STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

August 25, 2021

Mr. Joseph Caloggero
The Traffic Group, Inc.
9900 Franklin Square Drive
Baltimore, Maryland 21236

Dear Mr. Caloggero:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Patriots Crest (f.k.a. Berkshire)** (Tax Parcel 7-00-10400-01-7500-00001) development has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations.

Sincerely,

Claudy Joinville
Project Engineer

CJ:km
Enclosures
cc with enclosures:
Mr. Joshua Thomas, Office of State Planning Coordination
Mr. James Schiff, Schiff Land Development, LLC.
Mr. Kris Connelly, Kent County Department of Planning Services
Mr. Jason Berry, Kent County Department of Planning Services
Mr. Mir Wahed, Johnson, Mirmiran & Thompson, Inc.
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc.
DelDOT Distribution

DelDOT Distribution

Brad Eaby, Deputy Attorney General
Shanté Hastings, Deputy Secretary
Pam Steinebach, Director, Planning
Mark Luszcz, Deputy Director, Traffic, DOTS
Michael Simmons, Assistant Director, Project Development South, DOTS
Todd Sammons, Assistant Director, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Peter Haag, Chief Traffic Engineer, Traffic, DOTS
Matthew Lichtenstein, Central District Engineer, Central District
Erin Osborne, Central District Public Works Manager, Central District
Jared Kauffman, Service Development Planner, Delaware Transit Corporation
Tremica Cherry, Service Development Planner, Delaware Transit Corporation
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Wendy Polasko, Subdivision Engineer, Development Coordination
Olayiwola Okesola, Kent County Review Coordinator, Development Coordination
Joshua Schwartz, Kent County Subdivision Manager, Development Coordination
Mark Galipo, Traffic Engineer, Traffic, DOTS
Troy Brestel, Project Engineer, Development Coordination
Annamaria Furmato, Project Engineer, Development Coordination

August 25, 2021

Mr. Claudy Joinville
Project Engineer
Delaware Department of Transportation
Development Coordination, Division of Planning
800 Bay Road
Dover, DE 19901

RE: Agreement No. 1945F
Project Number T202069012
Traffic Impact Study Services
Task 3-8A – Patriots Crest (f.k.a. Berkshire) TIS

Dear Mr. Joinville:

Johnson, Mirmiran, and Thompson (JMT) has completed a review of the Traffic Impact Study (TIS) for the Patriots Crest (f.k.a. Berkshire) development, which was prepared by The Traffic Group, Inc., dated June 28, 2021. This review was assigned as Task Number 3-8A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed residential development consisting of 104 single-family detached houses in Kent County, Delaware. The site is located on the east side of S. State Street (Kent Road 27), approximately 1,500 feet southeast of the intersection of S. State Street and Locust Grove Road (Kent Road 362). The subject property is on an approximately 78.5-acre parcel which is currently zoned as AC (Agricultural Conservation), and the developer does not plan to rezone the land. Construction is anticipated to be complete in 2025. One full access is proposed along S. State Street.

Additionally, a TIS Addendum, prepared by The Traffic Group, Inc. dated August 12, 2021, has been prepared for the proposed development. The TIS Addendum evaluates the impacts of increasing the proposed development size to 126 single-family detached houses. With the increased size, the construction of the site is anticipated to be complete in 2026 and one full access would continue to be provided along S. State Street.

DelDOT has one planned improvement project in the study area at the intersection of S. State Street and Plaindealing Road (Kent Road 365)/Woodlytown Road (Kent Road 106). Per the Final FY21 to FY26 Capital Transportation Program Project Implementation List, the project is planned for PE funding beginning in FY25. The project has not yet been assigned a DelDOT contract number and details regarding the improvements are not available at this time.

This project is located within the regulated airspace zones of Dover Air Force Base, which is a military airport. Federal Aviation Regulation (FAR) Part 77 imposes height restrictions on any structures within these zones. DeIDOT cooperates with Dover Air Force Base to notify them of

potential projects which propose construction or alteration with the potential to affect their Part 77 airspace surfaces.

Section 5.3.k.2 of the Kent County Adequate Public Facilities Ordinance (APFO) states: "The specific traffic mitigation measures shall be chosen based on their ability to reduce the impact of traffic generated by the proposed subdivision or land development, in order to achieve and maintain the Level of Service standards for a minimum of two (2) years for roadway segments and intersections within the area of influence." Based on an April 14, 2008, meeting between DelDOT and Kent County Planning regarding the interpretation of the APFO, JMT has been instructed to perform the future two-year Level of Service maintenance analysis, for a date two years from when construction of the development is anticipated to be complete. The two-year Level of Service maintenance analysis results (referred to as Case 4) are contained in this final TIS letter.

