration of one year. For example, a job for one person lasting three years would be defined as three person-year jobs.

Costs

Construction and O&M spending of the ARDS would represent significant capital investment in the local economy of the four-county Economic Impact Area). The four counties were selected due to their proximity to the project. The analysis anticipates that the majority of the labor pool necessary for project completion would be sourced from these four counties, and the impacts to services, materials, and other ripple effects would be most strongly felt in this Economic Impact Area.

This spending would increase employment, earnings, and output for the duration of construction and operations. This section describes forecasted ARDS expenditures, with a focus on those that would occur directly within the Economic Impact Area.

When estimating the economic impact of any activity on a particular study area (in this case, the Economic Impact Area), it is important to consider how much of the total goods and services that are purchased will be produced within that area. Goods and services purchased within the boundaries of the four counties included in the Economic Impact Area will have an economic effect quantified in this analysis, leading to increases in earnings, jobs, and economic output. Goods and services that are not produced within the study area are called "leakages" and represent dollars that flow to businesses and individuals outside of the study area. Known goods and services not produced within the Economic Impact Area have thus been excluded from the cost estimates that were used to conduct this analysis.

Table 6-32 summarizes the total construction costs for each build alternative, as well as the dollars that are expected to be spent within the Economic Impact Area for each. These figures are gross capital expenditure for the six build alternatives.

Table 6-32: Capital Costs by Alternative (2025 dollars)

Category	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G
Full Cost	$15,850M	$15,600M	$18,250M	$18,050M	$20,300M	$20,000M
Costs Spent Inside Economic Impact Area	$13,156M	$12,948M	$15,148M	$14,982M	$16,849M	$16,600M

Table 6-33 summarizes the annual O&M costs for each build alternative, all of which are expected to be spent within the Economic Impact Area. Alternative A (No-Build) O&M costs are also considered, but not in annual terms. Alternative A O&M costs are estimated to cost $3,800 million total, across the next 40 years.

Table 6-33: Annual O&M Costs by Alternative (2025 dollars)

Category	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G
O&M Costs Spent Inside Economic Impact Area	$396M	$390M	$456M	$451M	$507M	$500M

6.6.2.2 Alternative A: No-Build

Impacted Businesses (AtoZDatabase Analysis)

Alternative A would have no change in impacts to buildings or properties compared to the existing conditions.

IMPLAN Analysis

The effect of O&M spending in the Economic Impact Area for Alternative A would result in $4,970 million in output (2025 dollars), $1,762 million in labor income, and approximately 22,200 person-year jobs[7] across the 40-year O&M period, as shown in **Table 6-34**. About 76 percent of the employment impact would be through direct hiring of maintenance and repair workers.

Table 6-34: Economic Impact Summary of Alternative A O&M Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	16,800	$1,387,358,000	$2,365,990,000	$3,800,000,000
Indirect	2,100	$180,536,000	$321,913,000	$559,932,000
Induced	3,300	$194,407,000	$398,248,000	$610,037,000
Total	**22,200**	**$1,762,301,000**	**$3,086,151,000**	**$4,969,969,000**

RIMS II Analysis

For the Economic Impact Area, the O&M spending for Alternative A is expected to generate $5,561 million in output (in 2025 dollars), $980 million in earnings, over 14,500 person-year jobs, and $3,015 million in value added (**Table 6-35**). Since Alternative A's costs are due to O&M over the lifespan of the alternative, these benefits are expected to occur throughout the same period.

Table 6-35: Net Effects of Capital Expenditure of Alternative A Capital Costs

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Value Added (2025 $)	Output (2025 $)
Construction	$3,800M	14,598	$980M	$3,015M	$5,561M
Total	**$3,800M**	**14,598**	**$980M**	**$3,015M**	**$5,561M**

Source: BEA, 2022

6.6.2.3 Alternative B

Impacted Businesses (AtoZDatabase Analysis)

Construction of Alternative B will have minimal impact on businesses along U.S. 50/301 within the study limits. As shown in **Table 6-36**, partial acquisition of one business and two business displacements would occur under this alternative. A summary of the right-of-way impacts to properties, including business properties, for each of the build alternatives is provided in **Section 6.3.2**. Properties which were not included in the AtoZDatabase or marked on Google Maps as an active business are listed as non-businesses. Businesses which were identified on Google Maps within the affected parcel but did not have revenue or number of employees listed in AtoZDatabase have their revenue and employee

[7] A person-year job is defined as a job for one person with a duration of one year. For example, a job for one person lasting three years would be defined as three person-year jobs.

counts listed as unknown. For partial acquisitions, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. Driveways and parking may be impacted but minimized as much as possible while the alternative is refined. The build alternative would not impact the building facilities; therefore, businesses for which partial acquisitions are identified are anticipated to continue unimpeded by the build alternative.

Table 6-36: Business Impacts of Alternative B

Business Type	Impact Level	Annual Revenue	Employees
Shopping Center	Partial Acquisition	Unknown	Unknown
Automotive Retail Center	Displacement	Unknown	Unknown
Tree/Lawn Care	Displacement	$1.0M	10
Total (3)	**1 Partial Acquisition 2 Displacements**	**$1.0M**	**10**

Source: AtoZDatabase Business Data (2025)

IMPLAN Analysis

The effect of construction spending in the Economic Impact Area for Alternative B would result in $17,206 million in output (2025 dollars), $6,101 million in labor income, and approximately 76,800 person-year jobs across the design and construction period, as shown in **Table 6-37**. About 76 percent of these jobs would be through direct employment of construction workers.

Table 6-37: Economic Impact Summary of Alternative B Capital Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	58,000	$4,802,996,000	$8,190,995,000	$13,155,500,000
Indirect	7,200	$625,011,000	$1,114,453,000	$1,938,469,000
Induced	11,500	$673,032,000	$1,378,724,000	$2,111,934,000
Total	**76,800**	**$6,101,039,000**	**$10,684,172,000**	**$17,205,903,000**

The effect of annual O&M spending in the Economic Impact Area for Alternative B would result in $534 million in output (2025 dollars), $170 million in labor income, and approximately 2,200 jobs per year ongoing for the extent of the alternative's useful life, as shown in **Table 6-38**. Almost 68 percent of the employment impact would be through direct hiring of maintenance and repair workers.

Table 6-38: Annual Economic Impact Summary of Alternative B O&M Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	1,500	$123,065,000	$237,448,000	$396,250,000
Indirect	400	$27,842,000	$52,654,000	$78,662,000
Induced	300	$18,798,000	$38,509,000	$58,989,000
Total	**2,200**	**$169,706,000**	**$328,611,000**	**$533,901,000**

RIMS II Analysis

For the Economic Impact Area, the construction spending for Alternative B is expected to generate $19,253 million in output (in 2025 dollars), $3,391 million in earnings, over 50,500 person-year jobs, and $10,439 million in value added. Additionally, expenditures on professional services would result in an increase in output of $4,207 million, earnings of $919 million, employment of over 11,700 person-year jobs, and $2,637 million in value added (**Table 6-39**).

Table 6-39: Net Effects of Capital Expenditure of Alternative B

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Valued Added (2025 $)	Output (2025 $)
Construction	$13,156M	50,540	$3,391M	$10,439M	$19,253M
Professional Services	$2,695M	11,780	$919M	$2,637M	$4,207M
Total	**$15,850M**	**62,320**	**$4,310M**	**$13,076M**	**$23,461M**

Source: BEA, 2022

Alternative B is expected to generate reoccurring employment and earnings for the Economic Impact Area in the form of operation and maintenance staff, facility operators, and maintenance expenditures. Based on previous projects and industry standards, O&M costs for each alternative are estimated to be 2.5 percent of capital costs annually. The annual economic benefits as a result of O&M expenditures are included in **Table 6-40**.

Table 6-40: Annual Net Effects of Capital Expenditure of Alternative B O&M Costs

Expenditure Category	Net Capital Expenditure (2025 $M)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $M)	Value Added (2025 $M)	Output (2025 $M)
Construction	$329M	1,263	$85M	$261M	$481M
Professional Services	$67M	295	$23M	$66M	$105M
Total	**$396M**	**1,558**	**$108M**	**$327M**	**$587M**

Source: BEA, 2022

6.6.2.4 Alternative C

Impacted Businesses (AtoZDatabase Analysis)

Construction of Alternative C will have minimal impact on businesses along U.S. 50/301 within the study limits. As shown in **Table 6-41**, partial acquisition of one business and two business displacements would occur under this alternative. A summary of the right-of-way impacts to properties, including business properties, for each of the build alternatives is provided in **Section 6.3.2**. Properties which were not included in the AtoZDatabase or marked on Google Maps as an active business are listed as non-businesses. Businesses which were identified on Google Maps within the affected parcel but did not have revenue or number of employees listed in AtoZDatabase have their revenue and employee counts listed as unknown. For partial acquisitions, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. Driveways and parking may be impacted but minimized as much as possible while the alternative is refined. The build alternative would not impact the building facilities; therefore, businesses for which partial acquisitions are identified are anticipated to continue unimpeded by the build alternative.

Table 6-41: Business Impacts of Alternative C

Business Type	Impact Level	Annual Revenue	Employees
Shopping Center	Partial Acquisition	Unknown	Unknown
Automotive Retail Center	Displacement	Unknown	Unknown
Tree/Lawn Care	Displacement	$1.0M	10
Total (3)	**1 Partial Acquisition 2 Displacements**	**$1.0M**	**10**

Source: AtoZDatabase Business Data (2025)

IMPLAN Analysis

The effect of construction spending in the Economic Impact Area for Alternative C would result in $16,900 million in output (2025 dollars), $6,005 million in labor income, and approximately 75,600 person-year jobs across the design and construction period, as shown in **Table 6-42**. About 76 percent of these jobs would be through direct employment of construction workers.

Table 6-42: Economic Impact Summary of Alternative C Capital Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	57,100	$4,727,239,000	$8,061,800,000	$12,948,000,000
Indirect	7,100	$615,153,000	$1,096,875,000	$1,907,894,000
Induced	11,400	$662,416,000	$1,356,977,000	$2,078,622,000
Total	**75,600**	**$6,004,808,000**	**$10,515,652,000**	**$16,934,516,000**

The effect of annual O&M spending in the Economic Impact Area for Alternative C would result in $525 million in output (2025 dollars), $167 million in labor income, and approximately 2,200 jobs per year ongoing for the extent of the alternative's useful life, as shown in **Table 6-43**. Almost 68 percent of the employment impact would be through direct hiring of maintenance and repair workers.

Table 6-43: Annual Economic Impact Summary of Alternative C O&M Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	1,500	$121,124,000	$233,703,000	$390,000,000
Indirect	400	$27,403,000	$51,823,000	$77,421,000
Induced	300	$18,502,000	$37,901,000	$58,058,000
Total	**2,200**	**$167,029,000**	**$323,428,000**	**$525,480,000**

RIMS II Analysis

For the Economic Impact Area, the construction spending for Alternative C is expected to generate $18,949 million in output (in 2025 dollars), $3,338 million in earnings, over 49,700 person-year jobs, and $10,274 million in value added. Additionally, expenditures on professional services would result in an increase in output of $4,141 million, earnings of $904 million, employment of over 11,500 person-year jobs, and $2,595 million in value added (**Table 6-44**).

Table 6-44: Net Effects of Capital Expenditure of Alternative C

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Valued Added (2025 $)	Output (2025 $)
Construction	$12,948M	49,742	$3,338M	$10,274M	$18,949M
Professional Services	$2,652M	11,594	$904M	$2,595M	$4,141M
Total	**$15,600M**	**61,337**	**$4,242M**	**$12,869M**	**$23,090M**

Source: BEA, 2022

Alternative C is expected to generate reoccurring employment and earnings for the Economic Impact Area in the form of operation and maintenance staff, facility operators, and maintenance expenditures. Based on previous projects and industry standards, O&M costs for each alternative are estimated to be 2.5 percent of capital costs annually. The annual economic benefits as a result of O&M expenditures are included in **Table 6-45**.

Table 6-45: Annual Net Effects of Capital Expenditure of Alternatives C O&M Costs

Expenditure Category	Net Capital Expenditure (2025 $M)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $M)	Value Added (2025 $M)	Output (2025 $M)
Construction	$297M	1,244	$83M	$257M	$474M
Professional Services	$61M	290	$23M	$65M	$104M
Total	**$358M**	**1,533**	**$106M**	**$322M**	**$577M**

Source: BEA, 2022

6.6.2.5 Alternative D

Impacted Businesses (AtoZDatabase Analysis)

Construction of Alternative D would result in partial acquisition of two businesses and seven business displacements along U.S. 50/301 within the study limits, as shown in **Table 6-46**. A summary of the right-of-way impacts to properties, including partial acquisitions and displacements of business properties, for each of the build alternatives is provided in **Section 6.3.2**. Properties which were not included in the AtoZDatabase or marked on Google Maps as an active business are listed as non-businesses. Businesses which were identified on Google Maps within the affected parcel but did not have revenue or number of employees listed in AtoZDatabase have their revenue and employee counts listed as unknown. For partial acquisitions, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. Driveways and parking may be impacted but minimized as much as possible while the alternatives are refined. The build alternative would not impact the building facilities; therefore, businesses for which partial acquisitions are identified are anticipated to continue unimpeded by the build alternative.

Table 6-46: Business Impacts of Alternative D

Business Name	Impact Level	Annual Revenue	Employees
Shopping Center	Partial Acquisition	Unknown	Unknown
Tree/Lawn Care	Displacement	$1.0M	10
Contracting Services	Displacement	$10.0M	20

Business Name	Impact Level	Annual Revenue	Employees
Insurance Office	Displacement	$4.1M	15
Contracting Services	Displacement	$9.0M	23
Automotive Retail Center	Displacement	Unknown	Unknown
Restaurant	Displacement	$5.2M	40
Contracting Services	Displacement	Unknown	Unknown
Storage Facility	Partial Acquisition	$1.1M	3
Total (9)	**2 Partial Acquisitions 7 Displacements**	**$30.4M**	**111**

Source: AtoZDatabase Business Data (2025)

IMPLAN Analysis

The effect of construction spending in the Economic Impact Area for Alternative D would result in $19,811 million in output (2025 dollars), $7,025 million in labor income, and approximately 88,500 job-years across the design and construction period, as shown in **Table 6-47.** About 76 percent of these jobs would be through direct employment of construction workers.

Table 6-47: Economic Impact Summary of Alternatives D Capital Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	66,800	$5,530,264,000	$9,431,272,000	$15,147,500,000
Indirect	8,300	$719,650,000	$1,283,203,000	$2,231,991,000
Induced	13,300	$774,942,000	$1,587,490,000	$2,431,722,000
Total	**88,500**	**$7,024,856,000**	**$12,301,965,000**	**$19,811,213,000**

The effect of annual O&M spending in the Economic Impact Area for Alternative D would result in $615 million in output (2025 dollars), $195 million in labor income, and approximately 2,600 jobs per year, as shown in **Table 6-48**. About 68 percent of the employment impact would be through direct hiring of maintenance and repair workers.

Table 6-48: Economic Impact Summary of Alternatives D O&M Costs

Impact	Employment	Labor Income	Value Added	Total Output
Direct	1,800	$141,700,000	$273,403,000	$456,250,000
Indirect	500	$32,058,000	$60,627,000	$90,573,000
Induced	400	$21,645,000	$44,340,000	$67,921,000
Total	**2,600**	**$195,403,000**	**$378,369,000**	**$614,744,000**

RIMS II Analysis

For the Economic Impact Area, the construction spending for Alternative D is expected to generate $22,168 million in output (in 2025 dollars), $3,9055 million in earnings, over 58,100 person-year jobs, and $12,020 million in value added, as shown in **Table 6-49**. Additionally, expenditures on professional services would result in an increase in output of $4,845 million, earnings of $1,057 million, employment of over 13,500 person-year jobs, and $3,036 million in value added.

Table 6-49: Net Effects of Capital Expenditure of Alternative D Capital Costs

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Value Added (2025 $)	Output (2025 $)
Construction	$15,148M	58,192	$3,905M	$12,020M	$22,168M
Professional Services	$3,103M	13,564	$1,057M	$3,036M	$4,845M
Total	**$18,250M**	**71,756**	**$4,963M**	**$15,056M**	**$27,013M**

Source: BEA, 2022

Alternative D is expected to generate reoccurring employment and earnings for the region in the form of operation and maintenance staff, facility operators, and maintenance expenditures. Based on previous projects and industry standards, O&M costs for each alternative are estimated to be 2.5 percent of capital costs annually. The annual economic benefits as a result of O&M expenditures are included in **Table 6-50**.

Table 6-50: Annual Net Effects of Capital Expenditure of Alternative D O&M Costs

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Value Added (2025 $)	Output (2025 $)
Construction	$379M	1,455	$98M	$300M	$554M
Professional Services	$78M	339	$26M	$76M	$121M
Total	**$456M**	**1,794**	**$124M**	**$376M**	**$675M**

Source: BEA, 2022

6.6.2.6 Alternative E

Impacted Businesses (AtoZDatabase Analysis)

Construction of Alternative E will have minimal impact on businesses along U.S. 50/301 within the study limits. As shown in **Table 6-66**, partial acquisition of one business and two business displacements would occur under this alternative. A summary of the right-of-way impacts to properties, including business properties, for each of the build alternatives is provided in **Section 6.3.2**. Properties which were not included in the AtoZDatabase or marked on Google Maps as an active business are listed as non-businesses. Businesses which were identified on Google Maps within the affected parcel but did not have revenue or number of employees listed in AtoZDatabase have their revenue and employee counts listed as unknown. For partial acquisitions, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. Driveways and parking may be impacted but minimized as much as possible while the alternative is refined. The build alternative would not impact the building facilities; therefore, businesses for which partial acquisitions are identified are anticipated to continue unimpeded by the build alternative.

Table 6-51: Business Impacts of Alternative E

Business Type	Impact Level	Annual Revenue	Employees
Shopping Center	Partial Acquisition	Unknown	Unknown
Automotive Retail Center	Displacement	Unknown	Unknown
Tree/Lawn Care	Displacement	$1.0M	10

Business Type	Impact Level	Annual Revenue	Employees
Total (3)	**1 Partial Acquisition 2 Displacements**	**$1.0M**	**10**

Source: AtoZDatabase Business Data (2025)

IMPLAN Analysis

The effect of construction spending in the Economic Impact Area for Alternative E would result in $19,594 million in output (2025 dollars), $6,948 million in labor income, and approximately 87,500 person-year jobs across the design and construction period, as shown in **Table 6-67**. About 76 percent of these jobs would be through direct employment of construction workers.

Table 6-52: Economic Impact Summary of Alternative E Capital Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	66,100	$5,469,658,000	$9,327,916,000	$14,981,500,000
Indirect	8,300	$711,763,000	$1,269,141,000	$2,207,531,000
Induced	13,100	$766,450,000	$1,570,092,000	$2,405,073,000
Total	**87,500**	**$6,947,871,000**	**$12,167,149,000**	**$19,594,104,000**

The effect of annual O&M spending in the Economic Impact Area for Alternative E would result in $608 million in output (2025 dollars), $193 million in labor income, and approximately 2,500 jobs per year ongoing for the extent of the alternative's useful life, as shown in **Table 6-53**. About 68 percent of the employment impact would be through direct hiring of maintenance and repair workers.

Table 6-53: Annual Economic Impact Summary of Alternative E O&M Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	1,700	$140,147,000	$270,406,000	$451,250,000
Indirect	400	$31,707,000	$59,962,000	$89,581,000
Induced	400	$21,408,000	$43,854,000	$67,177,000
Total	**2,500**	**$193,261,000**	**$374,222,000**	**$608,007,000**

RIMS II Analysis

For the Economic Impact Area, the construction spending for Alternative E is expected to generate $21,925 million in output (in 2025 dollars), $3,862 million in earnings, over 57,500 person-year jobs, and $11,888 million in value added. Additionally, expenditures on professional services would result in an increase in output of $4,791 million, earnings of $1,046 million, employment of over 13,400 person-year jobs, and $3,003 million in value added (**Table 6-54**).