As part of the TIS review, the following future scenarios were evaluated:

- Case 2 - 2025 without development
- Case 3a - 2025 with development
- Case 4a - 2027 with development

Additionally, the TIS Addendum anticipates a completion year of 2026. As such, the following additional scenarios were evaluated and included in JMT's review:

- Case 3b - 2026 with development
- Case 4b - 2028 with development

Based on the traffic impact study, we have the following comments and recommendations:

The following intersections exhibits level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements. Additionally, the table below does not include any signalized intersections that exhibit LOS deficiencies which can be mitigated with signal timing optimization as the developer would not be recommended to do any additional improvements at those intersections.

Intersection	**LOS Deficiencies Occur**		**Case**
	AM	**PM**	
S. State Street/Locust Grove Road (Kent Road 362)		X	Case 2 – 2025 without Development
		X	Case 3a – 2025 with Development
		X	Case 3b – 2026 with Development
		X	Case 4a – 2027 with Development
		X	Case 4b – 2028 with Development

Intersection	LOS Deficiencies Occur		Case
	AM	PM	
S. State Street/Rising Sun Road (Kent Road 29)	X		Case 1 – 2020 Existing
	X	X	Case 2 – 2025 without Development
	X	X	Case 3a – 2025 with Development
	X	X	Case 3b – 2026 with Development
	X	X	Case 4a – 2027 with Development
	X	X	Case 4b – 2028 with Development
Rising Sun Road/Walnut Shade Road (Kent Road 30)/Star Hill Road (Kent Road 360)	X	X	Case 1 – 2020 Existing
	X	X	Case 2 – 2025 without Development
	X	X	Case 3a – 2025 with Development
	X	X	Case 3b – 2026 with Development
	X	X	Case 4a – 2027 with Development
	X	X	Case 4b – 2028 with Development
S. State Street/Banning Road (Kent Road 366)		X	Case 2 – 2025 without Development
	X	X	Case 3a – 2025 with Development
	X	X	Case 3b – 2026 with Development
	X	X	Case 4a – 2027 with Development
	X	X	Case 4b – 2028 with Development
S. State Street/Ponderosa Drive (Kent Road 364)	X		Case 2 – 2025 without Development
	X		Case 3a – 2025 with Development
	X		Case 3b – 2026 with Development
	X		Case 4a – 2027 with Development
	X		Case 4b – 2028 with Development

The unsignalized S. State Street intersection with Locust Grove Road exhibits LOS deficiencies during the PM peak hour under future conditions with or without the proposed development (Cases

2, 3, and 4). The failures occur along the westbound Locust Grove Road approach with delays of up to 61.3 seconds per vehicle and a calculated 95th percentile queue length of approximately 50 feet. The LOS deficiencies at this intersection could be mitigated to operate at LOS A (3.4 seconds of delay per vehicle) or better under Case 4 conditions with the installation of a traffic signal, and LOS B (11.8 seconds of delay per vehicle) or better with the installation of a roundabout. The installation of a roundabout is not recommended due to the unbalanced traffic volume flows projected at the intersection. Furthermore, the southbound S. State Street left turn operates at LOS A (9.9 seconds of delay per vehicle) under Case 4 conditions.

JMT conducted an additional analysis considering the provision of a two-way left turn lane along S. State Street from north of the intersection with Locust Grove Road to south of the intersection with Ponderosa Drive. With the implementation of a two-way left turn lane, the intersection would improve to operate at LOS C (23.5 seconds of delay per vehicle) along the westbound Locust Grove Road approach with a calculated 95th percentile queue length of approximately 20 feet. However, the implementation of a two-way left turn lane should be considered as part of a larger study effort as the distance from Locust Grove Road to Ponderosa Drive is approximately one mile and the improvements would be outside the scope of this TIS. Therefore, we recommend that the developer provide for the installation of a traffic signal at the S. State Street and Locust Grove Road intersection. Specifically, we recommend the developer enter into a traffic signal agreement for the intersection of S. State Street and Locust Grove Road and coordinate with DelDOT on the implementation and equitable cost sharing of the traffic signal installation. The existing lane configurations should be maintained but the northbound S. State Street right turn lane should be lengthened. Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length is 190 feet (excluding taper) for the northbound S. State Street right turn lane. The developer should not be responsible to construct the traffic signal or the turn lane.

The unsignalized S. State Street intersection with Rising Sun Road exhibits LOS deficiencies during the AM peak hour under existing conditions (Case 1) and the AM and PM peak hours under future conditions with or without the proposed development (Cases 2, 3, and 4). The failures occur along the eastbound Rising Sun Road approach during the AM peak hour with delays of up to 156.7 seconds per vehicle and a calculated 95th percentile queue length of approximately 220 feet. Failures also occur along the westbound School Driveway approach during the AM and PM peak hours with delays of over 1,000 seconds per vehicle. The LOS deficiencies at this intersection could be mitigated to operate at LOS D (39.6 seconds of delay per vehicle) or better under Case 4 conditions with the installation of a traffic signal, and LOS C (17.1 seconds of delay per vehicle) or better with the installation of a roundabout. Additionally, the Peak-Hour Volume warrant is met at the intersection during the AM and PM peak hours under Case 4 conditions.

We recommend a traffic signal be installed at the S. State Street intersection with Rising Sun Road. The DelDOT PDCA (Planning and Development Coordination Application) lists signalization at the intersection as an offsite improvement for the F. Niel Postelthwait Middle School which has its main access at this intersection. Therefore, it is anticipated that the school district would contribute to the cost of the traffic signal. As such, we recommend the developer enter into a traffic signal agreement for the intersection of S. State Street and Rising Sun Road. The existing lane configurations at the intersection and the storage lengths for the auxiliary lanes along northbound and southbound S. State Street should be maintained.

The signalized intersection of Rising Sun Road with Walnut Shade Road/Star Hill Road exhibits LOS deficiencies during the AM and PM peak hours under existing and future conditions, with or without the development (Cases 1, 2, 3, and 4). The LOS deficiencies at this intersection could be mitigated by the provision of an additional turn lane along the eastbound Walnut Shade Road, westbound Sorghum Mill Road, northbound Rising Sun Road, and southbound Rising Sun Road approaches. With these improvements, the intersection would improve to operate at LOS D (51.3 seconds of delay per vehicle) under Case 4 conditions. However, due to adjacent buildings and on-street parking along these approaches, turn lanes may not be feasible to install.

Per the TIS Review Letter for the Villages at Thorndyk Creek development, prepared by McCormick Taylor dated October 24, 2007, it was recommended that the developer discuss with DelDOT the feasibility of a connector road from Briarbush Road to Star Hill Road which would reduce traffic volumes and congestion at the Rising Sun Road with Walnut Shade Road/Star Hill Road intersection. However, the Villages at Thorndyk Creek development is on hold indefinitely and DelDOT does not currently have a preliminary concept design or a project planned for a connector road.

Due to geometric constraints, potential improvements at this intersection would be extensive and outside the scope of this TIS. Additionally, DelDOT anticipates a capital project at this intersection in the future. Based on the utilization of the DelDOT Signal Timing plans, the signal operates at LOS F under existing conditions and the Kent County APFO concurrency requirements are met without improvements to this intersection. As such, we do not recommend that the developer implement any improvements at the intersection.

The unsignalized S. State Street intersection with Banning Road exhibits LOS deficiencies during the PM peak hour under future conditions without the development (Case 2) and during the AM and PM peak hours under future conditions with the development (Cases 3 and 4). The failures occur along the eastbound Banning Road approach during the PM peak hour with delays of up to 90.8 seconds per vehicle and a calculated 95th percentile queue length of approximately 135 feet. The LOS deficiencies at this intersection could be mitigated to operate at LOS B (13.6 seconds of delay per vehicle) or better under Case 4 conditions with the installation of a traffic signal, and LOS B (12.7 seconds of delay per vehicle) or better with the installation of a roundabout. Additionally, with the installation of a two-way left turn lane along S. State Steet, the intersection would improve to operate at LOS D (27.7 seconds of delay per vehicle) along the eastbound Banning Road approach with a calculated 95th percentile queue length of approximately 55 feet.