Table 6-54: Net Effects of Capital Expenditure of Alternative E

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Valued Added (2025 $)	Output (2025 $)
Construction	$14,982M	57,555	$3,862M	$11,888M	$21,925M
Professional Services	$3,069M	13,415	$1,046M	$3,003M	$4,791M
Total	**$18,050M**	**70,970**	**$4,909M**	**$14,890M**	**$26,717M**

Source: BEA, 2022

Alternative E is expected to generate reoccurring employment and earnings for the Economic Impact Area in the form of operation and maintenance staff, facility operators, and maintenance expenditures. Based on previous projects and industry standards, O&M costs for each alternative are estimated to be 2.5 percent of capital costs annually. The annual economic benefits as a result of O&M expenditures are included in **Table 6-55**.

Table 6-55: Annual Net Effects of Capital Expenditure of Alternative E O&M Costs

Expenditure Category	Net Capital Expenditure (2025 $M)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $M)	Value Added (2025 $M)	Output (2025 $M)
Construction	$375M	1,439	$97M	$297M	$548M
Professional Services	$77M	335	$26M	$75M	$120M
Total	**$451M**	**1,774**	**$123M**	**$372M**	**$668M**

Source: BEA, 2022

6.6.2.7 Alternative F

Impacted Businesses (AtoZDatabase Analysis)

Similar to Alternatives D and E, the construction of Alternative F would result in partial acquisition of two businesses and seven business displacements along U.S. 50/301 within the study limits, as shown in **Table 6-56**. A summary of the right-of-way impacts to properties, including partial acquisitions and displacements of business properties, for each of the build alternatives is provided in **Section 6.3.2**. Properties which were not included in the AtoZDatabase or marked on Google Maps as an active business are listed as non-businesses. Businesses which were identified on Google Maps within the affected parcel but did not have revenue or number of employees listed in AtoZDatabase have their revenue and employee counts listed as unknown. For partial acquisitions, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. Driveways and parking may be impacted but minimized as much as possible while the alternatives are refined. The build alternatives would not impact the building facilities; therefore, businesses for which partial acquisitions are identified are anticipated to continue unimpeded by the build alternatives.

Table 6-56: Business Impacts of Alternative F

Business Name	Impact Level	Annual Revenue	Employees
Shopping Center	Partial Acquisition	Unknown	Unknown
Tree/Lawn Care	Displacement	$1.0M	10
Contracting Services	Displacement	$10.0M	20

Business Name	Impact Level	Annual Revenue	Employees
Insurance Office	Displacement	$4.1M	15
Contracting Services	Displacement	$9.0M	23
Automotive Retail Center	Displacement	Unknown	Unknown
Restaurant	Displacement	$5.2M	40
Contracting Services	Displacement	Unknown	Unknown
Storage Facility	Partial Acquisition	$1.1M	3
Total (9)	**2 Partial Acquisitions 7 Displacements**	**$30.4M**	**111**

Source: AtoZDatabase Business Data (2022)

IMPLAN Analysis

The effect of construction spending in the Economic Impact Area for Alternative F would result in $22,037 million in output (2025 dollars), $7,814 million in labor income, and approximately 98,400 job-years across the design and construction period, as shown in **Table 6-57**. About 76 percent of these jobs would be through direct employment of construction workers.

Table 6-57: Economic Impact Summary of Alternative F Capital Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	74,300	$6,151,471,000	$10,490,676,000	$16,849,000,000
Indirect	9,300	$800,487,000	$1,427,344,000	$2,482,708,000
Induced	14,800	$861,991,000	$1,765,810,000	$2,704,874,000
Total	**98,400**	**$7,813,949,000**	**$13,683,829,000**	**$22,036,582,000**

The effect of annual O&M spending in the Economic Impact Area for Alternative F would result in $684 million in output (2025 dollars), $217 million in labor income, and approximately 2,900 jobs per year, as shown in **Table 6-58**. Almost 68 percent of the employment impact would be through direct hiring of maintenance and repair workers.

Table 6-58: Economic Impact Summary of Alternative F O&M Costs

Impact	Employment	Labor Income	Value Added	Total Output
Direct	1,900	$157,617,000	$304,114,000	$507,500,000
Indirect	500	$35,659,000	$67,437,000	$100,747,000
Induced	400	$24,076,000	$49,320,000	$75,550,000
Total	**2,900**	**$217,352,000**	**$420,871,000**	**$683,798,000**

RIMS II Analysis

For the Economic Impact Area, the construction spending for Alternative F is expected to generate $24,659 million in output (in 2025 dollars), $4,344 million in earnings, over 64,700 person-year jobs, and $13,370 million in value added, as shown in **Table 6-59**. Additionally, expenditures on professional services would result in an increase in output of $5,389 million, earnings of $1,176 million, employment of over 15,088 person-year jobs, and $3,377 million in value added.

Table 6-59: Net Effects of Capital Expenditure of Alternative F Capital Costs

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Value Added (2025 $)	Output (2025 $)
Construction	$16,849M	64,729	$4,344M	$13,370M	$24,659M
Professional Services	$3,451M	15,088	$1,176M	$3,377M	$5,389M
Total	**$20,300M**	**79,817**	**$5,520M**	**$16,747M**	**$30,047M**

Source: BEA, 2022

Alternative F is expected to generate reoccurring employment and earnings for the Economic Impact Area in the form of operation and maintenance staff, facility operators, and maintenance expenditures. Based on previous projects and industry standards, O&M costs for each alternative are estimated to be 2.5 percent of capital costs annually. The annual economic benefits as a result of O&M expenditures are included in **Table 6-60**.

Table 6-60: Annual Net Effects of Capital Expenditure of Alternative F O&M Costs

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Value Added (2025 $)	Output (2025 $)
Construction	$421M	1,618	$109M	$334M	$616M
Professional Services	$86M	377	$29M	$84M	$135M
Total	**$508M**	**1,995**	**$138M**	**$419M**	**$751M**

Source: BEA, 2022

6.6.2.8 Alternative G

Impacted Businesses (AtoZDatabase Analysis)

Construction of Alternative G will have minimal impact on businesses along U.S. 50/301 within the study limits. As shown in **Table 6-61**, partial acquisition of one business and two business displacements would occur under this alternative. A summary of the right-of-way impacts to properties, including business properties, for each of the build alternatives is provided in **Section 6.3.2**. Properties which were not included in the AtoZDatabase or marked on Google Maps as an active business are listed as non-businesses. Businesses which were identified on Google Maps within the affected parcel but did not have revenue or number of employees listed in AtoZDatabase have their revenue and employee counts listed as unknown. For partial acquisitions, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. Driveways and parking may be impacted but minimized as much as possible while the alternative is refined. The build alternative would not impact the building facilities; therefore, businesses for which partial acquisitions are identified are anticipated to continue unimpeded by the build alternative.

Table 6-61: Business Impacts of Alternative G

Business Type	Impact Level	Annual Revenue	Employees
Shopping Center	Partial Acquisition	Unknown	Unknown
Automotive Retail Center	Displacement	Unknown	Unknown
Tree/Lawn Care	Displacement	$1.0M	10

Business Type	Impact Level	Annual Revenue	Employees
Total (3)	**1 Partial Acquisition 2 Displacements**	**$1.0M**	**10**

Source: AtoZDatabase Business Data (2025)

IMPLAN Analysis

The effect of construction spending in the Economic Impact Area for Alternative G would result in $21,711 million in output (2025 dollars), $7,698 million in labor income, and approximately 96,900 person-year jobs across the design and construction period, as shown in **Table 6-62**. About 76 percent of these jobs would be through direct employment of construction workers.

Table 6-62: Economic Impact Summary of Alternative G Capital Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	73,200	$6,060,563,000	$10,335,641,000	$16,600,000,000
Indirect	9,100	$788,657,000	$1,406,250,000	$2,446,018,000
Induced	14,600	$849,252,000	$1,739,715,000	$2,664,900,000
Total	**96,900**	**$7,698,472,000**	**$13,481,605,000**	**$21,710,918,000**

The effect of annual O&M spending in the Economic Impact Area for Alternative G would result in $674 million in output (2025 dollars), $214 million in labor income, and approximately 2,800 jobs per year ongoing for the extent of the alternative's useful life, as shown in **Table 6-63**. About 68 percent of the employment impact would be through direct hiring of maintenance and repair workers.

Table 6-63: Annual Economic Impact Summary of Alternative G O&M Costs

Impact	Employment (Person-Year Jobs)	Labor Income	Value Added	Total Output
Direct	1,900	$155,287,000	$299,619,000	$500,000,000
Indirect	500	$35,132,000	$66,440,000	$99,258,000
Induced	400	$23,720,000	$48,592,000	$74,434,000
Total	**2,800**	**$214,140,000**	**$414,651,000**	**$673,692,000**

RIMS II Analysis

For the Economic Impact Area, the construction spending for Alternative G is expected to generate $24,294 million in output (in 2025 dollars), $4,279 million in earnings, over 63,700 person-year jobs, and $13,172 million in value added. Additionally, expenditures on professional services would result in an increase in output of $5,309 million, earnings of $1,159 million, employment of over 14,800 person-year jobs, and $3,327 million in value added (**Table 6-64**).

Table 6-64: Net Effects of Capital Expenditure of Alternative G

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Valued Added (2025 $)	Output (2025 $)
Construction	$16,600M	63,772	$4,279M	$13,172M	$24,294M

Expenditure Category	Net Capital Expenditure (2025 $)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $)	Valued Added (2025 $)	Output (2025 $)
Professional Services	$3,400M	14,865	$1,159M	$3,327M	$5,309M
Total	**$20,000M**	**78,637**	**$5,439M**	**$16,499M**	**$29,603M**

Source: BEA, 2022

Alternative G is expected to generate reoccurring employment and earnings for the Economic Impact Area in the form of operation and maintenance staff, facility operators, and maintenance expenditures. Based on previous projects and industry standards, O&M costs for each alternative are estimated to be 2.5 percent of capital costs annually. The annual economic benefits as a result of O&M expenditures are included in **Table 6-65**.

Table 6-65: Annual Net Effects of Capital Expenditure of Alternative G O&M Costs

Expenditure Category	Net Capital Expenditure (2025 $M)	Net Effect			
		Employment (Person-Year Jobs)	Earnings (2025 $M)	Value Added (2025 $M)	Output (2025 $M)
Construction	$415M	1,594	$107M	$329M	$607M
Professional Services	$85M	372	$29M	$83M	$133M
Total	**$500M**	**1,966**	**$136M**	**$412M**	**$740M**

Source: BEA, 2022

6.6.2.9 Impacted Businesses Summary

Each build alternative is expected to have minimal impact on businesses along U.S. 50/301 within the study limits. **Table 6-66** includes a summary of the business impacts for each alternative, including the total number of businesses affected, the total annual revenue, and total number of employees.

Table 6-66: Business Impacts Summary

Alternative	Business Impacts	Annual Revenue	Employees
Alternative A	N/A	N/A	N/A
Alternatives B and C	1 Partial Acquisition 2 Displacements	$1.0M	10
Alternatives D and E	2 Partial Acquisitions 7 Displacements	$30.4M	111
Alternatives F and G	2 Partial Acquisitions 7 Displacements	$30.4M	111

1. Businesses which were identified on Google Maps within the affected parcel but did not have revenue or number of employees listed in AtoZDatabase have their revenue and employee counts listed as unknown.

6.6.2.10 IMPLAN and RIMS II Comparison Summary

The following section compares the impact results from the IMPLAN and RIMS II models. Although both models use I-O models as the basis for their analyses, there are a variety of differences which contribute to the variation in results between the models, including model structure, data sources, assumptions, and methodologies. **Table 6-67** includes impact results stemming from capital spending for the ARDS. **Table 6-68** compares the annual impact results of O&M spending for the ARDS. The

economic benefits of each alternative would occur over the course of their respective construction periods.

Table 6-67: IMPLAN and RIMS II Capital Impacts Comparison

Impact	Employment (Person-Year Jobs)	Earnings/Labor Income	Value Added	Total Output
IMPLAN Results				
Alternative A	N/A	N/A	N/A	N/A
Alternative B	76,800	$6,101,039,000	$10,684,172,000	$17,205,903,000
Alternative C	75,600	$6,004,808,000	$10,515,652,000	$16,934,516,000
Alternative D	88,500	$7,024,856,000	$12,301,965,000	$19,811,213,000
Alternative E	87,500	$6,947,871,000	$12,167,149,000	$19,594,104,000
Alternative F	98,400	$7,813,949,000	$13,683,829,000	$22,036,582,000
Alternative G	96,900	$7,698,472,000	$13,481,605,000	$21,710,918,000
RIMS II Results				
Alternative A	N/A	N/A	N/A	N/A
Alternative B	62,300	$4,310M	$13,076M	$23,461M
Alternative C	61,300	$4,242M	$12,869M	$23,090M
Alternatives D	71,800	$4,963M	$15,056M	$27,013M
Alternative E	71,000	$4,909M	$14,891M	$26,717M
Alternative F	79,800	$5,520M	$16,747M	$30,047M
Alternative G	78,600	$5,439M	$16,499M	$29,603M

Table 6-68: IMPLAN and RIMS II O&M Impacts Comparison

Impact	Employment (Person-Year Jobs)	Earnings/Labor Income	Value Added	Total Output
IMPLAN Results				
Alternative A[1]	22,200	$1,762,301,000	$3,086,151,000	$4,969,969,000
Alternative B	2,200	$169,706,000	$328,611,000	$533,901,000
Alternative C	2,200	$167,029,000	$323,428,000	$525,480,000
Alternative D	2,600	$195,403,000	$378,369,000	$614,744,000
Alternative E	2,500	$193,261,000	$374,222,000	$608,007,000
Alternative F	2,900	$217,352,000	$420,871,000	$683,798,000
Alternative G	2,800	$214,140,000	$414,651,000	$673,692,000
RIMS II Results				
Alternative A[1]	14,600	$980M	$3,015M	$5,561M
Alternative B	1,600	$108M	$327M	$586M
Alternative C	1,500	$106M	$322M	$577M
Alternative D	1,800	$124M	$376M	$675M
Alternative E	1,800	$123M	$372M	$668M
Alternative F	2,000	$138M	$419M	$751M
Alternative G	2,000	$136M	$412M	$740M

1. Impacts for Alternative A were generated based on the 40-year O&M costs expected as a result of project upkeep and maintenance. As a result, impacts for Alternative A are much higher than the other Alternatives.

7 COMMUNITY PROFILES AND EFFECTS

7.1 Communities Overview

As noted in **Section 5.1**, 42 block groups were overlayed with the municipality, CDP, or community planning area in which they are primarily located to define individual communities that may be affected by the ARDS. Information from county and local area plans, school district maps, emergency service/response areas, MDP County GIS, and public input were reviewed to further refine the community boundaries for analysis. Community boundaries are drawn along block group boundaries and are shown in **Figure 7-1**. In total, the 42 analysis area block groups are located along U.S. 50/301 within the study limits and matched with six communities:

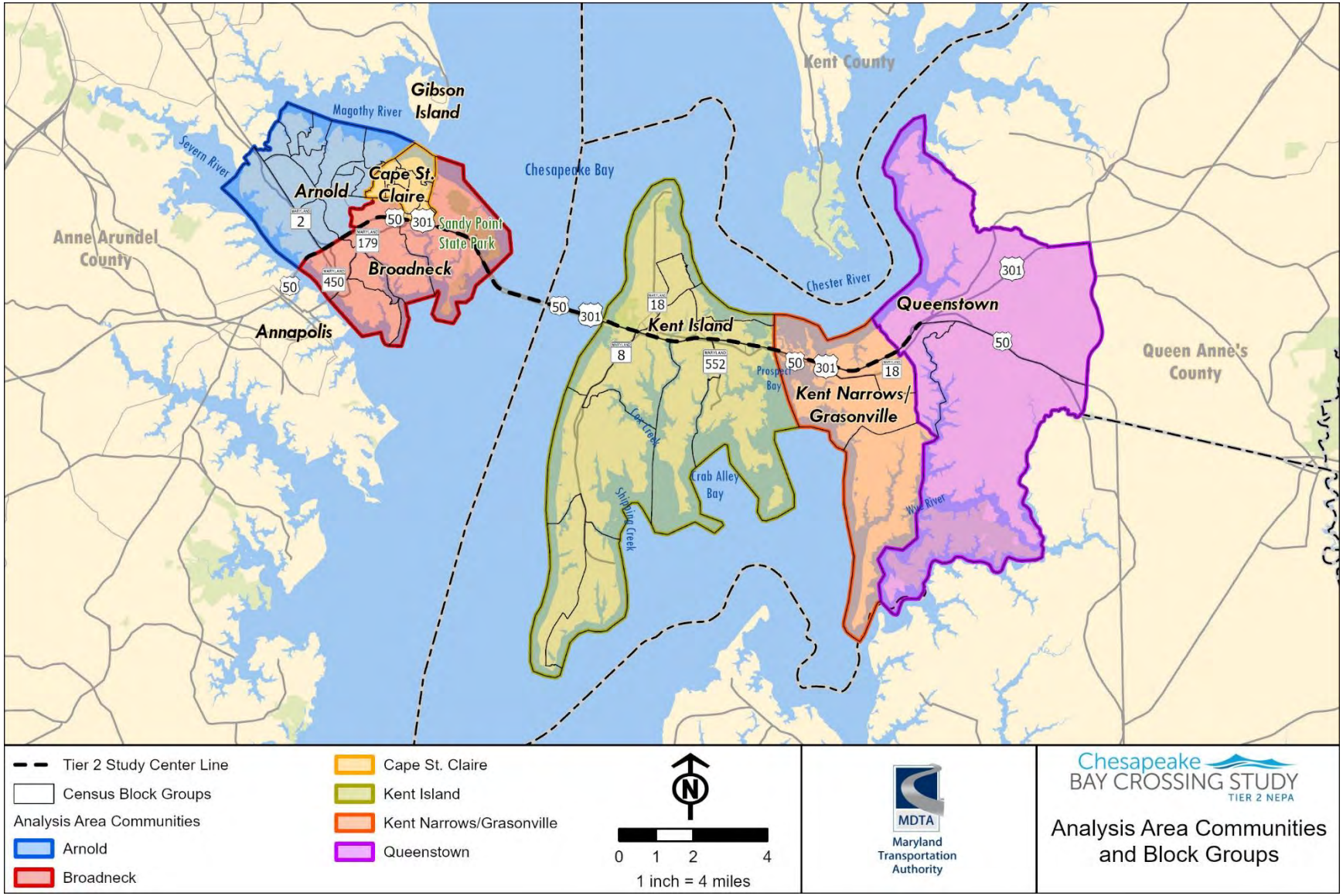
- Arnold
- Cape St. Claire
- Broadneck
- Kent Island
- Kent Narrows/Grasonville
- Queenstown

Table 7-1 presents each community and their associated block groups.

Table 7-1: Communities and Associated Block Groups

Community	Block Groups	Community	Block Groups
Arnold	7308 - 1	Kent Island	8108 - 1
	7311.03 - 1		8108 - 2
	7311.03 - 2		8108 - 3
	7311.03 - 3		8108 - 4
	7311.04 - 1		8109.01 - 1
	7311.04 - 2		8109.01 - 2
	7311.05 - 1		8109.01 - 3
	7311.05 - 2		8109.02 - 1
	7311.06 - 1		8109.02 - 2
	7311.06 - 2		8110 - 1
	7311.07 - 1		8110 - 2
	7311.07 - 2	Cape St. Claire	7310.02 - 1
Broadneck	7309.01 - 1		7310.03 - 1
	7309.01 - 2		7310.03 - 2
	7309.01 - 3		7310.04 - 1
	7309.02 - 1		7310.04 - 2
	7309.02 - 2		7310.04 - 3
	7310.02 - 2	Kent Narrows/Grasonville	8106 - 3
Queenstown	8106 - 1		8107 - 1
	8106 - 2		8107 - 2
	8106 - 4		8107 - 3

Figure 7-1: Analysis Area Communities and Block Groups



Potential impacts from the alternatives to each community are described, including: the number and type of community facilities impacted, the number of property displacements, and changes to land use. Qualitative impacts, including potential changes to community aesthetics and character (detailed in **Appendix E: Visual and Aesthetic Resources**) are also highlighted for each community. Impacts are presented in this manner to communicate how the ARDS may impact specific communities, while **Section 6** identifies impacts along the length of U.S. 50/301 within the study limits.

7.2 Arnold Community

The Arnold community is the westernmost community in the analysis area and includes 12 block groups. Land use in the Arnold community is primarily classified as residential, with Low-Density Residential occurring in a higher proportion than Medium- and High-Density Residential. Institutional and Commercial designated land uses are clustered along major roadways, including U.S. 50/301. As shown in **Figure 7-2**, generalized zoning within the Arnold community is consistent with land use, with Generalized Residential zones primarily along U.S. 50/301 and Generalized Commercial zones located near the interchanges Planning in the Arnold community is guided by Anne Arundel County, BRTB, and State plans, as summarized in **Table 6-2**.

As part of the Broadneck Peninsula, the Arnold community contains waterfront residential developments which have access to their own private or community docks and marinas. The entirety of this community falls into the “Neighborhood Preservation” Development Policy Areas, as described in *Plan2040*. Neighborhood Preservation Areas primarily limit new development with public investments focused on walking and biking infrastructure, parks, and schools. The Arnold community contains two designated village centers: Bay Dale Village Center is located at the Bay Hill Shopping Center, just north of the intersection of College Parkway and Bay Dale Drive, and Arnold Village Center is located surrounding the MD 2 and Arnold Drive intersection at the Arnold Shopping Center. Neither of these village centers is along U.S. 50/301.

Figure 7-2: Arnold Community Zoning Along U.S. 50/301

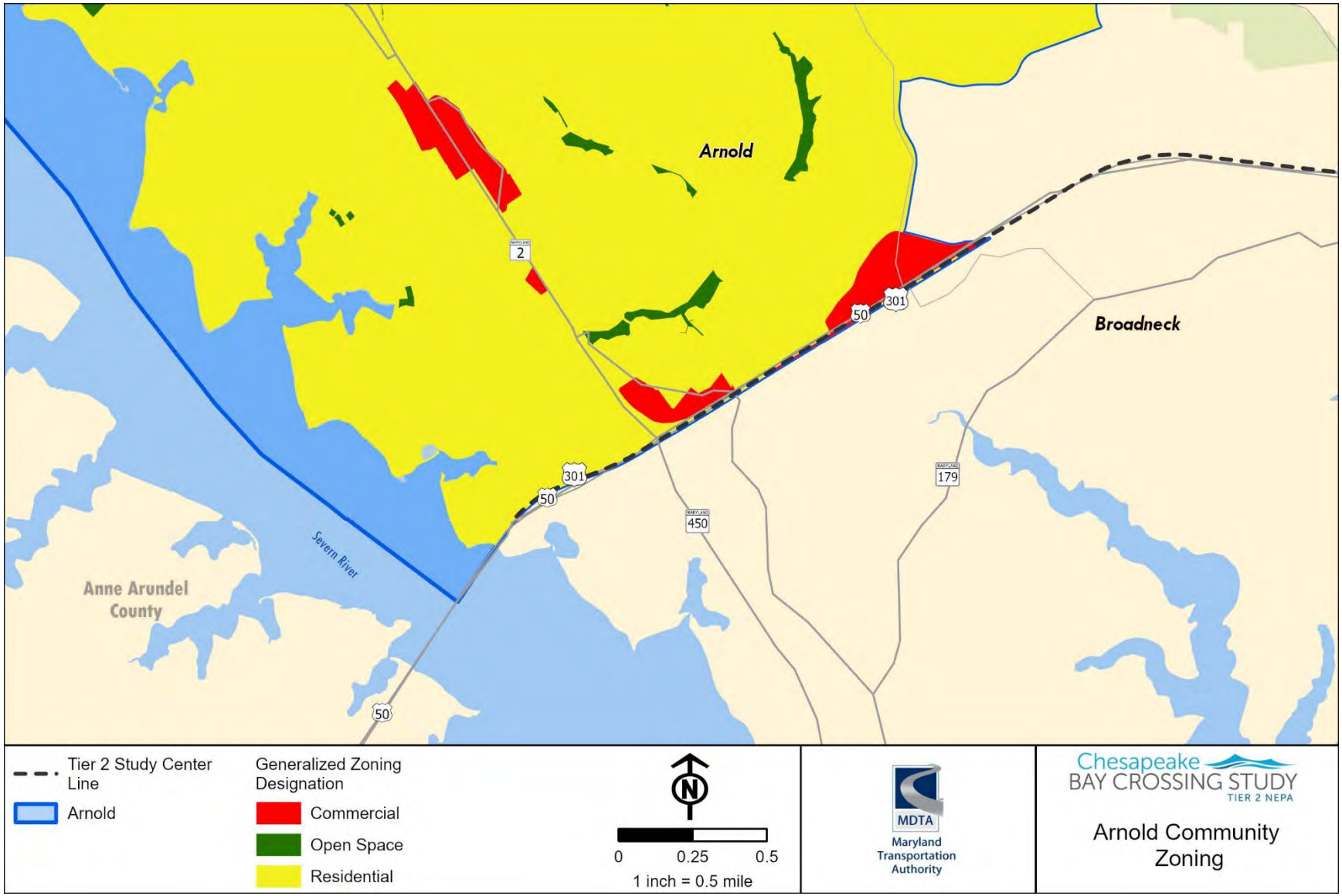


Table 7-2 lists the community facilities present along U.S. 50/301 in the Arnold community as well as their address and designation. The locations of these community facilities are depicted in **Appendix A** (pages 1-3 and 39-41).

Table 7-2: Arnold Community Facilities Along U.S. 50/301

Name	Address	Facility Type	Facility Sub Type
Chesapeake Montessori School – Main Campus	30 N Old Mill Bottom Road Annapolis, MD 21409	Education Facilities	Elementary School
Montessori International Children's House	1641 N Winchester Road Annapolis, MD 21409	Education Facilities	Elementary School
Mid Atlantic Health Institute	71 Old Mill Bottom Road: Suite 102 Annapolis, MD 21409	Health Care	Medical Center
Montessori International Children's House	1641 N Winchester Road Annapolis, MD 21409	Other Community & Social Services	Childcare/Daycare Centers
Chesapeake Montessori School – Extended Day	30 N Old Mill Bottom Road Annapolis, MD 21409	Other Community & Social Services	Childcare/Daycare Centers
Baydale Road Bike Path	Located along Bay Dale Road Annapolis, MD 21409	Parks and Recreational Areas	Trails

According to the 2018-2022 ACS data, the block groups comprising the Arnold community have a population of 25,095 persons, approximately 34 percent of the total population within the analysis area. **Table 7-3** summarizes demographic features that reflect the character of the Arnold community in comparison to the overall analysis area. Detailed census data on all block groups in the community is provided in **Appendix C**. Notably, the median age within this community (39 years) is less than that of the analysis area (44 years) and the median income ($136,251) is greater than that of the analysis area ($129,121).

Table 7-3: Arnold Community Characteristics

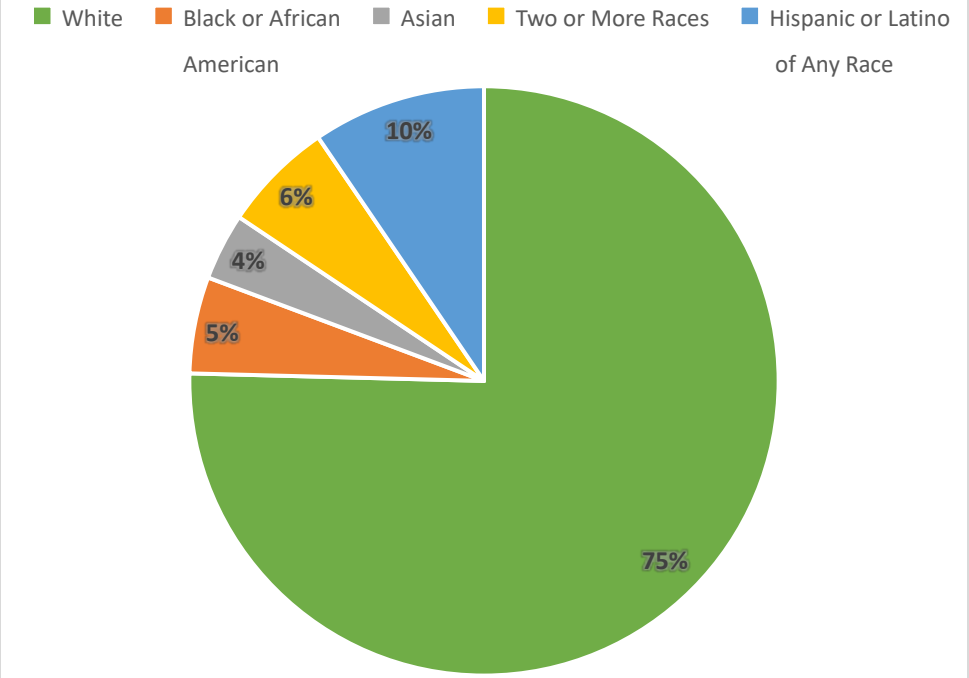
Population Characteristic	Arnold Community	Analysis Area
Total Population	25,095	73,415
Median Age	39	44
Percent Population Under 10 Years	13%	12%
Percent Population 10-19 Years	16%	14%
Total Households	8,770	27,234
Percent Population Driving to Work Alone	73%	76%
Percent Households with Limited English Proficiency	<1%	1%
Median Income	$136,251	$129,121
Percent of Persons Living Below Poverty Level	3%	5%
Percent Households with One + persons with a Disability	20%	21%
Percent Households without Internet Subscription	2%	5%
Employment Rate	97%	96%
Housing Unit Vacancy Rate	5%	7%

Source: ACS Five-Year Estimates (2018-2022)

Overall, the Arnold community has a slightly lower proportion of limited English proficiency households compared to the overall analysis area (less than one percent), where the majority of other languages spoken includes other Indo-European languages and Spanish.

The racial and ethnic population composition of the Arnold community is displayed in **Figure 7-3**.

Figure 7-3: Racial and Ethnic Composition of the Arnold Community



The following race/ethnicities represent 0% of the community and were omitted from the figure: American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, and Some Other Race.

Source: ACS Five-Year Estimates (2018-2022)

The majority of housing units within the Arnold community are single-family detached structures, which are mostly owner occupied. There are three residentially zoned parcels along U.S. 50/301 within the study limits. According to aerial imagery, these parcels either contain single-family detached structures or undeveloped, privately-owned lands.

Several businesses are located along U.S. 50/301 in Arnold, including building materials supply, storage facilities, veterinary, auto dealerships, a motel, a wellness center, and a liquor store (see **Appendix A**). The economic analysis did not identify any specific business clusters in the Arnold community.

Viewsheds from U.S. 50/301 within the Arnold community are dominated by the manmade elements of the roadway, including the six lanes of travel, shoulders, median, and guardrail, as well as surrounding vegetation cover that limits the view of the roadway. Views along U.S. 50/301 are inconsistent with breaks in the vegetated cover where businesses, commercial centers, and service roads are located directly along the roadway. Refer to **Appendix E** for additional analysis of visual character and quality along U.S. 50/301 within the study limits.

7.2.1 1Environmental Consequences

7.2.1.1 Alternative A: No-Build

The No-Build Alternative would not require right-of-way acquisition and would not directly impact properties in the Arnold community. The visual character and quality along U.S. 50/301 would remain the same as the existing conditions. As such, there would be no visual changes with a No-Build Alternative.

7.2.1.2 Build Alternatives

As reflected in **Table 7-4** and **Appendix A** (pages 1-3 and 39-41), Alternatives B and C would not impact the Arnold community, as these alternatives do not extend to this community. Alternatives D, E, F, and G would result in the same degree of impact.

Table 7-4: Summary of Impacts within the Arnold Community

Alternative	Residential and Business Property Impacts (#)	Community Facilities Property Impacts (#)	Existing Land Use Conversion to Study Related Transportation Right-of-way (acres)
Alternatives B and C	None	None	None
Alternatives D, E, F, and G	**Residential Properties**: 3 Partial Acquisitions 0 Displacements **Business/Other Properties**: 11 Partial Acquisitions 0 Displacements	**Partial Acquisitions:** 1 Health Care Facility **No Displacements**	**Low-Density Residential**: <1 acre **Commercial**: 2 acres **Industrial**: 1 acre **Open Urban Land**: <1 acre **Other Land**: 2 acres

No residential or non-residential displacements would occur as a result of the build alternatives.

One community facility, the Mid Atlantic Health Institute, is located on a property that would be impacted by Alternatives D, E, F, and G. Alternatives D, E, F, and G, would not impact the building facilities; therefore, this service is anticipated to continue unimpeded by the build alternatives. Generally, the build alternatives would require acquisition of undeveloped strips of land properties along U.S. 50/301. The impacts would accommodate widening of U.S. 50/301, reconfigured intersections, and stormwater management facilities. There would be no impact from the optional SUP, as it would not extend to the Arnold community.

Alternatives D, E, F, and G are anticipated to have negligible impacts on the overall population or demographic patterns within the community. No community facilities where children are most likely to congregate or frequently attend would be impacted by the build alternatives. Minor changes to the sense of community cohesion or interactions between persons or groups within the community have the potential to occur given the absence of residential and business displacements. Because the proposed improvements are parallel to the existing U.S. 50/301 and intersections, isolation of properties, persons, or groups would not occur. The build alternatives are anticipated to result in enhanced access and connectivity for all individuals, including children, along U.S. 50/301 within the Arnold community.

Alternatives D, E, F, and G would increase the number of lanes along the U.S. 50/301 approaches from six to eight lanes from the MD 2/450 interchange in Arnold toward the Bay Bridge. The increased width and additional infrastructure would be noticeable by viewers; however, these changes would be consistent with the existing visual quality along U.S. 50/301. Refer to **Appendix E** for additional analysis of the visual impact of the alternatives.

7.3 Cape St. Claire Community

The Cape St. Claire community includes six block groups. The majority of land use in the Cape St. Claire community is designated as Medium-Density Residential, with small pockets of Low- and High-Density Residential land uses. There are large patches of Institutional designated land use and scattered pockets of Commercial and Open Urban Land designated land use throughout this community. As shown in **Figure 7-4**, the properties along U.S. 50/301 is zoned primarily Generalized Residential, with an isolated patch of Generalized Commercial.

Planning in the Cape St. Claire community is guided by Anne Arundel County, BRTB, and State plans, as summarized in **Table 6-2**.

Development patterns in the Cape St. Claire community include primarily Low-Medium Density Residential neighborhoods with commercial services located near the Cape St. Claire Village Center. Many of the residential developments have water access points, as most of the Cape St. Claire community is surrounded by water, except for its southern border along College Parkway. The *Plan2040* Development Policy designation for the Cape St. Claire community is mostly "Neighborhood Preservation," with plans for limited new development and public investments focused on walking and biking infrastructure, parks, and schools. The southeast portion of this community is designated as "Peninsula," supporting the protection of natural shorelines; road improvements; stormwater management; and adaptation to sea level rise. This community also contains the "Village Center," encompassing the Cape St. Claire Shopping Center and Cape St. Claire Park.

Figure 7-4: Cape St. Claire Community Zoning Along U.S. 50/301

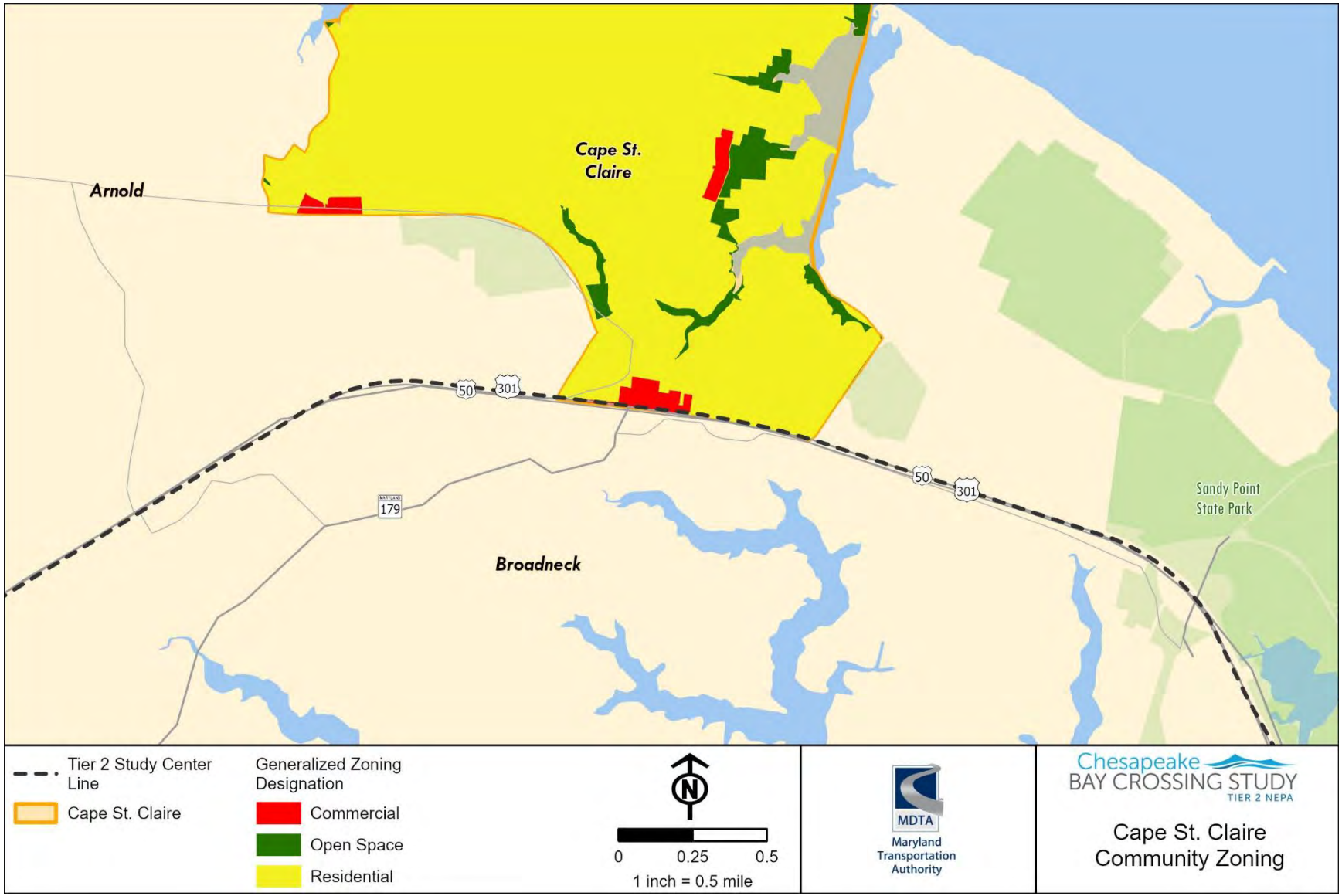


Table 7-5 lists the community facilities present along U.S. 50/301 in the Cape St. Claire community as well as their address and designation. **Appendix A** (pages 5-7 and 43-45) depicts the locations of these community facilities. The Broadneck Peninsula Trail is planned to extend within the Cape St. Claire community along East College Parkway from Peregoy Park Place to Sandy Point State Park.

Table 7-5: Cape St. Claire Community Facilities Along U.S. 50/301

Name	Address	Facility Type	Facility Sub Type
Broadneck Trail	College Parkway and Cape St. Claire Road Annapolis, MD 21409	Parks and Recreational Areas	Trail
Baltimore Gas & Electric Substation	726 E College Parkway Annapolis, MD 21409	Public Utilities	Electrical Substation

According to the 2018-2022 ACS data, the block groups comprising the Cape St. Claire community have a population of 11,831 persons, approximately 16 percent of the total population within the analysis area. Detailed census data on all block groups in the community is provided in **Appendix C**. **Table 7-6** summarizes features that reflect the character of the Cape St. Claire community in comparison to the overall analysis area. Notably, the median age within this community (39 years) is less than that of the analysis area (44 years) and households with one or more persons with a disability (26 percent) is greater than that of the analysis area (21 percent).