However, the implementation of a two-way left turn lane at the S. State Street intersection with Banning Road should be considered as part of a larger study effort outside the scope of this TIS, and a roundabout may not be feasible at this location due to the proximity to utility poles. Additionally, the Peak-Hour Volume warrant is met at the intersection during the AM peak hour under Case 4 conditions. We recommend a traffic signal be installed at the intersection. As such, we recommend the developer enter into a traffic signal agreement for the intersection of S. State Street and Banning Road. With the installation of a traffic signal, the northbound S. State Street bypass lane should be eliminated and the approach should be modified to provide one left turn lane and one through lane. Based on DelDOT's *Development Coordination Manual* and the HCS analysis results, the recommended minimum storage length is 50 feet (excluding taper) for the

northbound S. State Street left turn lane. The developer should not be responsible to construct the traffic signal or the turn lane.

The unsignalized S. State Street intersection with Ponderosa Drive/Brookdale Road exhibits LOS deficiencies during the AM peak hour under future conditions with or without the development (Cases 2, 3, and 4) and during the PM peak hour under future conditions with the development (Case 4). The failures occur along the eastbound Brookdale Road approach during the AM peak hour with delays of up to 41.7 seconds per vehicle and a calculated 95th percentile queue length of approximately 10 feet. Failures also occur along the westbound Ponderosa Drive approach during the PM peak hour with delays of up to 36.2 seconds per vehicle and a calculated 95th percentile queue length of approximately 45 feet. The LOS deficiencies at this intersection could be mitigated to operate at LOS C (22.5 seconds of delay per vehicle) or better under Case 4 conditions with the installation of a traffic signal, and LOS B (10.5 seconds of delay per vehicle) or better with the installation of a roundabout. Additionally, under Case 4 conditions with the installation of a two-way left turn lane along S. State Steet, the eastbound Brookdale Road approach would improve to operate at LOS C (22.5 seconds of delay per vehicle) with a calculated 95th percentile queue length of approximately 5 feet, and the westbound Ponderosa Drive approach would improve to operate at LOS C (20.8 seconds of delay per vehicle) with a calculated 95th percentile queue length of approximately 35 feet.

The installation of a roundabout at the S. State Street intersection with Ponderosa Drive/Brookdale Road is not recommended due to the unbalanced traffic volume flows projected at the intersection. In addition, the implementation of a two-way left turn lane should be considered as part of a larger study effort outside the scope of this TIS. Per the PDCA it appears that there is a planned developer improvement associated with the Magnolia Estates development to signalize the intersection and provide a southbound S. State Street left turn lane. As such, we recommend the developer enter into a traffic signal agreement for the intersection of S. State Street and Ponderosa Drive and coordinate with DelDOT on the implementation and equitable cost sharing of the traffic signal installation. In addition to the southbound left turn lane anticipated to be constructed by the Magnolia Estates development, the right turn lane along the northbound S. State Street approach should be lengthened. Based on DelDOT's *Development Coordination Manual* and the HCS analysis results, the recommended minimum storage length is 190 feet (excluding taper) for the northbound S. State Street right turn lane and 50 feet (excluding taper) for the southbound S. State Street left turn lane. The developer should not be responsible to construct the traffic signal or the turn lanes.

Should Kent County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development. The following items have been established based on the updated development size and build out date provided in the TIS Addendum, prepared by The Traffic Group, Inc. dated August 12, 2021.

1. The developer shall improve S. State Street within the limits of their frontage to meet DelDOT's standards for Functional Classification as found in Section 1.1 of the *Development Coordination Manual* and elsewhere therein. The improvements shall

include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the *Development Coordination Manual*, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located. Additionally, the development has frontage along Locust Grove Road and may be required to construct improvements along that frontage as well.

2. The developer should construct a full access site entrance on S. State Street, approximately 500 feet north of the northeast point of tangency at the Delaware State Police Troop 3 entrance. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Westbound Site Entrance	Approach does not exist	One shared left turn/right turn lane
Northbound S. State Street	One through lane	One through lane and one right turn lane
Southbound S. State Street	One through lane	One left turn lane and one through lane

Based on DelDOT's *Development Coordination Manual,* the recommended minimum storage length is 145 feet (excluding taper) for the northbound S. State Street right turn lane and 120 feet (excluding taper) for the southbound S. State Street left turn lane.

3. The developer should enter into a traffic signal agreement with DelDOT for the intersection of S. State Street with Locust Grove Road. The developer should not be responsible to construct the improvements. The signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. At DelDOT's discretion, the developer may contribute to the Traffic Signal Revolving Fund in lieu of a traffic signal agreement.

4. The developer should enter into a traffic signal agreement with DelDOT for the intersection of S. State Street with Rising Sun Road. The developer should not be responsible to construct the improvements. The signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. At DelDOT's discretion, the developer may contribute to the Traffic Signal Revolving Fund in lieu of a traffic signal agreement.