Table 7-6: Cape St. Claire Community Characteristics

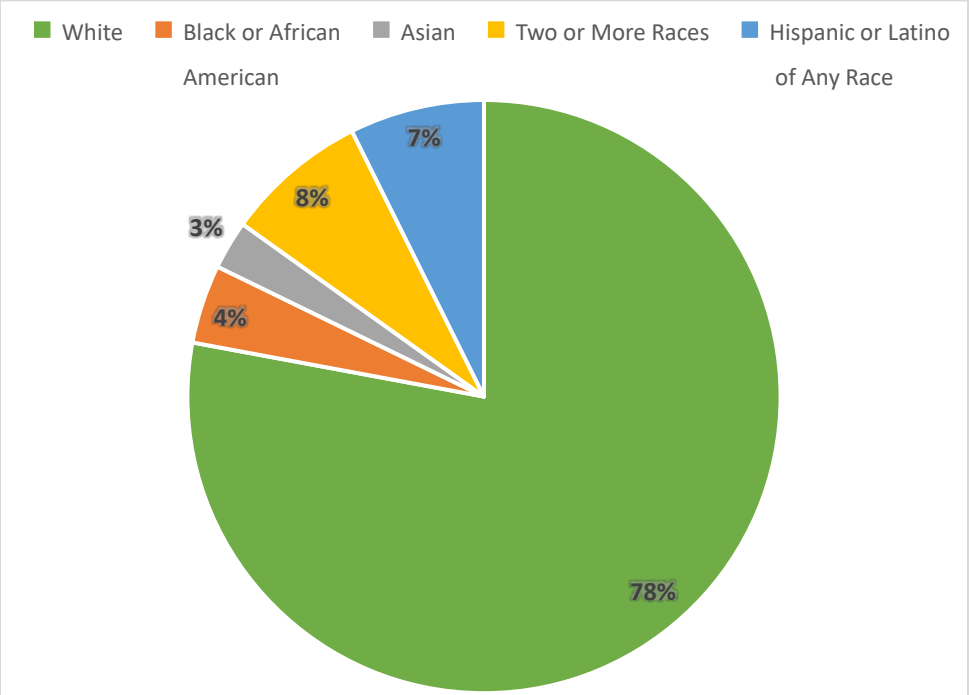
Population Characteristic	Cape St. Claire Community	Analysis Area
Total Population	11,831	73,415
Median Age	39	44
Percent Population Under 10 Years	13%	12%
Percent Population 10-19 Years	16%	14%
Total Households	4,418	27,234
Percent Population Driving to Work Alone	75%	76%
Percent Households with Limited English Proficiency	<1%	1%
Median Income	$127,337	$129,121
Percent of Persons Living Below Poverty Level	3%	5%
Percent Households with One + persons with a Disability	26%	21%
Percent Households without Internet Subscription	1%	5%
Employment Rate	95%	96%
Housing Unit Vacancy Rate	1%	7%

Source: ACS Five-Year Estimates (2018-2022)

The Cape St. Claire community has a slightly lower proportion of limited English proficiency households (less than one percent) compared to the overall analysis area (one percent), where the majority of other languages spoken includes Asian and Pacific Island languages.

The racial and ethnic population composition of the Cape St. Claire community is displayed in **Figure 7-5**.

Figure 7-5: Racial and Ethnic Composition of the Cape St. Claire Community



The following race/ethnicities represent 0% of the community and were omitted from the figure: American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, and Some Other Race.

Source: ACS Five-Year Estimates (2018-2022)

The majority of housing units within the Cape St. Claire community are single-family detached structures, which are mostly owner occupied. There are seven residentially zoned parcels along U.S. 50/301 within the study limits. According to aerial imagery, these parcels primarily contain single-family detached structures, as well as some undeveloped, privately-owned lands along U.S. 50/301. There is one parcel containing a condominium complex (Four Seasons at St. Margarets) northeast of the U.S. 50/301 and MD 179 interchange.

Several businesses are located along U.S. 50/301 within the study limits in the Cape St. Claire community, including a convenience store, auto repair, plumbing and water supply, and sporting goods (see **Appendix A**). The economic analysis did not identify any specific business clusters in the Cape St. Claire community.

Like the Arnold community, viewsheds from U.S. 50/301 within the Cape St. Claire community are dominated by the manmade elements of the roadway, including the six lanes of travel, shoulders, median, and guardrail, as well as surrounding vegetation cover that limits the view of the roadway. Views along U.S. 50/301 are inconsistent with breaks in the vegetated cover where businesses, commercial centers, and service roads are located directly along the roadway. Refer to **Appendix E** for additional analysis of visual character and quality along U.S. 50/301 within the study limits.

7.3.1 Environmental Consequences

7.3.1.1 Alternative A: No-Build

The No-Build Alternative would not require right-of-way acquisition and would not directly impact properties in the Cape St. Claire community. The visual character and quality of U.S. 50/301 would remain the same as the existing conditions. As such, there would be no visual changes with a No-Build Alternative.

7.3.1.2 Build Alternatives

As reflected in **Table 7-7** and **Appendix A** (pages 5-7 and 43-45), Alternatives B and C would not impact the Cape St. Claire community, as these alternatives do not extend to this community. Alternatives D, E, F, and G would result in the same degree of impact.

Table 7-7: Summary of Impacts within the Cape St. Claire Community

Alternative	Residential and Business Property Impacts (#)	Community Facilities Property Impacts (#)	Existing Land Use Conversion to Study Related Transportation Right-of-way (acres)
Alternatives D, E, F, and G	**Residential Properties**: 7 Partial Acquisitions 0 Displacements **Business/Other Properties**: 3 Partial Acquisitions 4 Displacements	**Partial Impacts to:** 1 Parks and Recreational Area **No Displacements**	**Medium-Density Residential**: <1 acre **High-Density Residential**: 1 acre **Commercial**: <1 acre **Open Urban Land**: <1 acre **Other Land**: 1 acre

Alternatives D, E, F, and G would result in four business/other displacements, all of which are business offices located between Stacey Lane and East College Parkway. No residential displacements would occur from Alternatives D, E, F, and G.

The Broadneck Trail is located on a property that would be impacted by the Alternatives D, E, F, and G. The Broadneck Trail is a community facility where children may be likely to congregate or frequently attend, given its function as a recreational area. Impacts to this facility are detailed in the *Draft Section 4(f) Evaluation*. Generally, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. The assumed impacts would accommodate widening of U.S. 50/301, reconfigured intersections, and stormwater management facilities. There would be no impact from the optional SUP, as it would not extend to the Cape St. Claire community.

Alternatives D, E, F, and G are anticipated to have negligible impact on the overall population or demographic patterns within the community. Minor changes to the sense of community cohesion or interactions between persons or groups within the community have the potential to occur given the limited number of residential and business displacements anticipated. Because the proposed improvements are parallel to the existing U.S. 50/301 and intersections, isolation of properties, persons, or groups would not occur. Alternatives D, E, F, and G are anticipated to result in enhanced access and connectivity for all individuals, including children, along U.S. 50/301 within the Cape St. Claire community.

Alternatives D, E, F, and G would increase the number of lanes along the U.S. 50/301 approaches from six to eight lanes through the Cape St. Claire community. The increased width and additional infrastructure would be noticeable by viewers; however, these changes would be consistent with the existing visual quality along U.S. 50/301. It is not anticipated that the expanded bridge would alter the visual landscape from the Cape St. Claire community. Refer to **Appendix E** for additional analysis of the visual impact of the alternatives.

7.4 Broadneck Community

The Broadneck community is the easternmost community of the analysis area located in Anne Arundel County and includes six block groups. Land use within the Broadneck community is primarily classified as Other Land, which is most widespread in the eastern section of the community. There are large pockets of Low-Density Residential designated land use primarily concentrated in the southwest portion of the community and along the surrounding waterbodies, with Medium-Density and Very Low-Density Residential land use often occurring alongside. Institutional land use is present in small, isolated patches, apart from a large swath associated with the United States Naval Academy. Commercial land use is mainly located along U.S. 50/301. As depicted in **Figure 7-6**, the generalized zoning in the Broadneck community along U.S. 50/301 is mostly Generalized Residential. Generalized Open Space zoning is located along U.S. 50/301 in the eastern portion of the community, along with some Generalized Industrial zoning. There are patches of Generalized Commercial zoning along U.S. 50/301 within the Broadneck community.

Planning in the Broadneck community is guided by Anne Arundel County, BRTB, and State plans, as summarized in **Table 6-2**.

Development patterns of the Broadneck community primarily include low-density single-family residences with pockets of open space and rural agricultural lands. The community is bisected by U.S. 50/301, which is lined by patches of commercial areas. The *Plan2040* Development Policy designation for the Broadneck community is “Peninsula” roughly covering the eastern half of the community and “Neighborhood Preservation” roughly covering the western half. Future land use in the Broadneck community is anticipated to remain consistent with the existing land use and development patterns.

Figure 7-6: Broadneck Community Zoning Along U.S. 50/301

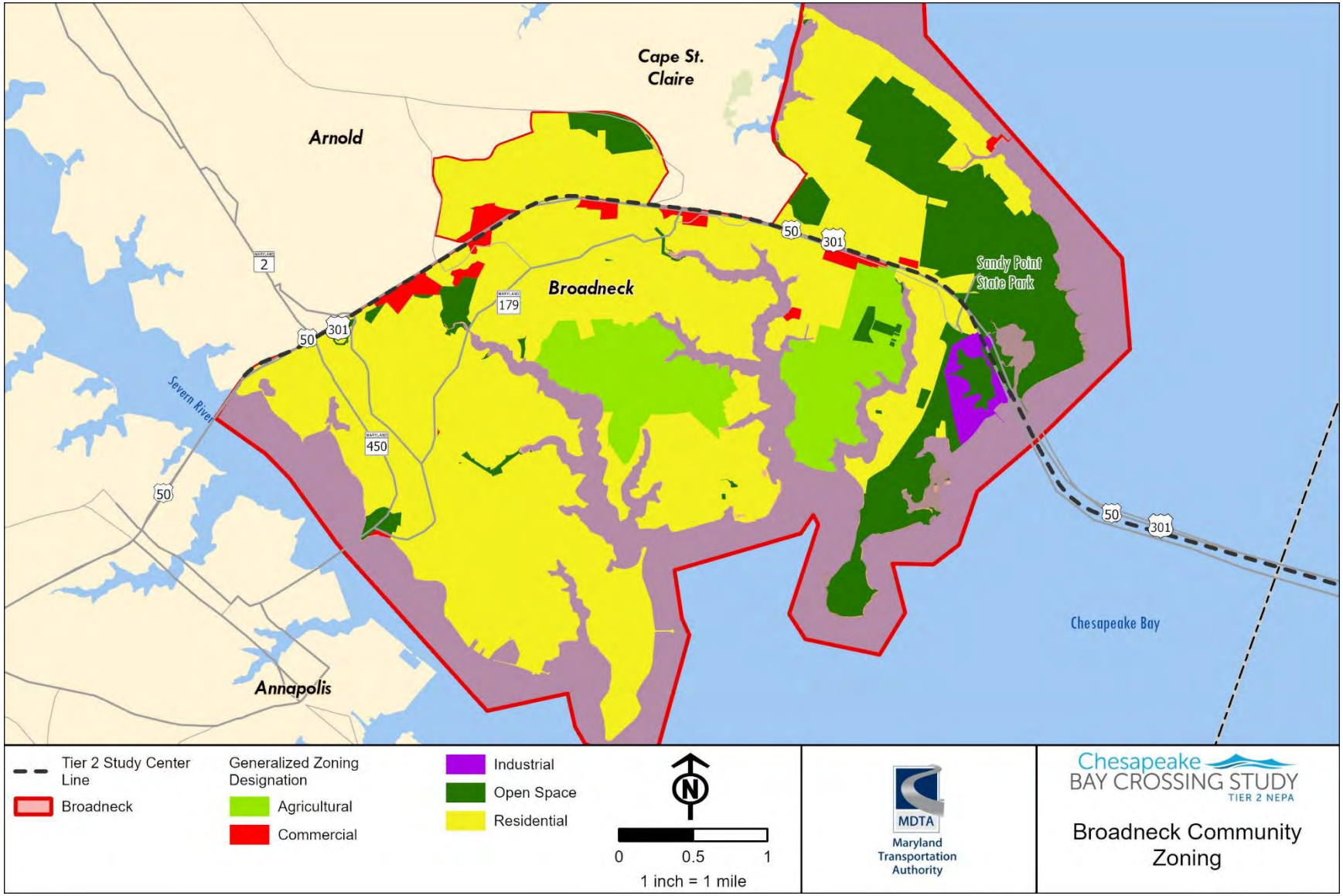


Table 7-8 lists the community facilities present along U.S. 50/301 within the Broadneck community, as well as their address and designation. **Appendix A** (pages 1-11 and 39-49) depicts the locations of these community facilities.

Table 7-8: Broadneck Community Facilities Along U.S. 50/301

Name	Address	Facility Type	Facility Sub Type
Asbury-Broadneck United Methodist Church	657 Broadneck Road Annapolis, MD 21409	Place Of Worship	Not Applicable
St. Andrew by the Bay	701 College Parkway Annapolis, MD 21409	Place Of Worship	Not Applicable
Unity by the Bay	4 Pointless Forest Trail Annapolis, MD 21409	Place Of Worship	Not Applicable
Asbury Broadneck United Methodist Church	657 Broadneck Road Annapolis, MD 21409	Cemeteries	Not Applicable
Annapolitan Care Center	84 N Old Mill Bottom Road Annapolis, MD 21401	Health Care	Assisted Living/ Nursing Homes
Sandy Point State Park	1100 E College Parkway Annapolis, MD 21409	Parks and Recreational Areas	Parks
Holly Beach Farm	1800 Holly Beach Farm Road Annapolis, MD 21409	Parks and Recreational Areas	Parks
DNR Police - Southern Region Broadneck Office (Area 3)	1179 East College Parkway Annapolis, MD 21409	EMS and Law Enforcement	Police
U.S. Army Reserve Center	640 Broadneck Road Annapolis, MD 21409	EMS and Law Enforcement	Military
Amberly Water Treatment Plant	343 Buschs Frontage Road Annapolis, MD 21409	Public Utilities	Water Treatment Plant
Unnamed Cellular Tower	119 Ferguson Road Annapolis, MD 21409	Public Utilities	Cellular Tower
St. Andrew by the Bay Preschool	701 College Parkway Annapolis, MD 21401	Other Community & Social Services	Childcare/Daycare Centers
Element at Mill Creek	74 Old Bottom Mill Road Annapolis, MD 21409	Other Community & Social Services	Senior Housing or Living Facilities

According to the 2018-2022 ACS data, the block groups comprising the Broadneck community have a population of 7,572 persons, approximately 10 percent of the total population within the analysis area. Detailed census data on all block groups in the community is provided in **Appendix C**. **Table 7-9** summarizes features that reflect the character of the Broadneck community in comparison to the overall analysis area. Notably, the median income ($180,607) is greater than that of the analysis area ($129,121), the median age within this community (47 years) is greater than that of the analysis area (44 years), and population driving to work alone (72 percent) is less than that of the analysis area (76 percent).

Table 7-9: Broadneck Community Characteristics

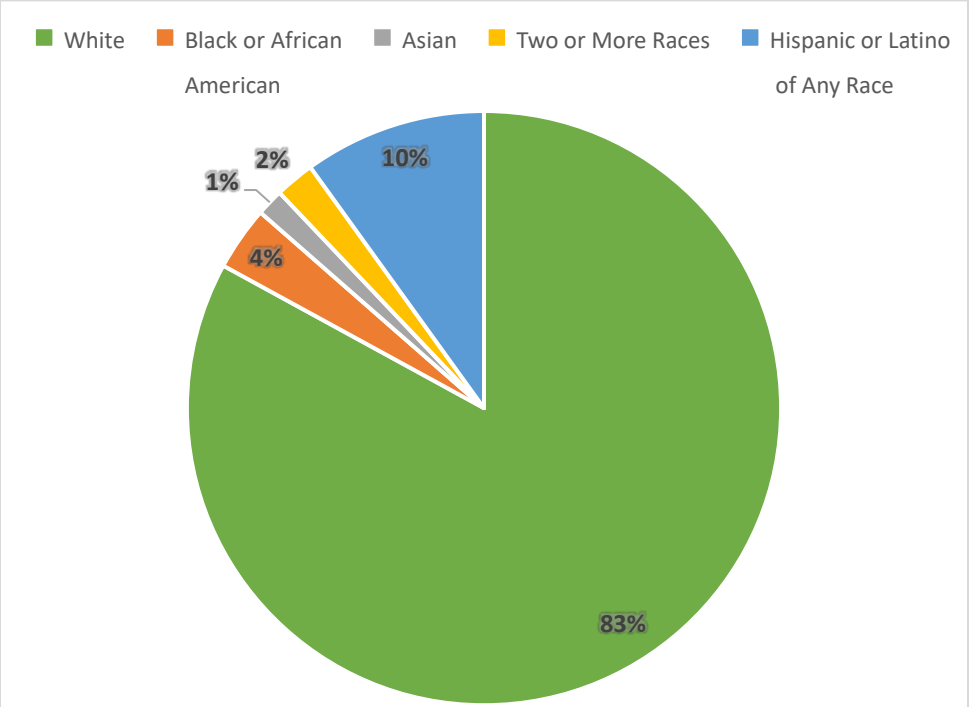
Population Characteristic	Broadneck Community	Analysis Area
Total Population	7,572	73,415
Median Age	47	44
Percent Population Under 10 Years	10%	12%
Percent Population 10-19 Years	15%	14%
Total Households	2,664	27,234
Percent Population Driving to Work Alone	72%	76%
Percent Households with Limited English Proficiency	1%	1%
Median Income	$180,607	$129,121
Percent of Persons Living Below Poverty Level	2%	5%
Percent Households with One + persons with a Disability	17%	21%
Percent Households without Internet Subscription	3%	5%
Employment Rate	98%	96%
Housing Unit Vacancy Rate	5%	7%

Source: ACS Five-Year Estimates (2018-2022)

The Broadneck community has approximately the same proportion of limited English proficiency households as the overall analysis area (one percent), where the majority of other languages spoken includes other Indo-European languages.

The racial and ethnic population composition of the Broadneck community is displayed in **Figure 7-7**.

Figure 7-7: Racial and Ethnic Composition of the Broadneck Community



The following race/ethnicities represent 0% of the community and were omitted from the figure: American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, and Some Other Race.

Source: ACS Five-Year Estimates (2018-2022)

The majority of housing units within the Broadneck community are single-family detached structures, which are mostly owner occupied. There are 72 residentially zoned parcels along U.S. 50/301 within the study limits. According to aerial imagery, these parcels primarily contain single-family detached structures in addition to undeveloped, privately-owned lands scattered along the U.S. 50/301 and between housing developments.

The economic analysis identified three business clusters along U.S. 50/301 within the Broadneck community including Exit 29A, Jemals Bay 50 Outlet Shopping Center, and Thompson Creek Shopping Center. Combined, these three business clusters include 132 businesses, generate $289 million annual revenue, and employ approximately 1,600 individuals. The top ten businesses by revenue and the total count of additional businesses for each business cluster are listed in **Table 7-10**. These business clusters are depicted on **Appendix A**.

Table 7-10: Largest 10 Businesses by Revenue – Broadneck Business Clusters

Exit 29A	Jemals Bay 50 Outlet Shopping Center	Thompson Creek Shopping Center / Exit 38A
Volvo Cars Annapolis	Exotic Lumber Inc	Food Lion
Sun at Work	Fence & Deck Connections Inc	Epod
Wawa	General & Mechanical Service	Shore United Bank
U-Haul	Design Solutions Inc	Cracker Barrel Old Country Store

Exit 29A	Jemals Bay 50 Outlet Shopping Center	Thompson Creek Shopping Center / Exit 38A
Pina Loca Mexican	Star Hobby	Tidewater Mortgage Services Inc
Milestone Builders Inc	Davis Mitchell Informed LLC	ACE Hardware
Revell Service Center	Safe Harbor Christian Counseling	Island Yacht Canvas & Cushions
Obrien Associates	Freetech LLC	Richard Beavers Construction
More Personal Insurance	Papa John's Pizza	Rosendale Realty Inc HQ
Km Homes	Blue Crab Cupcakes	Tailmara LLC
Remaining Businesses (14)	Remaining Businesses (4)	Remaining Businesses (84)
24 Total Businesses $79M Total Annual Revenue (2022) 361 Total Employees	**14 Total Businesses $19M Total Annual Revenue (2022) 191 Total Employees**	**94 Total Businesses $189M Total Annual Revenue (2022) 1,035 Total Employees**

Source: AtoZDatabase Business Data (2022)

Like the Arnold and Cape St. Claire communities, viewsheds from U.S. 50/301 within the Broadneck community are dominated by the manmade elements of the roadway, including the six lanes of travel, shoulders, median, and guardrail, as well as surrounding vegetation cover that limits the view of the roadway. Views along U.S. 50/301 are inconsistent with breaks in the vegetated cover where businesses, commercial centers, and service roads are located directly along the roadway. The viewshed in the Broadneck Community differs approaching the Chesapeake Bay and Bay Bridge. Approaching the Bay Bridge more natural viewsheds become visible from U.S. 50/301, including water resources such as the Westinghouse Bay, Mezick Pond, and the Chesapeake Bay itself. Sandy Point State Park's wooded areas are also visible. Views of U.S. 50/301 from Sandy Point State Park and Holly Beach Farm are obstructed by dense vegetation. Views from Sandy Point State Park and Holly Beach Farm are mostly focused on the Bay Bridge. Refer to **Appendix E** for additional analysis of visual character and quality along U.S. 50/301 within the study limits.