5. The developer should enter into a traffic signal agreement with DelDOT for the intersection of S. State Street with Banning Road. The developer should not be responsible to construct the improvements. The signal agreement should include pedestrian signals, crosswalks,

interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. At DelDOT's discretion, the developer may contribute to the Traffic Signal Revolving Fund in lieu of a traffic signal agreement.

6. The developer should enter into a traffic signal agreement with DelDOT for the intersection of S. State Street with Ponderosa Drive/Brookdale Road. The developer should not be responsible to construct the improvements. The signal agreement should include pedestrian signals, crosswalks, interconnection, and ITS equipment such as CCTV cameras at DelDOT's discretion. At DelDOT's discretion, the developer may contribute to the Traffic Signal Revolving Fund in lieu of a traffic signal agreement.

7. The developer should enter into an agreement with DelDOT to fund an equitable portion of the improvements planned at the S. State Street intersection with Plaindealing Road/Woodlytown Road. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of these improvements.

8. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum of fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the S. State Street site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP) that will tie into the existing path in front of Delaware State Police Troop 3. The SUP should be designed to meet current AASHTO and ADA standards. A minimum five-foot setback should be maintained from the edge of the pavement to the SUP. If feasible, the SUP should be placed behind utility poles and street trees should be provided within the buffer area. The developer should coordinate with DelDOT's Development Coordination Section during the plan review process to identify the exact location of the SUP.

    b. An internal connection from the shared-use path along S. State Street should be provided.

    c. ADA compliant curb ramps and marked crosswalks should be provided along the Site Entrance approach to S. State Street. The use of diagonal curb ramps is discouraged. The curb ramps should be designed to accommodate the SUP.

    d. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the northbound S. State Street approach to the site entrance.

    e. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks or should be flush with the pavement.

9. Due to the proximity of the proposed development to the Dover Air Force Base, we recommend that deed restrictions be required similar to the attached Avigation Nuisance Easement and Non-Suit Covenant (pages 61 and 62). The applicant should contact Mr.

Samuel Sherman at (302) 760-2145 at DelDOT's Statewide and Regional Planning Section to determine whether the proposed development is within the Runway Protection Zone. If so, restrictions may apply.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction, please contact Mr. Don Weber, Assistant Director for Traffic Operations and Management. Mr. Weber can be reached at (302) 659-4651 or by email at Don.Weber@delaware.gov.

Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE
Janna Brown, E.I.T.

Enclosure

General Information

Report date: June 28, 2021
Prepared by: The Traffic Group, Inc.
Prepared for: Schiff Land Development Company, LLC
Tax Parcel: 7-00-10400-01-7500-00001
Generally consistent with DelDOT's *Development Coordination Manual (DCM)*: Yes

Project Description and Background

Description: The TIS evaluates the impacts of a residential development consisting of 104 single-family detached houses. The TIS Addendum, prepared by The Traffic Group, Inc. dated August 12, 2021, evaluates the impact of increasing the development size to 126 single-family detached houses.
Location: The subject site is located on east side of S. State Street (Kent Road 27), approximately 1,500 feet southeast of the intersection of S. State Street and Locust Grove Road (Kent Road 362) in Kent County.
Amount of Land to be developed: An approximately 78.5-acre parcel.
Land Use approval(s) needed: Entrance Plan.
Proposed completion date: The development evaluated in the TIS is proposed to be completed in 2025. The increased development size evaluated in the TIS Addendum is proposed to be completed in 2026.
Proposed access locations: One full access entrance on S. State Street

Daily Traffic Volumes:

- 2019 Average Annual Daily Traffic on S. State Street (Kent Road 27): 12,247

Site Map

**Graphic is an approximation based on the Conception Plan prepared by Morris & Ritchie Associates, Inc. dated August 28, 2020.*

Relevant and On-going Projects

DelDOT has one planned improvement project in the study area at the intersection of S. State Street and Plaindealing Road (Kent Road 365)/Woodlytown Road (Kent Road 106). Per the Final FY21 to FY26 Capital Transportation Program Project Implementation List, the project is planned for PE funding beginning in FY25. The project has not yet been assigned a DelDOT contract number and details regarding the improvements are not available at this time.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2020)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed development is located primarily within the Investment Levels 2 and 3. Areas currently planned to remain undeveloped within the parcel fall into Investment Level 4 and out-of-play areas.