7.4.1 Environmental Consequences

7.4.1.1 Alternative A: No-Build

The No-Build Alternative would not require right-of-way acquisition and would not directly impact properties in the Broadneck community. The visual character and quality of U.S. 50/301 would remain the same as the existing conditions. As such, there would be no visual changes with a No-Build Alternative.

7.4.1.2 Build Alternatives

As reflected in **Table 7-11** and **Appendix A** (pages 1-11 and 39-49), all build alternatives would result in varying degrees of impact.

Table 7-11: Summary of Impacts within the Broadneck Community

Alternative	Residential and Business Property Impacts (#)	Community Facilities Property Impacts (#)	Existing Land Use Conversion to Study Related Transportation Right-of-way (acres)
Alternatives B and C	**Residential Properties**: 10 Partial Acquisitions 0 Displacements **Business/Other Properties**: 14 Partial Acquisitions 2 Displacements	**Partial Acquisitions:** 1 Law Enforcement 2 Parks and Recreational Areas **No Displacements**	**Low-Density Residential**: 1 acre **Commercial**: 1 acre **Institutional**: 1 acre **Open Urban Land**: 1 acre **Other Land**: 6 - 7 acres
Alternatives D and E	**Residential Properties**: 36 Partial Acquisitions 0 Displacements **Business/Other Properties**: 36 Partial Acquisitions 3 Displacements	**Partial Acquisitions:** 2 Places of Worship 1 Law Enforcement 2 Parks and Recreational Areas 1 Health Care Facility 2 Public Utilities 1 Other Community & Social Services **No Displacements**	**Very Low-Density Residential**: <1 acre **Low-Density Residential**: 3 acres **High-Density Residential**: <1 acre **Commercial**: 3 acres **Institutional**: 1 acre **Open Urban Land**: 1 acre **Other Land**: 20 acres
Alternatives F and G	**Residential Properties**: 36 Partial Acquisitions 1 Displacements **Business/Other Properties**: 37 Partial Acquisitions 3 Displacements	**Partial Acquisitions:** 2 Places of Worship 1 Law Enforcement 2 Parks and Recreational Areas 1 Health Care Facility 2 Public Utilities 1 Other Community & Social Services **No Displacements**	**Very Low-Density Residential**: <1 acre **Low-Density Residential**: 4 acres **High-Density Residential**: <1 acre **Commercial**: 4 acres **Institutional**: 1 acre **Open Urban Land**: 1 acre **Other Land**: 20 - 21 acres

Alternatives F and G would result in one residential displacement located near the Skidmore Drive and Colber Road intersection. Property owners affected by displacement would receive relocation assistance in accordance with federal and state requirements, as described in **Section 6.3.2**.

All the build alternatives would result in two non-residential displacements. One of the displacements is located near the Skidmore Drive intersection with Whitehall Road. Alternatives D, E, F and G would result in one additional non-residential displacement, located east of the U.S. 50/301 and Old Mill Bottom Road interchange.

Three community facilities are located on properties that would be impacted by all build alternatives. These include DNR Police - Southern Region Broadneck Office (Area 3); the programmed Broadneck Trail; and Sandy Point State Park. The build alternatives would not impact the building facilities; therefore, these services are anticipated to continue unimpeded by the build alternatives. Alternatives D, E, F, and G would impact an additional six community facilities properties, for a total of nine impacted community facilities for those alternatives. The six community facilities property impacts include Unity by the Bay; St. Andrew by the Bay; Annapolitan Care Center; Amberly Water Treatment Plant; a Cellular Tower; and St. Andrew By

the Bay Preschool. Community facilities where children are most likely to congregate or frequently attend that would be impacted include places of worship, parks and recreational areas, and one preschool. Generally, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. The impacts would accommodate widening of U.S. 50/301, revised bridge approaches, reconfigured intersections, and stormwater management facilities.

Impacts to Sandy Point State Park would increase should the optional SUP proceed to construction. The optional SUP would require additional land use conversion of Open Urban Land (<1 acre) and Other Land (1 acre) to transportation right-of-way.

The build alternatives are anticipated to have negligible impact on the overall population or demographic patterns within the community. Minor changes to the sense of community cohesion or interactions between persons or groups within the community have the potential to occur given the limited number of residential and business displacements that would occur. Because the proposed improvements are parallel to existing U.S. 50/301 and intersections, isolation of properties, persons, or groups would not occur. The build alternatives are anticipated to result in enhanced access and connectivity for all individuals, including children, along U.S. 50/301 within the Broadneck community.

All build alternatives would impact viewsheds within the Broadneck community. Alternatives B and C would increase the number of travel lanes along U.S. 50/301 approaches from the Bay Bridge to Jenkins Lane. Alternatives D, E, F, and G would increase the number of travel lanes along all U.S. 50/301 approaches in the Broadneck Community. The increased width and additional infrastructure would be noticeable by viewers; however, these changes would be mostly consistent with the existing visual quality along U.S. 50/301.

The most notable visual change would be the increased prominence of the bridge in the skyline given the increased height of the bridge. This change would be most noticeable from key vantage points such as Sandy Point State Park along the shore. Additionally, the northern bridge alignment (Alternatives B, D and F) would have a larger visual change to Sandy Point State Park, with bridge piers and travel lanes located closer to the park property. While the existing Bay Bridge is already a pronounced disruption to views of the Bay, the bridge itself is an iconic and recognizable landmark. A new Bay Bridge would likely have a similar visual appeal against the backdrop of Chesapeake Bay. However, the expanded bridge would likely create a more imposing visual presence. Refer to **Appendix E** for additional analysis of the visual impact of the alternatives.

7.5 Kent Island Community

The Kent Island community is the westernmost community along U.S. 50/301 within Queen Anne's County and includes 11 block groups. Within the Kent Island community, the Stevensville, Chester, and Kent Narrows CDP are bisected by U.S. 50/301. The Kent Narrows CDP overlaps with the Kent Island community. Land use within the Kent Island community is mainly designated as Other Land. Medium-Density Residential designated land use is present in patches concentrated along U.S. 50/301, MD 8, and MD 18. Land use classified as Low-Density Residential mainly lines the surrounding waterbodies, adjacent to Very Low-Density Residential land uses. Commercial and Institutional land uses are mainly clustered along U.S. 50/301. As

depicted in **Figure 7-8**, generalized zoning in the Kent Island community along U.S. 50/301 is mainly Generalized Mixed-Use zoning with Generalized Commercial zoning concentrated at the western edge of the community. There are patches of Generalized Agricultural and Generalized Residential zoning along U.S. 50/301 in the community.

Planning in the Kent Island community is guided by Queen Anne's County, BRTB, and State plans, as summarized in **Table 6-2**. Per *PlanQAC 2022*, future land use remains consistent with current land use, with denser residential and mixed-use/commercial development along major corridors and agriculture and open space distributed throughout the southern portion of the community. As shown in **Figure 6-6**, Queen Anne's County designated Growth Areas are located within the Kent Island community along U.S. 50/301.

Figure 7-8: Kent Island Community Zoning Along U.S. 50/301

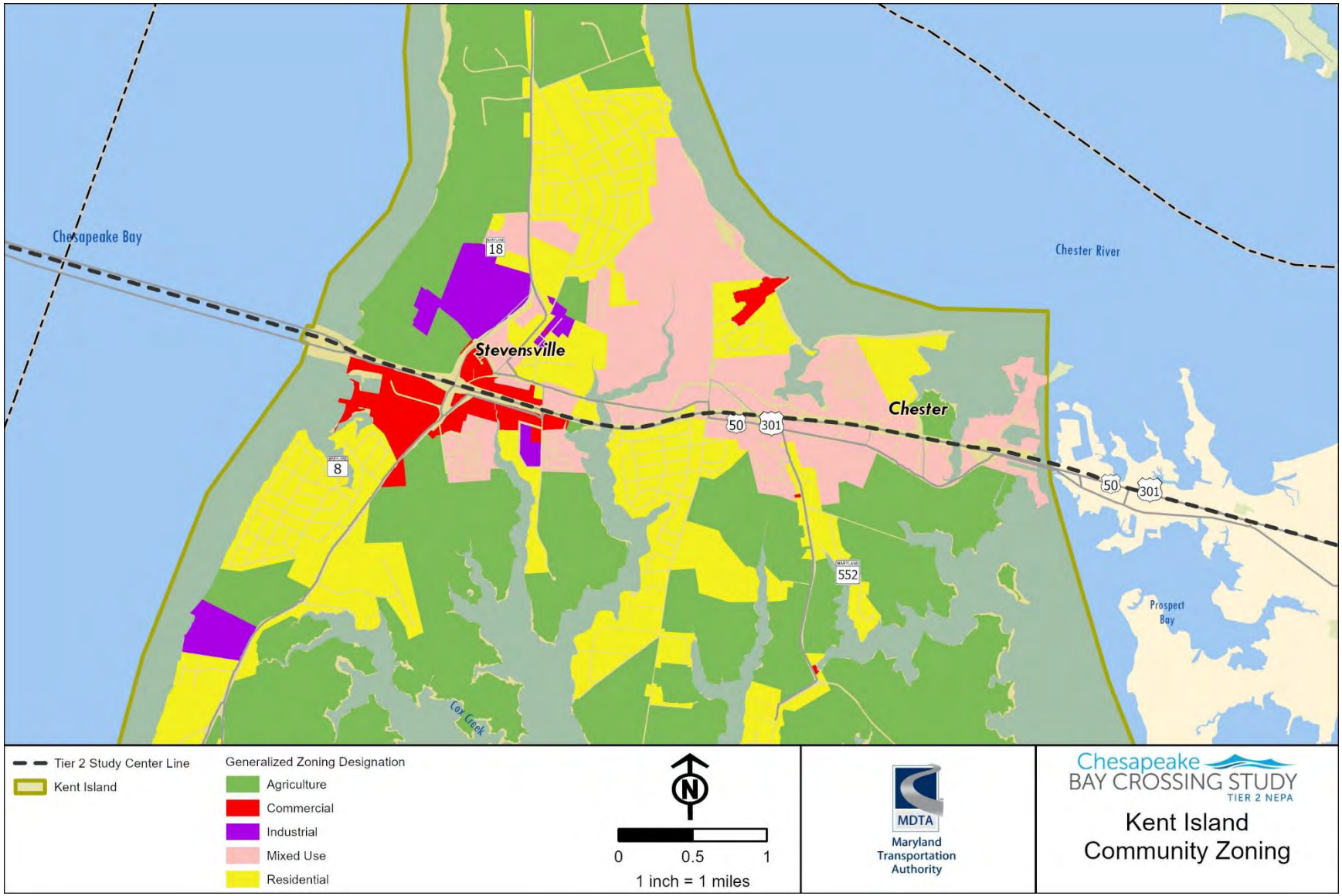


Table 7-12 lists the community facilities present along U.S. 50/301 as well as their address and designation. **Appendix A** (pages 18- 27 and 56- 65) depicts the locations of these community facilities.

Table 7-12: Kent Island Community Facilities Along U.S. 50/301

Name	Address	Facility Type	Facility Sub Type
Kent Island Elementary School	110 Elementary Way Stevensville, MD 21666	Education Facilities	Elementary School
Stevensville Middle School	610 Main Street Stevensville, MD 21666	Education Facilities	Middle School
New United Methodist Church	100 Union Wesley Circle Chester, MD 21619	Place of Worship	Not Applicable
New Life Christian Outreach	101 Country Day Road Chester, MD 21619	Place of Worship	Not Applicable
Kent Island United Methodist Church	2739 Cox Neck Road Chester, MD 21619	Place of Worship	Not Applicable
Island Alliance Church	510 Thompson Creek Road Stevensville, MD 21666	Place of Worship	Not Applicable
New Walk Community Church	10 Chester Plaza, Chester MD 21619	Place of Worship	Not Applicable
Broad Creek Cemetery	370 Romancoke Road Stevensville, MD 21666	Cemeteries	Not Applicable
Stevensville Cemetery	850 Main Street Stevensville, MD 21666	Cemeteries	Not Applicable
Garnder Family Cemetery	120 Chester Station Lane Chester, MD 21619	Cemeteries	Not Applicable
Anne Arundel Medical Center Pavilion/Annapolis Pediatrics - Kent Island	1630 Main Street Chester, MD 21619	Health Care	Medical Center
University of Maryland Urgent Care - Kent Island	25 Kent Town Market Chester, MD 21619	Health Care	Urgent Care
Terrapin Nature Park	191 Log Canoe Circle Stevensville, MD 21666	Parks and Recreational Areas	Parks
Cross Island Trail (Trailhead)	191 Log Canoe Circle Stevensville, MD 21666	Parks and Recreational Areas	Trails
Piney Creek Nature Area	0 Blue Starr Memorial Highway Chester, MD 21619	Parks and Recreational Areas	Parks
Waterman's Boat Basin	*Full address unavailable* - located along Medic Drive Stevensville, MD 21666	Parks and Recreational Areas	Parks
Kent Narrows Landing	100 Piney Narrows Road Chester, MD 21619	Parks and Recreational Areas	Parks
Eisinger Property	213 Love Point Road Stevensville, MD 21666	Parks and Recreational Areas	Parks
Chesapeake Bay Trail	From Terrapin Nature Park to Matapeake Park	Parks and Recreational Areas	Water Trail

Name	Address	Facility Type	Facility Sub Type
Kent Narrows Trail North	From Kent Narrows Landing to Piney Creek and Jackson Creek	Parks and Recreational Areas	Water Trail
Kent Narrows Trail South	From Kent Narrows Landing to Goodhands Creek Landing	Parks and Recreational Areas	Water Trail
Stevensville Post Office	366 Thompson Creek Mall Stevensville, MD 21666	Public Institutions	Post Office
Chester Post Office	1575 Postal Road Chester, MD 21619	Public Institutions	Post Office
Kent Island VFD	1610 Main Street Chester, MD 21619	EMS and Law Enforcement	Fire/EMS
EMS Station 200	101 Medic Drive Stevensville, MD 21666	EMS and Law Enforcement	Fire/EMS
AlphaBEST at Kent Island Elementary School	110 Elementary Way Stevensville, MD 21666	Other Community & Social Services	Childcare/Daycare Centers
Kent Island Village Apartments	101 Ellicott Drive Chester, MD 21619	Other Community & Social Services	Affordable/ Subsidized Housing
Stevensville Village Apartments	39 Sherman Way Chester, MD 21619	Other Community & Social Services	Senior Housing or Living Facilities
Bay Bridge Airport	202 Airport Road Stevensville, MD 21617	Transportation Facilities	Airport
Stevensville Park & Ride	U.S. 50 @ MD 8 Stevensville, MD 21666	Transportation Facilities	Park & Ride
U.S. 50 @ Castle Marina Road Park & Ride	200B Island Professional Park Stevensville, MD 21666	Transportation Facilities	Park & Ride
Bay Bridge Marina	337 Pier One Road Stevensville, MD 21666	Transportation (Maritime Facilities)	Marinas
Kent Narrows Boatel	100 Piney Narrows Road Chester, MD 21619	Transportation (Maritime Facilities)	Marinas
Piney Narrows Yacht Haven	500 Piney Narrows Road Chester, 21619 MD	Transportation (Maritime Facilities)	Marinas
Kent Island Yacht Club	117 Yacht Club Drive Chester, MD 21619	Transportation (Maritime Facilities)	Marinas
Delmarva Power & Light Co Substation	100 Pier 1 Rd Stevensville, MD 21666	Public Utilities	Electrical Substation
Cellco Partnership Cellular Tower	201 Gardners Purchase Lane Chester, MD 21619	Public Utilities	Cellular Tower

According to the 2018-2022 ACS data, the block groups comprising the Kent Island community has a population of 19,969 persons, approximately 27 percent of the total population within the analysis area. Detailed census data on all block groups in the community is provided in **Appendix C**. **Table 7-13** summarizes features that reflect the character of the Kent Island community in comparison to the analysis area. Notably, the median income ($119,180) is less than that of the analysis area ($129,121), the population driving to work alone (83 percent) is greater than that of the analysis area (76 percent), and households without internet subscription (11 percent) is greater than that of the analysis area (5 percent).

Table 7-13: Kent Island Community Characteristics

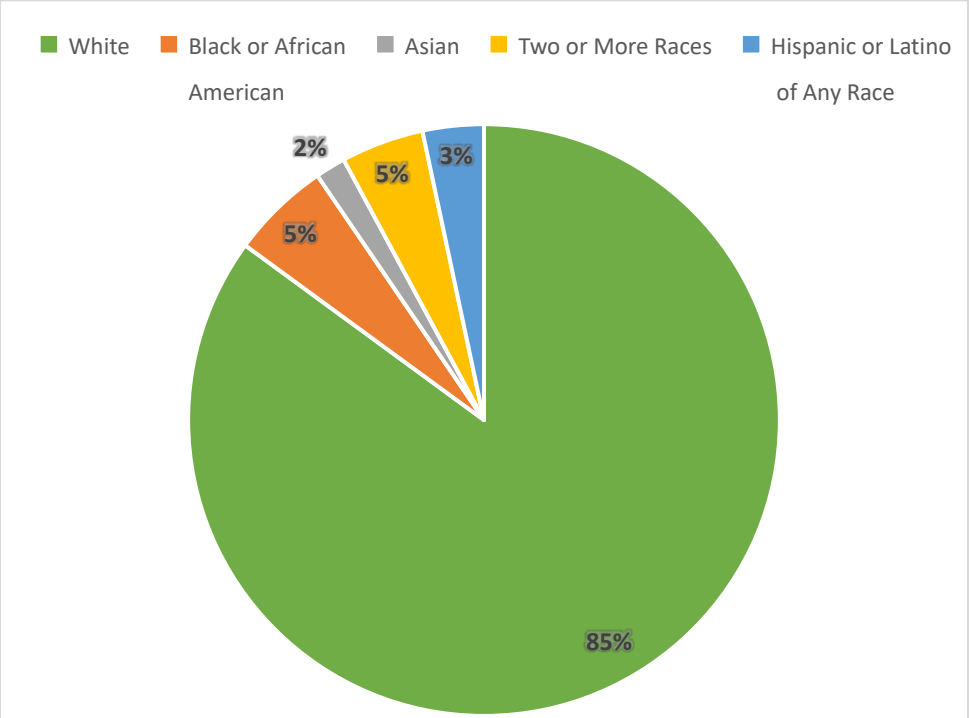
Population Characteristic	Kent Island Community	Analysis Area
Total Population	19,969	73,415
Median Age	47	44
Percent Population Under 10 Years	11%	12%
Percent Population 10-19 Years	12%	14%
Total Households	7,888	27,234
Percent Population Driving to Work Alone	83%	76%
Percent Households with Limited English Proficiency	1%	1%
Percent of Persons Living Below Poverty Level	6%	5%
Median Income	$119,180	$129,121
Percent Households with One + persons with a Disability	22%	21%
Percent Households without Internet Subscription	11%	5%
Employment Rate	96%	96%
Housing Unit Vacancy Rate	9%	7%

Source: ACS Five-Year Estimates (2018-2022)

The Kent Island community has approximately the same proportion of limited English proficiency households as the analysis area (one percent), where the majority of other languages spoken includes other Indo-European languages and Asian and Pacific Island languages.