Investment Level 2

These areas can be composed of less developed areas within municipalities, rapidly growing areas in the counties that have or will have public water and wastewater services and utilities, areas that are generally adjacent to or near Investment Level 1 Areas, smaller towns and rural villages that should grow consistently with their historic character, and suburban areas with public water, wastewater, and utility services. They serve as transition areas between Level 1 and the state's more open, less populated areas. They generally contain a limited variety of housing types, predominantly detached single-family dwellings.

In Investment Level 2 Areas, like Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Investments should encourage departure from the typical single-family-dwelling developments and promote a broader mix of housing types and commercial sites encouraging compact, mixed-use development where applicable. Overall, the State's intent is to use its spending and management tools to promote well-designed development in these areas. Such development provides for a variety of housing types, user-friendly transportation systems, essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community.

Level 2 Areas share similar priorities as with the Level 1 Areas where the aim remains to: make context sensitive transportation system capacity enhancements, preserve existing facilities, make safety enhancements, make transportation system capacity improvements, create transit system enhancements, ensure ADA accessibility, and close gaps in the pedestrian system, including the Safe Routes to School projects. Investment Level 2 Areas are ideal locations for Transportation Improvement Districts and Complete Community Enterprise Districts. Other priorities for Level 2 Areas include: Corridor Capacity Preservation, off-alignment multi-use paths, interconnectivity of neighborhoods and public facilities, and signal-system enhancements.

Investment Level 3

Investment Level 3 Areas generally fall into two categories. The first category covers lands that are in the long-term growth plans of counties or municipalities where development is not necessary to accommodate expected population growth during a five-year planning period (or longer). In these instances, development in Investment Level 3 may be least appropriate for new growth and development in the near term. The second category includes lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are otherwise

categorized as Investment Levels 1 or 2. Environmentally sensitive features, agricultural-preservation issues, or other infrastructure issues most often impact these lands. In these instances, development and growth may be appropriate in the near term, but the resources on the site and in the surrounding area should be carefully considered and accommodated by state agencies and local government with land-use authority. Investment Level 3 is further characterized by areas with new development separated from existing development by a substantial amount of vacant land that is not contiguous with existing infrastructure, areas that are experiencing some development pressure, areas with existing but disconnected development, and possible lack of adequate infrastructure.

The state will consider investing in infrastructure within Investment Level 3 Areas once the Investment Level 1 and 2 Areas are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems and deemed appropriate to serve a particular area. The priorities in the Level 3 Areas are for DelDOT to focus on regional movements between towns and other population centers. DelDOT also supports the development and implementation of Transportation Improvement Districts in Investment Level 3 areas. Local roadway improvements will be made by developers and property owners as development occurs. Lower priority is given to transportation system–capacity improvements and transit-system enhancements.

Proposed Development's Compatibility with Livable Delaware:
The majority of the proposed site would be in Level 2 and 3 areas with the edges of the property including Investment Level 4 and out-of-play areas. The areas of the property within Investment Level 4 and out-of-play designation encompass wetlands. Investment Level 2 areas generally include a variety of family types and are predominantly single-family homes. The proposed development consists of a neighborhood of single-family homes and they would be located primarily within the Level 2 areas. Therefore, the proposed development is generally consistent with the 2020 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plan

(Source: Kent County 2018 Comprehensive Plan)

Kent County Comprehensive Plan:
Per the *Kent County Zoning Map,* the proposed development is in an area designated as Agricultural Conservation (AC) and the developer does not plan to rezone the land. Per the *Kent County Future Land Use Map* the proposed development is in an area designated as low density residential.

Proposed Development's Compatibility with the Kent County Plan:
The *Kent County Comprehensive Plan* states that Agricultural Conservation areas may contain single family detached homes. Additionally, the Plan supports single family homes in low-density residential areas. The proposed development consists of single-family homes. As such, the development is generally consistent with the *Kent County Comprehensive Plan.*

Trip Generation

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (single-family detached housing). The trip generation was approved by DelDOT during the Preliminary Traffic Impact Study (PTIS) review.