The racial and ethnic population composition of the Kent Island community is displayed in **Figure 7-9**.

Figure 7-9: Racial and Ethnic Composition of the Kent Island Community



The following race/ethnicities represent 0% of the community and were omitted from the figure: American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, and Some Other Race.

Source: ACS Five-Year Estimates (2018-2022)

The majority of housing units within the Kent Island community are single-family detached structures, which are mostly owner occupied. There are 26 parcels within zones designated as generalized residential along U.S. 50/301 within the study limits.

The economic analysis identified four business clusters along U.S. 50/301 within the Kent Island community including Services Exit/Shopping Center Road, Exit 39A, Exit 39B, and Exit 40. Combined, these four business clusters include 335 businesses, generate $1,081 million annual revenue, and employ approximately 3,000 individuals. The top ten businesses by revenue and the total count of additional businesses are listed for each business cluster in **Table 7-14**. These business clusters are depicted on **Appendix A**.

Table 7-14: Largest 10 Businesses by Revenue – Kent Island Business Clusters

Services Exit / Shopping Center Road	Exit 39A
Bank of America	Dr Fuel Inc.
Kent Island Martial Arts Center	Southern Maryland Oil
Sombrero	Liberty Mutual Insurance
Willis Tire & Auto Repair	Anne Arundel Medical Group
Otac Inc	Manifest Global Enterprises
Panc LLC	Dejablu Vintage
Hardee's	Digestive Disorders Associates Women's Ob-Gyn

Services Exit / Shopping Center Road	Exit 39A
Tokyo Bay Japanese Steak Seafood Sushi	Edward Jones - Financial Adviser: William J Caughey IV
El Jefe Mexican Kitchen	Sherman's Martial Arts
Minuteman Press	U-Haul
Remaining Businesses (17)	Remaining Businesses (122)
27 Total Businesses $51M Total Annual Revenue (2022) 271 Total Employees	**132 Total Businesses $520M Total Annual Revenue (2022) 1,055 Total Employees**
Exit 39B	**Exit 40A**
Estate Treasures	United Healthcare
Highland Mortgage Maryland	Communications Electronics
M&T Bank	PNC Bank
Hlee Granger Inc	CVS Pharmacy
Maryland Top Transporters	Red Apple Plaza Shopping Center
Chesapeake Outdoors	Mallard Homes Inc
Bay Area Association of Realtors	Labcorp
Big Lots	Drill Tech Inc
Burger King	Adams The Place For Ribs
Verizon Authorized Retailer - Wireless Zone	Benson and Mangold Real Estate
Remaining Businesses (59)	Remaining Businesses (97)
69 Total Businesses $150M Total Annual Revenue (2022) 697 Total Employees	**107 Total Businesses $360M Total Annual Revenue (2022) 982 Total Employees**

Source: AtoZDatabase Business Data (2022)

Viewsheds from U.S. 50/301 within the Kent Island community are dominated by the manmade elements of the roadway, including the six lanes of travel and opposing traffic, shoulders, median, and guardrail, as well as surrounding vegetation cover that limits the view of the roadway. The viewshed from U.S. 50/301 also includes views of the surrounding land uses, including businesses, commercial areas, and residences directly along the roadway. While the viewshed in the Kent Island area is largely commercial centers, businesses, and vegetation, water resources are also visible from U.S. 50/301, including Cox Creek and Piney Creek. The viewshed also includes recreational areas in the Kent Island community, including Terrapin Nature Park and the Cross Island Trail. Refer to **Appendix E** for additional analysis of visual character and quality along U.S. 50/301 within the study limits.

7.5.1 Environmental Consequences

7.5.1.1 Alternative A: No-Build

The No-Build Alternative would not require right-of-way acquisition and would not directly impact properties in the Kent Island community. The visual character and quality along U.S. 50/301 would remain the same as the existing conditions. As such, there would be no visual changes with a No Build Alternative.

7.5.1.2 Build Alternatives

The impacts associated with each alternative are summarized in **Table 7-15** and identified in **Appendix A** (pages 18- 27 and 56- 65).

Table 7-15: Summary of Impacts within the Kent Island Community

Alternative	Residential and Business Property Impacts (#)	Community Facilities Property Impacts (#)	Existing Land Use Conversion to Study Related Transportation Right-of-way (acres)
Alternatives B and C	**Residential Properties**: 2 Partial Acquisitions 0 Displacement **Business/Other Properties**: 20 Partial Acquisitions 0 Displacements	**Partial Acquisitions:** 1 Educational Facility 1 Place of Worship 2 Parks and Recreational Areas 1 Transportation Facility 1 Marina 1 Public Utility **No Displacements**	**Low-Density Residential**: <1 acre **Medium-Density Residential**: <1 acre **Commercial**: 3 acres **Institutional**: <1 acre **Other Land**: 11 - 12 acres
Alternatives D and E	**Residential Properties**: 2 Partial Acquisitions 0 Displacement **Business/Other Properties**: 60 Partial Acquisitions 0 Displacements	**Partial Acquisitions:** 1 Educational Facility 2 Places of Worship 1 Cemetery 2 Health Care Facilities 6 Parks and Recreational Areas 1 Public Institution 2 Transportation Facilities 2 Marinas 1 Public Utility **No Displacements**	**Low-Density Residential**: <1 acre **Medium-Density Residential**: <1 acre **High-Density Residential**: <1 acre **Commercial**: 8 acres **Institutional**: <1 acre **Other Land:** 14 - 15 acres
Alternatives F and G	**Residential Properties**: 2 Partial Acquisitions 0 Displacements **Business/Other Properties**: 62 Partial Acquisitions 0 Displacements	**Partial Acquisitions:** 1 Educational Facility 2 Places of Worship 1 Cemetery 2 Health Care Facilities 6 Parks and Recreational Areas 1 Public Institution 2 Transportation Facilities 2 Marinas 1 Public Utility **No Displacements**	**Low-Density Residential**: <1 acre **Medium-Density Residential**: <1 acre **High-Density Residential**: <1 acre **Commercial**: 9 acres **Industrial:** <1 acre **Institutional**: <1 acre **Other Land**: 15 - 16 acres

None of the build alternatives would result in residential or non-residential displacements within the Kent Island community. However, traffic mobility and pedestrian and bicycle accessibility to Mixed-use and Commercial zoned parcels along U.S. 50/301 would be impacted by the proposed improvements as detailed in the Traffic and Transportation Technical Report.

Alternatives B and C would impact properties containing seven community facilities, including Stevensville Middle School, Kent Island United Methodist Church, Terrapin Nature Park, the Chesapeake Bay Water Trail, Bay Bridge Marina, Stevensville Park and Ride, and Delmarva Power & Light Co electric substation. Alternatives D, E, F, and G would result in impacts to properties containing an additional eight community facilities, including New Walk Community Church, Garnder Family Cemetery, Anne Arundel Medical Center Pavilion/Annapolis Pediatrics - Kent Island, University of Maryland Urgent Care - Kent Island, Piney Creek Nature Area, Cross Island Trail, Kent Narrows South Water Trail, Chester Post Office, Kent Narrows Boatel. The Kent Island Castle Marina Road Park and Ride, and Kent Narrows Landing Park would also be impacted by Alternatives D, E, F, and G; however, these are located on existing right-of-way. Community facilities where children are most likely to congregate or frequently attend that would be impacted include places of worship, parks and

recreational areas, and one school. Generally, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. The impacts would accommodate widening of U.S. 50/301, revised bridge approaches, reconfigured intersections, and stormwater management facilities.

Impacts to Terrapin Nature Park would increase should the optional SUP proceed to construction. The optional SUP would require additional land use conversion of Institutional (<1 acre) and Other Land (up to 1 acre) to transportation right-of-way.

The build alternatives are anticipated to have negligible impact on the overall population or demographic patterns within the community. Minor changes to the sense of community cohesion or interactions between persons or groups within the community have the potential to occur given the limited number of business displacements that would occur. Because the proposed improvements are parallel to the existing U.S. 50/301 and intersections, isolation of properties, persons, or groups would not occur. The build alternatives are anticipated to result in enhanced access and connectivity for all individuals, including children, along U.S. 50/301 within the Kent Island community.

All build alternatives would impact viewsheds within the Kent Island community. Alternatives B, C, D, E, F, and G would increase the number of travel lanes along U.S. 50/301 approaches in the Kent Island community. The increased width and additional infrastructure would be noticeable by viewers; however, these changes would be mostly consistent with the existing visual quality of the corridor.

The most notable visual change would be the increased prominence of the bridge in the skyline given the increased height of the bridge. This change would be most noticeable from key vantage points from Kent Island including Terrapin Nature Park and residential and commercial areas along the shore. While the existing Bay Bridge is already a pronounced disruption to views of the Bay, the bridge itself is an iconic and recognizable landmark. A new Bay Bridge will likely have a similar visual appeal against the backdrop of the Chesapeake Bay. However, the expanded bridge would have a more imposing visual presence. Refer to **Appendix E** for additional analysis of the visual impact of the alternatives.

7.6 Kent Narrows/Grasonville Community

The Kent Narrows/Grasonville community includes four block groups. Within the Kent Narrows/Grasonville community, Grasonville and Kent Narrows CDP is bisected by U.S. 50/301. Land use in the Kent Narrows/Grasonville community is mainly designated as Other Land. Low-Density and Very Low Residential land uses primarily line the surrounding water bodies, with some isolated pockets that scatter throughout the community. Land uses designated as Medium-Density Residential, Commercial, and Institutional are mostly located along U.S. 50/301. Open Urban Land classified lands occur in small, isolated pockets throughout this area, apart from a large patch associated with the Prospect Bay Country Club. Planning in the Kent Narrows/Grasonville community is guided by Queen Anne's County, BRTB, and State plans, as summarized in **Table 6-2**. As depicted in **Figure 7-10**, generalized zoning in the Kent Narrows/Grasonville community along U.S. 50/301 is mostly Generalized Mixed Use along the south and west portions, and Generalized Commercial in the middle of the community. Areas of Generalized Agricultural zoning are present along the north and south sides of U.S. 50/301 in the community.

Development patterns of the Kent Narrows/Grasonville community consist mainly of low-density to medium single-family residences with mixed use and commercial areas concentrated along U.S. 50/301. Per *PlanQAC 2022*, future land use within the Grasonville CDP is mainly medium-density residential with mixed-use/commercial areas along U.S. 50/301 and is a mix of commercial and agriculture and open space in the Kent Narrows CDP. Future land use within the southern peninsula of the community includes mostly very low and low-density residential with ample agriculture and open space. As shown in **Figure 6-6**, Queen Anne's County designated Growth Areas located within the Kent Narrows/Grasonville community are concentrated along U.S. 50/301.

Figure 7-10: Kent Narrows/Grasonville Community Zoning Along U.S. 50/301

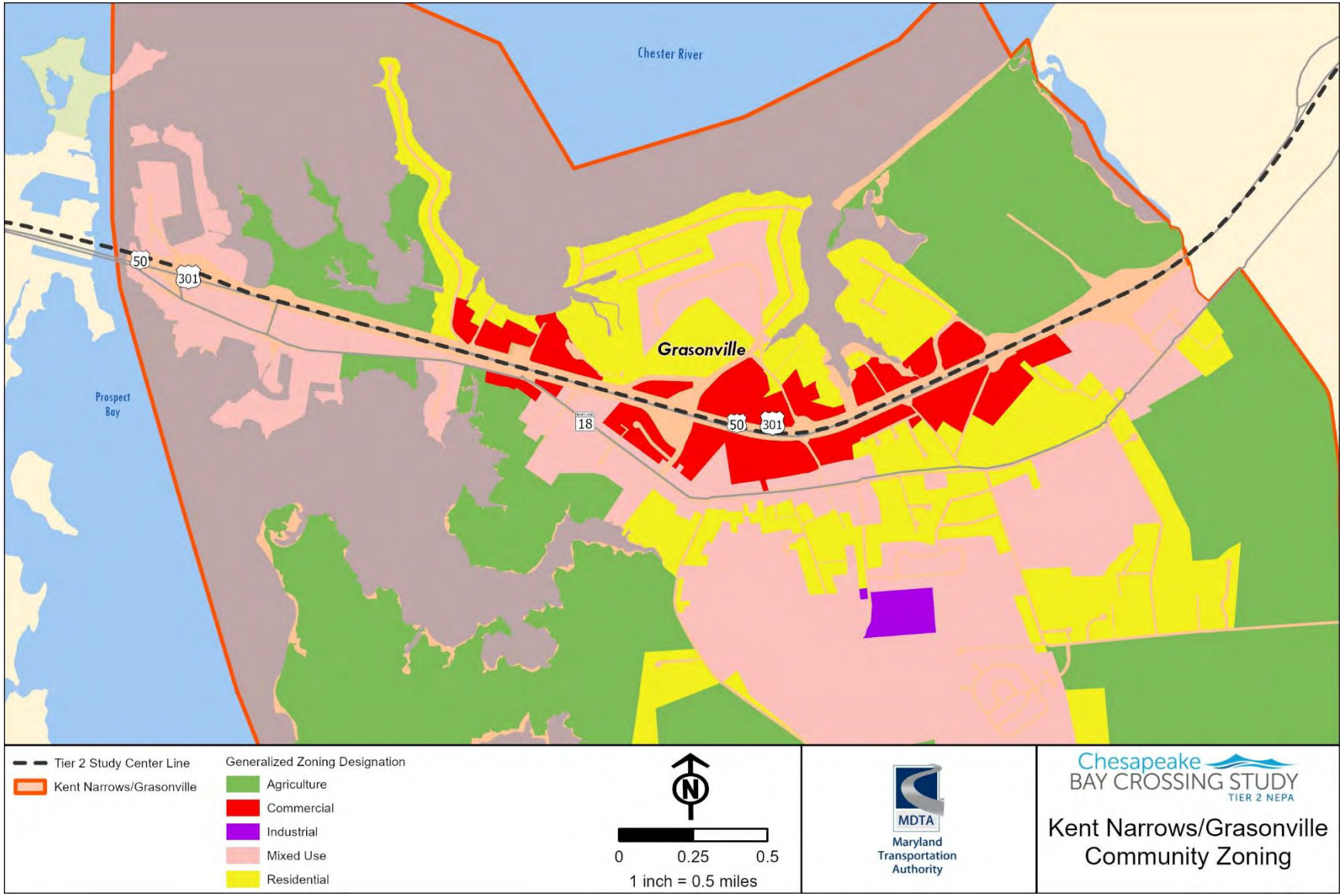


Table 7-16 lists the community facilities present along U.S. 50/301 as well as their address and designation. **Appendix A** (pages 27- 34 and 65- 72) depicts the locations of these community facilities.

Table 7-16: Kent Narrows/Grasonville Community Facilities Along U.S. 50/301

Name	Address	Facility Type	Facility Sub Type
Chesapeake Church of Christ	405 Drummer Drive Grasonville, MD 21638	Place of Worship	Not Applicable
Seventh Day Adventist	205 Medical Center Road Grasonville, MD 21638	Place of Worship	Not Applicable
Eastern Shore Baptist Church	119 Station Lane Grasonville, MD 21638	Place of Worship	Not Applicable
University of Maryland Shore Medical Campus and Emergency Center	115 & 125 Shoreway Drive Queenstown, MD 21658	Health Care/ Transportation Facility	Medical Center/Urgent Care/Heliport
Long Point Park	107 Jackson Creek Road Grasonville, MD 21638	Parks and Recreational Areas	Parks
Cross County Connector Trailhead	107 Jackson Creek Road Grasonville, MD 21638	Parks and Recreational Areas	Trail
The Village of Slippery Hill	210 Fallen Horse Circle Queenstown, MD 21658	Other Community & Social Services	Affordable/ Subsidized Housing
Queenstown Landing	120 Shoreway Drive Queenstown, MD 21658	Other Community & Social Services	Senior Housing or Living Facilities
Veterans of Foreign Wars Post 7464	203 VFW Avenue Grasonville, MD 21638	Other Community & Social Services	Veteran Affairs Centers or Offices
Royal Farms	108 Jackson Creek Road Grasonville, MD 21638	Other Community & Social Services	Grocery Stores
Wawa	101 Hissey Road Grasonville, MD 21638	Other Community & Social Services	Grocery Stores
7-Eleven	110 Pullman Crossing Road Grasonville, MD 21638	Other Community & Social Services	Grocery Stores
Safe Harbor Narrows Point	428 Kent Narrow Way North Grasonville, MD 21638	Transportation	Marinas
Hyatt Place Kent Narrows & Marina	3028 Kent Narrow Way South Grasonville, MD 21638	Transportation	Marinas
Water Treatment Plant	3232 Main Street Grasonville, MD 21638	Public Utilities	Water Treatment Plant

According to the 2018-2022 ACS data, the block groups comprising the Kent Narrows/Grasonville community have a population of 6,330 persons, approximately nine percent of the total population within the analysis area. Detailed census data on all block groups in the community is provided in **Appendix C**. **Table 7-17** summarizes features that reflect the character of the Kent Narrows/Grasonville community in comparison to the analysis area. Notably, the median age within this community (49 years) is greater than that of the analysis area (44 years), the households with one or more persons

with a disability 18 percent) is less than that of the analysis area (21 percent), and the housing unit vacancy rate (13 percent) is greater than that of the analysis area (7 percent).

Table 7-17: Kent Narrows/Grasonville Area Community Characteristics

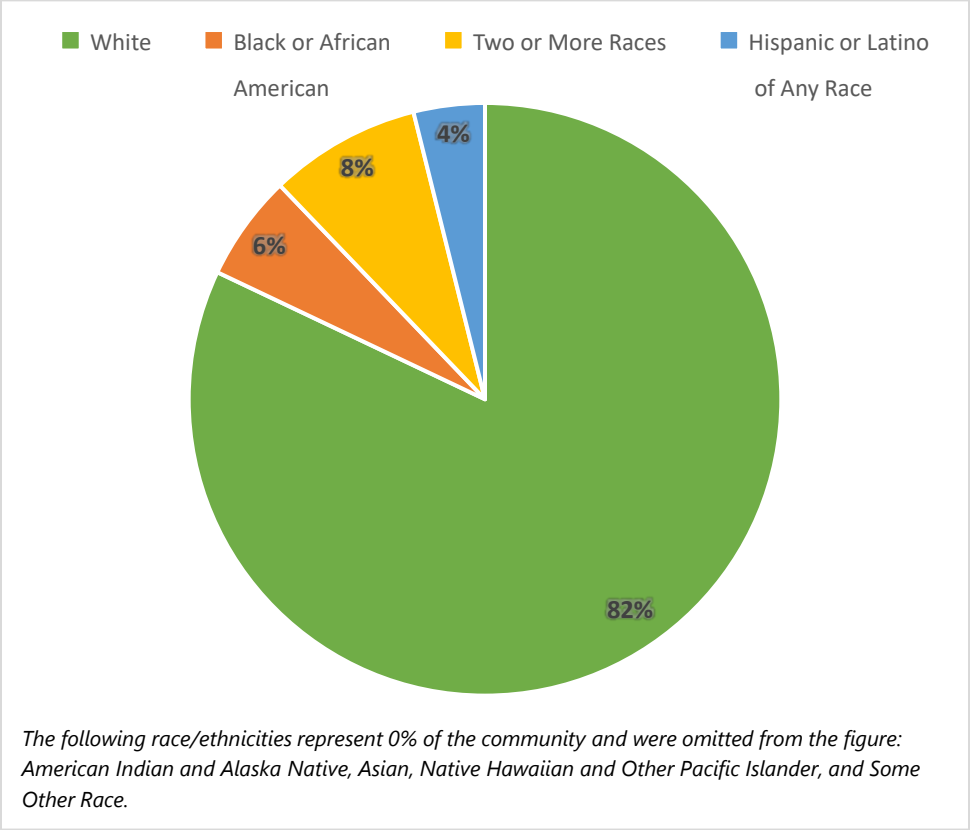
Population Characteristic	Kent Narrows/Grasonville Community	Analysis Area
Total Population	6,330	73,415
Median Age	49	44
Percent Population Under 10 Years	10%	12%
Percent Population 10-19 Years	14%	14%
Total Households	2,425	27,234
Percent Population Driving to Work Alone	74%	76%
Percent Households with Limited English Proficiency	1%	1%
Median Income	$126,769	$129,121
Percent of Persons Living Below Poverty Level	8%	5%
Percent Households with One + persons with a Disability	18%	21%
Percent Households without Internet Subscription	8%	5%
Employment Rate	97%	96%
Housing Unit Vacancy Rate	13%	7%

Source: ACS Five-Year Estimates (2018-2022)

The Kent Narrows/Grasonville community has approximately the same proportion of limited English proficiency households as the analysis area (one percent), where the majority of the households speak Spanish.

The racial and ethnic population composition of the Kent Narrows/Grasonville community is displayed in **Figure 7-11**.

Figure 7-11: Racial and Ethnic Composition of the Kent Narrows/Grasonville Community



Source: ACS Five-Year Estimates (2018-2022)

The majority of housing units within the Kent Narrows/Grasonville community are single-family detached structures, which are mostly owner occupied. There are three residentially zoned parcels along U.S. 50/301 within the study limits.

The economic analysis identified seven business clusters along U.S. 50/301 within the Kent Narrows/Grasonville community including Exit 41, Exit 42, Exit 43A, Exit 44A, Exit 44B, Exit 45A, and Exit 45B. Combined, these seven business clusters include 128 businesses, generate $265 million in annual revenue, and employ approximately 1,200 individuals. The top ten businesses by revenue and the total count of additional businesses for each business cluster are listed in **Table 7-18**. These business clusters are depicted on **Appendix A**.

Table 7-18: Largest 10 Businesses by Revenue – Kent Narrows/Grasonville Business Clusters

Exit 41	Exit 42	Exit 43A
Q's Private Venue	Big Owl Tiki Bar	Pierson Nanticoke Homes Inc
Zimmerman Construction Co	Holiday Inn Express	Shore United Bank
Dock House	Best Western Kent Narrows Inn	Bayside Mortgage Services Inc
Hurricane Awning & Canvas	Isaarchitectural	Berrang Family Motors
Swan Cove Day Spa & Salon	Rudy Marine	Queenstown Bank of Maryland
Piney Narrows Yacht	Off The Hook Yacht Sales Maryland	Superior Signs Screen Printing
Kent Narrows Boatel	The Big Owl	Pdb Commercial

Exit 41	Exit 42	Exit 43A
Brooke and June Bridal	*N/A*	Graysonville Bp
Berkshire Hathaway Homeservices Homesale Realty Kent Island		U-Haul Moving & Storage
Ohana Charters		7-Eleven
Remaining Businesses (4)		Remaining Businesses (24)
14 Total Businesses $25M Total Annual Revenue (2022) 157 Total Employees	**7 Total Businesses $16M Total Annual Revenue (2022) 125 Total Employees**	**34 Total Businesses $81M Total Annual Revenue (2022) 219 Total Employees**
Exit 44A	**Exit 44B**	**Exit 45A**
Pepup	Atlantic Broadband	Wawa
Bay RV	Backyard Billy's	Island Furniture Studio
Denny's	Diversified Wholesale	Smoke Heaven
Tri-Gas & Oil Inc	Hearth America LLC	Tingles Concrete Construction
Signtex	Bosun's Marine	Greenway Automotive LLC
Shore Distributors Inc	wineandbarware	Patriot Fire LLC
Rental Works	Roi Contracting LLC	Whalertowne
Sleep Inn & Suites	Winchester Liquors	Hudson Marine LLC
La Piazza	Boat Cover Inc	Jpn Self Storage
A & M Marine Services Inc	Outdoor Cover Warehouse	Cromwell Ceramics
Remaining Businesses (8)	Remaining Businesses (7)	Remaining Businesses (6)
18 Total Businesses $53M Total Annual Revenue (2022) 160 Total Employees	**17 Total Businesses $48M Total Annual Revenue (2022) 194 Total Employees**	**16 Total Businesses $19M Total Annual Revenue (2022)[1] 112 Total Employees[1]**
Exit 45B		
Emergency Center Queen Anne's		
Maryland Primary Care Physicians LLC		
DaVita Kidney Care		
Orthopedic Center		
Queen Anne's Medical Office Building		
Um Smg Cardiology At Queenstown		
Integracare Queenstown Landing		
Mary King		
Jamie L Harms		
James Martin Chamberlain MD		
Remaining Businesses (12)		
22 Total Businesses $23M Total Annual Revenue (2022)[1] 220 Total Employees[1]		

Source: AtoZDatabase Business Data (2022).

1. Incomplete data available for all business revenues and employees within the business cluster.

Viewsheds from U.S. 50/301 within the Kent Narrows/Grasonville community are dominated by the manmade elements of the roadway, including the six lanes of travel and opposing traffic, shoulders, median, and guardrail, as well as surrounding vegetation cover that limits the view of the roadway. The viewshed from U.S. 50/301 also includes views of the surrounding land uses, including businesses, commercial areas, and residences directly along the roadway.

Kent Narrows is a narrow waterway that separates Kent Island from the Maryland mainland. The Kent Narrows Bridge, which spans this waterway, offers views of Kent Narrow's salt marshes, the Chester River and Eastern Neck to the north, Prospect Bay to the south, and nearby residences and commercial businesses. Additionally, the Bay Bridge itself is visible from the Kent Narrows Bridge in the westbound direction. Refer to **Appendix E** for additional analysis of visual character and quality along U.S. 50/301 within the study limits.

7.6.1 Environmental Consequences

7.6.1.1 Alternative A: No-Build

The No-Build Alternative would not require right-of-way acquisition and would not directly impact properties in the Kent Narrows/Grasonville community. The visual character and quality along U.S. 50/301 would remain the same as the existing conditions. As such, there would be no visual changes with a No Build Alternative.

7.6.1.2 Build Alternatives

As reflected in

Table 7-19 and Appendix A (pages 27- 34 and 65- 72), Alternatives B and C would not impact the Kent Narrows/Grasonville community, as these alternatives do not extend to this community. Alternatives D, E, F and G would result in the same degree of impact.

Table 7-19: Summary of Impacts within the Kent Narrows/Grasonville Community

Alternative	Residential and Business Property Impacts (#)	Community Facilities Property Impacts (#)	Existing Land Use Conversion to Study Related Transportation Right-of-way (acres)
Alternatives B and C	None	None	None
Alternatives D, E, F, and G	**Residential Properties**: 0 Partial Acquisition 0 Displacements **Business/Other Properties**: 30 Partial Acquisitions 0 Displacements	**Partial Acquisitions:** 1 Health Care Facility 1 Parks and Recreational Area **No Displacements**	**Very Low-Density Residential**: <1 acre **Low-Density Residential**: <1 acre **Medium-Density Residential**: <1 acre **Commercial**: 2 acres **Industrial**: <1 acre **Institutional**: <1 acre **Open Urban Land**: 4 acres **Other Land** 6 acres

None of the build alternatives would result in residential or non-residential displacements within the Kent Narrows/Grasonville community. However, traffic mobility and pedestrian and bicycle accessibility to Mixed-use and Commercial zoned parcels along U.S. 50/301 would be impacted by the proposed improvements as detailed in the Traffic and Transportation Technical Report.

Two community facilities are located on properties that would be impacted by Alternatives D, E, F, and G, including University of Maryland Shore Medical Campus and Emergency Center, and Cross Island Trail. Alternatives D, E, F, and G would not impact the building facilities; therefore, these services are anticipated to continue unimpeded by the build alternatives. Community facilities where children are most likely to congregate or frequently attend that would be impacted include the Cross Island Trail, given its function as a recreational area. Generally, the build alternatives would require acquisition of strips of land from undeveloped areas from properties along U.S. 50/301. The impacts would accommodate widening of U.S. 50/301, reconfigured intersections, and stormwater management facilities. There would be no impact from the optional SUP, as it would not extend to the Kent Narrows/Grasonville community.

The build alternatives are anticipated to have negligible impact on the overall population or demographic patterns within the community. Minor changes to the sense of community cohesion or interactions between persons or groups within the community have the potential to occur given the limited number of residential and business displacements that would occur. Because the proposed improvements are parallel to the existing U.S. 50/301 and intersections, isolation of properties, persons, or groups would not occur. The build alternatives are anticipated to result in enhanced access and connectivity for all individuals, including children, along U.S. 50/301 within the Kent Narrows/Grasonville community.

The build alternatives would impact viewsheds within the Kent Narrows/Grasonville community to varying degrees. With an increase in travel lanes proposed in Alternatives D, E, F, and G, the visual impacts on the Kent Narrows/Grasonville community would be noticeable by viewers; however, these changes would be consistent with the existing visual quality of the corridor.

The most notable visual change would be the increased prominence of the bridge in the skyline given the increased height of the bridge. This change would be most noticeable from key vantage points, including the Kent Narrows Bridge. However, it is important to note that the visual impact would not be uniformly severe across all areas. The impact would be less pronounced in areas where natural or built features partially obscure the view of the bridge. Refer to **Appendix E** for additional analysis of the visual impact of the alternatives.

7.7 Queenstown Community

The Queenstown community is the easternmost community in the analysis area and includes three block groups. The Queenstown community contains the Queenstown CDP which is primarily located north of U.S. 50/301. The majority of the land use within the Queenstown community is designated as Other Land. There are large swaths of Open Urban Land designated areas associated with the Queenstown Harbor Golf Course (QHGC) and Hunters Oak Golf Club. Low-Density Residential land use is concentrated along the Wye River and sparsely dispersed throughout the community, with small patches of Very Low Density Residential designated lands often occurring in proximity to these Low-Density Residential areas. Medium-Density Residential and Commercial designated land uses are clustered along U.S. 301 within the Queenstown CDP. Planning in the Queenstown community is guided by Queen Anne's County, BRTB, and State plans as summarized in **Table 6-2**. As depicted in **Figure 7-12**, generalized zoning in the Queenstown community is mostly Generalized Residential and Generalized Agriculture south of U.S. 50/301 and Town north of U.S. 50/301. The eastern extent of the community along U.S. 50/301 is zoned Generalized Commercial and Generalized Industrial.

Apart from the Queenstown CDP, development patterns of the Queenstown community consist primarily of rural agriculture with pockets of low-density residential developments. The Queenstown CDP includes single family residential and commercial, with the bulk of the commercial land used as a resort associated with the QHGC. Per *PlanQAC 2022*, planned land use includes very low-density residential, agriculture and open space, with some pockets of mixed-use and commercial along U.S. 50/301. As shown in **Figure 6-6**, the Queen Anne's County designated Growth Areas are located within the Queenstown community along U.S. 50/301.

Figure 7-12: Queenstown Community Zoning Along U.S. 50/301

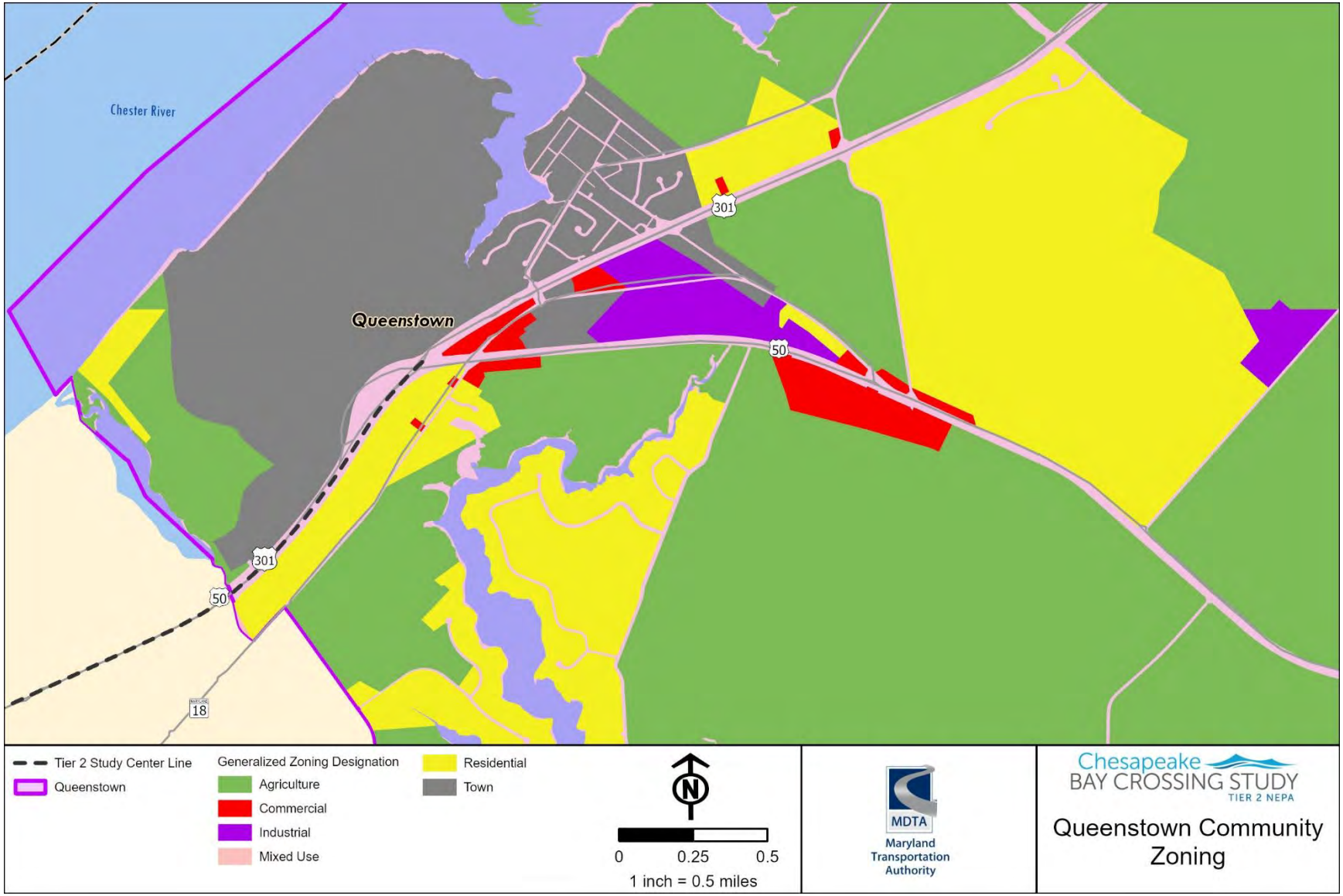


Table 7-20 lists the community facilities present along U.S. 50/301 within the Queenstown community as well as their address and designation. **Appendix A** (pages 34-38 and 72-76) depicts the locations of these community facilities.

Table 7-20: Queenstown Community Facilities Along U.S. 50/301

Name	Address	Facility Type	Facility Sub Type
Queenstown Harbor Golf Links	310 Links Lane Queenstown, MD 21658	Parks and Recreational Areas	Golf Courses

According to the 2018-2022 ACS data, the block groups within the Queenstown community have a population of 2,618 persons, approximately four percent of the total population within the analysis area. Detailed census data on all block groups in the community is provided in **Appendix C**. **Table 7-21** summarizes features that reflect the character of the Queenstown community in comparison to the overall analysis area. Notably, the housing unit vacancy rate (17 percent) is greater than that of the analysis area (7 percent), the median income ($92,981) is less than that of the analysis area ($129,121), and the households with one or more persons with a disability (27 percent) is greater than that of the analysis area (21 percent).

Table 7-21: Queenstown Community Characteristics

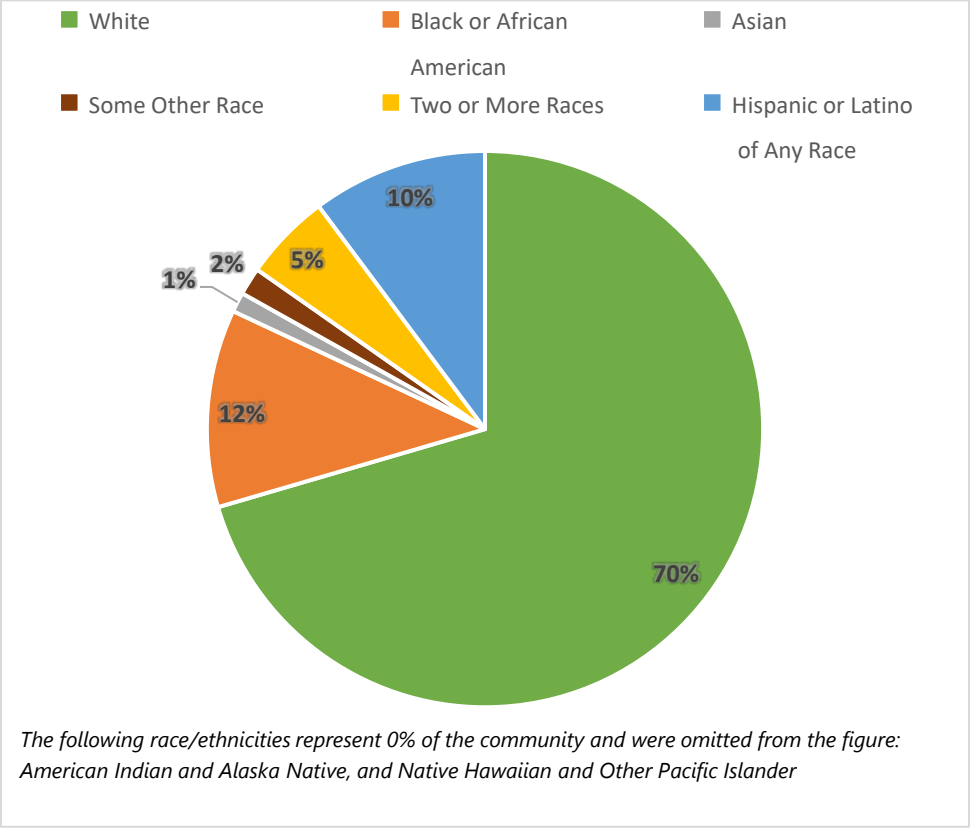
Population Characteristic	Queenstown Community	Analysis Area
Total Population	2,618	73,415
Median Age	49	44
Percent Population Under 10 Years	9%	12%
Percent Population 10-19 Years	10%	14%
Total Households	1,069	27,234
Percent Population Driving to Work Alone	78%	76%
Percent Households with Limited English Proficiency	1%	1%
Median Income	$92,981	$129,121
Percent of Persons Living Below Poverty Level	7%	5%
Percent Households with One + persons with a Disability	27%	21%
Percent Households without Internet Subscription	3%	5%
Employment Rate	96%	96%
Housing Unit Vacancy Rate	17%	7%

Source: ACS Five-Year Estimates (2018-2022)

The Queenstown community has approximately the same proportion of limited English proficiency households as the analysis area (one percent), where the majority of other languages spoken is Spanish.

The racial and ethnic population composition of the Queenstown community is displayed in **Figure 7-13**.

Figure 7-13: Racial and Ethnic Composition of the Queenstown Community



Source: ACS Five-Year Estimates (2018-2022)

The majority of housing units within the Queenstown community are single-family detached structures, which are mostly owner occupied. There are 26 residentially zoned parcels along U.S. 50/301 within the study limits located just west of the U.S. 50/301 split.

The economic analysis identified one business cluster along U.S. 50/301 within the Queenstown community. The Queenstown Premium Outlets at the U.S. 50/301 split includes 27 businesses, generates $61 million annual revenue, and employes approximately 300 individuals. The top ten businesses by revenue and the total count of additional businesses in the business cluster are listed in **Table 7-22**. The Queenstown Premium Outlets business cluster is depicted on **Appendix A**.

Table 7-22: Largest 10 Businesses by Revenue – Queenstown Business Cluster

Queenstown Premium Outlets	
Old Navy	Clarks Shoes
Pepperidge Farm	Liz Claiborn Inc
Banana Republic	COACH
Queenstown Mart	Remaining Businesses (17)
Merrell	**27 Total Businesses** **$61M Total Annual Revenue (2022)** **294 Total Employees**
Guess Factory	
Verizon Authorized Retailer - Cellular Sales	

Source: AtoZDatabase Business Data (2022)

Viewsheds from U.S. 50/301 within the Queenstown community are dominated by the manmade elements of the roadway, including the six lanes of travel and opposing traffic, shoulders, median, and guardrail, as well as surrounding vegetation cover that limits the view of the roadway. The viewshed from U.S. 50/301 also includes views of the surrounding businesses, commercial areas, and residences. Within the Queenstown community, businesses and commercial centers are less concentrated, with areas of dense vegetation located along the roadway. Refer to **Appendix E** for additional analysis of visual character and quality along U.S. 50/301 within the study limits.