Table 1
Patriots Crest Trip Generation per TIS

Land Use	ADT	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
104 Single-Family Homes (ITE Code 210)	1,078	20	59	79	66	39	105

Patriots Crest Trip Generation per TIS Addendum

Land Use	ADT	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
126 Single-Family Homes (ITE Code 210)	1,286	23	71	94	80	47	127

Overview of TIS

Intersections examined:

1. Site Entrance / S. State Street (Kent Road 27)
2. S. State Street / Locust Grove Road (Kent Road 362)
3. Sorghum Mill Road (Kent Road 26) / Locust Grove Road
4. Sorghum Mill Road / Cypress Branch Road (Kent Road 363)
5. S. State Street / Rising Sun Road (Kent Road 29)
6. S. State Street / Sorghum Mill Road
7. Rising Sun Road / Walnut Shade Road (Kent Road 30) / Star Hill Road (Kent Road 360)
8. S. State Street / Banning Road (Kent Road 366)
9. Banning Road / Briarbush Road (Kent Road 367)
10. S. State Street / Ponderosa Drive (Kent Road 364)
11. S. State Street / Woodlytown Road (Kent Road 106) /Plaindealing Road (Kent Road 365)

Conditions examined:

TIS

1. Case 1 – 2020 Existing
2. Case 2 – 2025 without Development
3. Case 3a – 2025 with Development
4. Case 4a – 2027 with Development*

TIS Addendum

1. Case 3b – 2026 with Development
2. Case 4b – 2028 with Development*

*Per Section 5.3.k.2 of the Kent County Adequate Public Facilities Ordinance (APFO), JMT performed the future two-year Level of Service maintenance analysis, for a date two years from when construction of the development is anticipated to be complete. The TIS did not include this analysis.

Committed Developments considered:

1. Fifer Farm (a.k.a. Barrett Farm) (297 single-family detached houses – 257 units unbuilt)
2. Magnolia Estates (185 single-family detached houses)
3. Champions Club at Jonathan's Landing (306 single-family detached houses – 20 units unbuilt)
4. Caesar Rodney Elementary School (600-student elementary school)
5. Chaselynd Hills North (206 single-family detached houses)

Peak hours evaluated: Weekday morning and weekday evening.

Intersection Descriptions

1. **Site Entrance (Site Access) and S. State Street (Kent Road 27)**
   Type of Control: Proposed two-way stop-controlled intersection (T-intersection)
   Northbound Approach: (S. State Street) Existing one through lane; proposed one through lane and one right turn lane.
   Southbound Approach: (S. State Street) Existing one through lane; proposed one left turn lane and one through lane.
   Westbound Approach: (Site Entrance) Proposed one shared left turn/right turn lane, stop controlled.

2. **S. State Street and Locust Grove Road (Kent Road 362)**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Northbound Approach: (S. State Street) Existing one through lane and one right turn lane.
   Southbound Approach: (S. State Street) Existing one shared left turn/through lane.
   Westbound Approach: (Locust Grove Road) Existing one shared left turn/right turn lane, stop controlled.

3. **Sorghum Mill Road (Kent Road 26) and Locust Grove Road**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Northbound Approach: (Locust Grove Road) Existing one shared left turn/right turn lane, stop controlled.
   Eastbound Approach: (Sorghum Mill Road) Existing one shared through/right turn lane.
   Westbound Approach: (Sorghum Mill Road) Existing one shared left turn/through lane.

4. **Sorghum Mill Road and Cypress Branch Road (Kent Road 363)**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Southbound Approach: (Cypress Branch Road) Existing one shared left turn/right turn lane, stop controlled.
   Eastbound Approach: (Sorghum Mill Road) Existing one shared through/right turn lane.
   Westbound Approach: (Sorghum Mill Road) Existing one shared left turn/through lane.

5. **S. State Street and Rising Sun Road (Kent Road 29)**
   Type of Control: Two-way stop-controlled intersection (four-legged)
   Northbound Approach: (S. State Street) Existing one left turn lane, one through lane, and one channelized right turn lane.
   Southbound Approach: (S. State Street) Existing one left turn lane and one shared through/right turn lane
   Eastbound Approach: (Rising Sun Road) Existing one shared left turn/through lane and one channelized right turn lane, stop controlled,
   Westbound Approach: (School Access) Existing one shared left turn/through lane, and one channelized right turn lane, stop controlled.

6. **S. State Street and Sorghum Mill Road**
   Type of Control: Signalized intersection (four legged)
   Northbound Approach: (S. State Street) Existing one left turn lane, one through lane, and one right turn lane.
   Southbound Approach: (S. State Street) Existing one left turn lane, one through lane, and one right turn lane.
   Eastbound Approach: (Sorghum Mill Road) Existing one left turn lane and one shared through/right turn lane.
   Westbound Approach: (Sorghum Mill Road) Existing one left turn lane, one through lane, and one channelized right turn lane.