7.7.1 Environmental Consequences

7.7.1.1 Alternative A: No-Build

The No-Build Alternative would not require right-of-way acquisition and would not directly impact properties in the Queenstown community. The visual character and quality of the U.S. 50/301 would remain the same as the existing conditions. As such, there would be no visual changes with a No Build Alternative.

7.7.1.2 Build Alternatives

As reflected in **Table 7-23** and **Appendix A** (pages 34-38 and 72-76), Alternatives B and C would not impact the Queenstown community, as these alternatives do not extend to this community. Alternatives D, E, F, and G would result in the same degree of impact.

Table 7-23: Summary of Impacts within the Queenstown Community

Alternative	Residential and Business Property Impacts (#)	Community Facilities Property Impacts (#)	Existing Land Use Conversion to Study Related Transportation Right-of-way (acres)
Alternatives B and C	None	None	None
Alternatives D, E, F, and G	**Residential Properties**: 4 Partial Acquisitions 0 Displacements **Business/Other Properties**: 12 Partial Acquisitions 0 Displacements	**Partial Acquisitions:** 1 Park and Recreational Area **No Displacements**	**Low-Density Residential**: <1 acre **Medium-Density Residential**: <1 acre **Commercial**: 1 acre **Open Urban Land**: <1 acre **Other Land**: 10 acres

No residential or non-residential displacements would occur as a result of the build alternatives within the Queenstown community. However, traffic mobility and pedestrian and bicycle accessibility to Commercial, Industrial, Residential and Town zoned parcels along U.S. 50/301 would be impacted by the proposed improvements as detailed in the Traffic and Transportation Technical Report.

One community facility, Queenstown Harbor Golf Links, is located on a property that would be impacted by Alternatives D, E, F, and G. Alternatives D, E, F, and G would not impact the building facilities; therefore, these services are anticipated to continue unimpeded by the build alternatives. No community facilities where children are most likely to congregate or frequently attend would be impacted by the build alternatives. Generally, the build alternatives would require acquisition of undeveloped strips of land from properties along U.S. 50/301. The impacts would accommodate widening of U.S. 50/301, reconfigured intersections, and stormwater management facilities. There would be no impact from the optional SUP, as it would not extend to the Queenstown community.

The build alternatives are anticipated to have negligible impact on the overall population or demographic patterns within the community. Minor changes to the sense of community cohesion or interactions between persons or groups within the community have the potential to occur given the limited number of residential and business displacements that would occur. Because the proposed improvements are parallel to the existing U.S. 50/301 and intersections, isolation of properties, persons, or groups would not occur. The build alternatives are anticipated to result in enhanced access and connectivity for all individuals, including children, along U.S. 50/301 within the Queenstown community.

Alternatives D, E, F, and G would increase the number of lanes along U.S. 50/301 from six to eight lanes from the Bay Bridge to the U.S. 50/301 split. The increased width and additional infrastructure would be noticeable by viewers; however, these changes would be mostly consistent with the existing visual quality of the corridor. It is not anticipated that the expanded bridge would alter the visual landscape from the Queenstown community.

8 PUBLIC ENGAGEMENT ACTIVITIES

Beginning with the announcement of the Bay Crossing Study Tier 2 Study in June 2022, public engagement activities were planned and undertaken to allow stakeholders and the larger public to engage in meaningful ways, with multiple opportunities to provide feedback and input to inform the transportation decision-making process. The study team developed a Public Engagement Plan (**Appendix F**) outlining the community engagement approach for the Tier 2 Study. It is intended to illustrate procedures for how the MDTA will engage with project stakeholders and the general public throughout the Tier 2 Study process. The Public Engagement Plan serves as a living document that outlines the process and practices for the Tier 2 Study and will be updated as necessary. Public engagement was developed to proactively seek full community representation, public comment and feedback, and incorporation of that feedback into a project, program, or plan when possible.

Public engagement activities, to date, have included Open Houses/Workshops (in-person and virtual), on-line and in-print surveys, and attendance at community events. The Tier 2 Study website (www.baycrossingstudy.com) provides background information on the Tier 2 Study and has been updated throughout the NEPA process to provide pertinent information to the public and agencies. The website also includes contact information and instructions to submit Tier 2 Study-related questions or comments and allows individuals to sign up for Tier 2 Study-related e-mail notifications. Through the duration of the Tier 2 Study, public comments have been accepted and shared through the Tier 2 Study website. As of February 2025, the study team tabulated more than 4,600 comments and survey responses. This section summarizes the public engagement efforts through November 2025. Additional details on the public outreach activities and comments received are provided on the Tier 2 Study website.

To date, three Public Open House series have been conducted:

- **September 2022 Public Open Houses** summarized the Tier 1 Study results, while introducing and describing objectives of the Tier 2 Study, including next steps.
- **September 2023 Public Open Houses** presented the Purpose and Need and Preliminary Alternatives Development, providing the public an opportunity to offer input.
- **December 2024 Public Open Houses** announced the Federal Register publication of the NOI, sought feedback on scoping of the EIS, and introduced the proposed ARDS.

Each Open House series included two in-person meetings, one in Anne Arundel County and one in Queen Anne's County, as well as a separate virtual on-line meeting. The dates, locations, and materials for Open Houses can be found on the Tier 2 Study website. Translated meeting materials were made available on-line and at the Open Houses. Translation services were made available upon request.

Additionally, the study team held a Virtual Transit & Bicycle/Pedestrian Listening Meeting on June 27, 2023, and conducted a transit survey, as well as a bicycle/pedestrian survey. The Virtual Transit & Bicycle/Pedestrian Listening Meeting materials and results of each survey are summarized in reports available on the Tier 2 Study website.

A range of communication approaches was employed to advertise the Public Open Houses and associated comment periods. In addition to the Tier 2 Study website, the MDTA distributed press releases; digital ads; news articles; mailings; email notifications; and other advertisements throughout the study area.

The study team has also participated in community events throughout the study area since the initiation of the Tier 2 Study. Active engagement with communities, stakeholders, and elected officials is ongoing. The focus of these engagement efforts was, and continues to be, to increase study awareness and visibility, provide Study-related updates, and seek feedback on a host of topics, including traffic; transit opportunities; alternatives design; bicycle and pedestrian improvements; economic benefits; and environmental concerns. Community events attended by the study team are listed chronologically in **Table 8-1** and shown on **Figure 8-1**, overlain with the community identified for the Socioeconomic & Land Use Analysis.

Table 8-1: Community Engagement Events

Date	Event/ Organization	Number of Interactions	Location (Community, where applicable)
5/20/23	Kent Island Day	61	641 Dominion Road Chester, MD 21619 (Kent Island)
6/3/2023	Annapolis Pride	120	801 Chase Street Annapolis, MD 21401
6/17/2023	Juneteenth	160	935 Spa Road Annapolis, MD 21401
7/7/2023	Blood Drive @ Busch Annapolis Library	Not counted	1410 West Street Annapolis, MD 21401
7/8/2023	Build It Eastport Annapolis Neck Library	Not counted	269 Hillsmere Drive Annapolis Neck, MD 21403
7/14/2023	Blood Drive @ Broadneck Library	Not counted	1275 Green Holly Drive Annapolis MD 21409 (Cape St. Claire)
7/20/2023	Kent Island Farmers Market	25	1169 Shopping Center Road Stevensville, MD 21666 (Kent Island)
7/30/2023	Chrome City	35	14299 Benedictine Lane Ridgely, MD 21660
8/1/2023	National Night Out	33	1001 Kinder Farm Park Road Millersville, MD 21108
8/4/2023	National Night Out	24	100 Union Wesley Circle Chester, MD 21619 (Kent Island)
8/7/2023	Queen Anne's County Fair	135	100 Dulin Clark Road Centreville, MD 21617
8/19/2023	Seafood Festival	135	1100 E College Parkway Annapolis, MD 21409 (Broadneck)
8/31/2023	Kent Island Farmers Market	24	1169 Shopping Center Road Stevensville, MD 21666 (Kent Island)
9/2/2023	Discoveries Library- Community Pantry	Not counted	2550 Annapolis Mall Road Annapolis, MD 21401

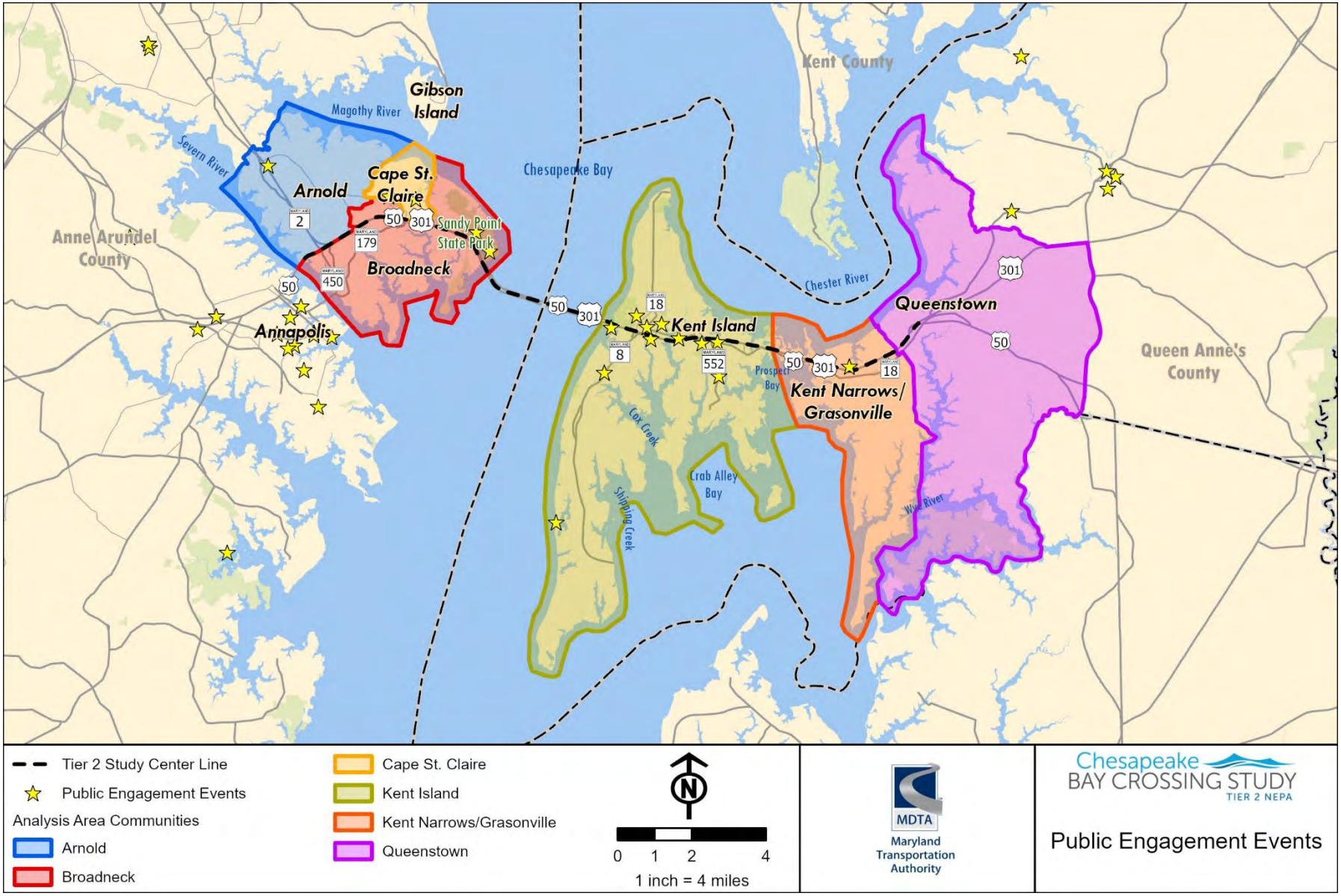
Date	Event/ Organization	Number of Interactions	Location (Community, where applicable)
9/4/2023	Grasonville Labor Day Parade	25	5601 Main Street Grasonville, MD 21638 (Kent Narrows/Grasonville)
9/13–17/2023	Anne Arundel County Fair	87	1450 Generals Highway, Crownsville, MD 21032
9/30–10/1/2023	Annapolis Baygrass Festival	83	1100 E College Parkway Annapolis, MD 21409 (Broadneck)
11/12/2023	Bay Bridge Run/Walk	140	165 Log Canoe Circle Stevensville, MD 21666 (Kent Island)
2/24/2024	Grasonville Community Center Small Expo	Not counted	5601 Main Street Grasonville, MD 21638 (Kent Narrows/Grasonville)
2/27/2024	State of Black Annapolis	15	1410 West Street Annapolis, MD 21401
4/7/2024	Asian American Festival	14	1450 Generals Highway Crownsville, MD 21032
4/10/2024	QAC Town Hall Meeting	Not counted	301 Church Street Stevensville, MD 21666 (Kent Island)
4/20/2024	YMCA Healthy Kids Event	Not counted	1209 Ritchie Highway Arnold, MD 21012 (Arnold)
4/27/2024	Grasonville VFD Spring Fair	19	203 VFW Avenue Grasonville, MD 21638 (Kent Narrows/Grasonville)
4/30/2024	Annapolis Vet Center Open House	40	100 Annapolis Street Annapolis, MD 21401
5/5/2024	Fiesta Latina	Not counted	1450 Generals Highway Crownsville, MD 21032
5/10/2024	Health Fair & Listening Session	30	44 Calvert Street Annapolis, MD 21401
5/13/2024	Queen Anne Colony HOA	Not counted	412 Congressional Drive Stevensville, MD 21666 (Kent Island)
5/17/2024	Queen Anne's County Senior Summit	15	100 Dulin Clark Road Centreville, MD 21617
5/17/2024	Bike to Work Day	31	1 Dock Street Annapolis, MD 21401
6/1/2024	Summer Slam Charity Pickleball	Not counted	1229 Primrose Road Annapolis, MD 21403
6/1/2024	Annapolis Pride 2024 Parade and Festival	150-200	801 Chase Street Annapolis, MD 21401
6/5/2024	Kent Island Fisherman Club	Not counted	800 Romancoke Road Stevensville, MD 21666 (Kent Island)
6/8/2024	Kennard AACCHC Juneteenth	Not counted	410 Little Kidwell Avenue Centreville, MD 21617
6/9/2024	The Great Chesapeake Bay Swim	5	357 Pier 1 Road Stevensville, MD 21666 (Kent Island)

Date	Event/ Organization	Number of Interactions	Location (Community, where applicable)
6/22/2024	Juneteenth (CAJUNE)	43	935 Spa Road Annapolis MD 21401
6/29/2024	Ace Hardware	43	364 Thompson Creek Mall Stevensville, MD 21666 (Kent Island)
6/30/2024	Farragut Farmer's Market	60	550 Taylor Avenue Annapolis, MD 21401
7/11/2024	Kent Island Farmers' Market	30	1169 Shopping Center Road Stevensville, MD 21666 (Kent Island)
7/13/2024	Kent Island True Value	33	26 Kent Town Market Chester, MD 21619 (Kent Island)
7/14/2024	Es Mi Parque	10	1100 E College Parkway Annapolis, MD 21409 (Broadneck)
7/25/2024	Kent Island Farmer's Market	Not counted	1169 Shopping Center Road Stevensville, MD 21666 (Kent Island)
7/27/2024	Annapolis Family Day Festival	40	935 Spa Road Annapolis MD 21401
8/4/2024	Farragut Farmer's Market	60	550 Taylor Avenue Annapolis, MD 21401
8/6/2024	Annapolis National Night Out	60	1410 West Street Annapolis, MD 21401
8/12–17/2024	Queen Anne's County Fair	Not counted	100 Dulin Clark Road Centreville, MD 21617
9/11–15/2024	Anne Arundel County Fair	Not counted	1450 Generals Highway, Crownsville, MD 21032
9/14/2024	Kunta Kinte Heritage Festival	64	550 Taylor Avenue Annapolis, MD 21401
10/10/2024	Hispanic Heritage Month Awards Ceremony	32	7002 Arundel Mills Circle #7777 Hanover, MD 21076
11/10/2024	Bay Bridge Run	61	165 Log Canoe Circle, Stevensville, MD 21666 (Kent Island)
1/11/2025	Chesapeake Bay Boat Show	114	220 York Road, Timonium, MD 21093
2/15–16/2025	Pasadena Sportfishing Expo & Craft Show	40	2070 Kurtz Avenue Pasadena, MD 21122
4/26/2025	Master Gardner Plant Sale & Garden Day	55	UMD Extension Office 505 Railroad Ave 21617 Centreville, MD
4/27/2025	Lucky and Blessed Fishing Tournament	18	Sandy Point Marina Sandy Point State Park 1100 E College Pkwy Annapolis, MD 21409 (Broadneck)
5/4/2025	Annapolis First Sunday Arts Festival	41	53 West Street Annapolis, MD 21401
5/16/2025	Queen Anne’s County Senior Summit	75	100 Dulin Clark Road Centreville, MD 21617

Date	Event/ Organization	Number of Interactions	Location (Community, where applicable)
5/17/2025	Kent Island Day	80	Downtown Main Street Stevensville, MD 21666 (Kent Island)
6/7/2025	Cape St. Claire Strawberry Festival	110	1411 Cape St. Claire Road Annapolis, MD 21409 (Cape St. Claire)
6/8/2025	The Great Chesapeake Bay Swim	40	357 Pier 1 Road Stevensville, MD 21666 (Kent Island)
6/10/2025	MVA Glen Burnie	91	1338A Eastern Boulevard Baltimore, MD 21221
6/21–22/2025	Annapolis Juneteenth CAAJUNEFEST	50	1450 Generals Highway Crownsville, MD 21032
6/24/2025	MVA Glen Burnie	56	1338A Eastern Boulevard Baltimore, MD 21221
7/2/2025	Hungry Harvest Community Market	30	301 Hospital Drive Glen Burnie, MD 21061
7/19/2025	Saturday Morning Kids at Terrapin Nature Park	55	191 Log Canoe Circle Stevensville, MD 21666 (Kent Island)
7/26/2025	Rivers Day Festival	35	647 Contees Wharf Road Edgewater, MD 21037
7/26/2025	Annapolis Family Day Festival	51	935 Spa Road Annapolis, MD 21401
8/3/2025	First Sunday Arts Festival	184	53 West Street Annapolis, MD 21401
8/10/2025	Made in Maryland Festival	134	2070 Kurtz Avenue Pasadena, MD 21122
8/11-8/16/2025	Queen Anne's County Fair	Not counted	100 Dulin Clark Road Centreville, MD 21617
9/10/2025	Anne Arundel County Fair	Not counted	1450 Generals Highway, Crownsville, MD 21032
9/13/2025	Kunta Kinte Heritage Festival	Not counted	550 Taylor Avenue Annapolis, MD 21401
9/21/2025	Corsica River Festival	Not counted	314 Conquest Road Centreville, MD 21617
10/4/2025	Artoberfest	Not counted	Downtown Main Street Stevensville, MD 21666 (Kent Island)
10/4/2025	GBIA Fall Fest	Not counted	19 Crain Highway South Glen Burnie, MD 21062
10/5/2025	Anne Arundel County, Lifeline 100 Bicycle Event	45	1001 Kinder Farm Park Road Millersville, MD 21108
10/7/2025	MVA Annapolis	Not counted	160 Harry S. Truman Parkway Annapolis, MD 21401
10/7/2025	Eastern Shore Fur Festival	Not counted	100 Dulin Clark Road Centreville, MD 21617
10/18/2025	Annapolis Pride Festival	157	935 Spa Road Annapolis, MD 21401
10/21/2025	MVA Annapolis	Not counted	160 Harry S. Truman Parkway Annapolis, MD 21401

Date	Event/ Organization	Number of Interactions	Location (Community, where applicable)
10/25/2025	Centreville Day	Not counted	101 Lawyer's Row Centreville, MD 21617
11/9/2025	Bay Bridge Run	Not counted	165 Log Canoe Circle, Stevensville, MD 21666 (Kent Island)
11/18/2025	MVA Easton	33	9148 Centreville Road Easton, MD 21601

Figure 8-1: Public Engagement Events



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