7. **Rising Sun Road and Walnut Shade Road (Kent Road 30)/Star Hill Road (Kent Road 360)**
   Type of Control: Signalized intersection (four-legged)
   Northbound Approach: (Rising Sun Road) Existing one shared left turn/through/right turn lane.
   Southbound Approach: (Rising Sun Road) Existing one shared left turn/through/right turn lane.
   Eastbound Approach: (Star Hill Road) Existing one shared left turn/through/right turn lane.
   Westbound Approach: (Sorghum Mill) Existing one shared left turn/through/right turn lane.
   Northeastbound Approach: (Walnut Shade Road) Existing one shared left turn/through/ right turn lane.

8. **S. State Street and Banning Road (Kent Road 366)**
   Type of Control: Two-way stop-controlled intersection (T-intersection)
   Northbound Approach: (S. State Street) Existing one shared left turn/through lane and one bypass lane.
   Southbound Approach: (S. State Street) Existing one through and one right turn lane.
   Eastbound Approach: (Banning Road) Existing one shared left turn/right turn lane, stop controlled.

9. **Banning Road and Briarbush Road (Kent Road 367)**
   Type of Control: Existing two-way stop-controlled intersection
   Northbound Approach: (Briarbush Road) Existing one left turn lane and one shared through/ right turn lane.
   Southbound Approach: (Briarbush Road) Existing one left turn lane and one shared through/ right turn lane.
   Eastbound Approach: (Caesar Rodney School Access) Existing one shared left turn/through lane and one right turn lane, stop controlled.*****
   Westbound Approach: (Banning Road) Existing one shared left turn/right turn lane, stop controlled.

   *Intersection improvements were recently completed for the Caesar Rodney Elementary School development.

10. **S. State Street and Ponderosa Drive (Kent Road 364)**
    Type of Control: Two-way stop-controlled intersection
    Northbound Approach: (S. State Street) Existing one shared left turn/through lane and one right turn lane.
    Southbound Approach: (S. State Street) Existing one shared left turn/through lane and one right turn lane.
    Eastbound Approach: (Brookdale Road) Existing one shared left turn/through/right turn lane, stop controlled.
    Westbound Approach: (Ponderosa Drive) Existing one shared left turn/through/right turn lane, stop controlled.

11. S. State Street and Woodlytown Road (Kent Road 106)/Plaindealing Road (Kent Road 365)

Type of Control: Signalized intersection (four-legged)
Northbound Approach: (S. State Street) Existing one shared left turn/through/right turn lane.
Southbound Approach: (S. State Street) Existing one shared left turn/through lane and one right turn lane.
Eastbound Approach: (Woodlytown Road) Existing one shared left turn/through/right turn lane.
Westbound Approach: (Plaindealing Road) Existing one shared left turn/through/right turn lane.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, Delaware Transit Corporation (DTC) currently provides existing services through the study area via DART Routes 303 and 105. Per DelDOT Gateway, bus stops exist along S. State Street that services Route 303 and are located at the study intersections of Woodlytown Road/Plaindealing Road, Ponderosa Drive, and Sorghum Mill Road. DART Route 303 travels north/south along S. State Street and provides 8 round trips from 4:46 AM to 8:56 PM on weekdays. DART Route 105 travels west along Sorghum Mill Road and turns right to travel north along S. State Street. Dart Route 105 provides 28 round trips on weekdays from 6:00 AM to 9:52 PM and 9 roundtrips on Saturday from 9:00 AM to 5:52 PM.

Planned transit service: Per email correspondence on July 20, 2021, with Mr. Jared Kauffman, Planner for DART, transit improvements are not being requested in the area at this time.

Existing bicycle and pedestrian facilities: Per the DelDOT Gateway two bicycle routes exist within the study area. A Connector Bicycle Route exists along Sorghum Mill Road and traverses two study intersections (S. State Street and Rising Sun Road/ Star Hill Road). A Statewide Bicycle Route exists along S. State Street and transverses seven study intersections (Sorghum Mill Road, Rising Sun Road, Locust Grove Road, Site Entrance, Banning Road, Ponderosa Drive, and Woodlytown Road/Plaindealing Road). Pedestrian facilities exist at one study intersection (S. State Street and Sorghum Mill Road). Sidewalk exists along the easterly side of S. State Street, adjacent to the F. Niel Postlethwait Middle School.

Planned bicycle and pedestrian facilities: Per email correspondence dated July 27, 2021, from Mr. John Fiori, DelDOT's Bicycle Coordinator and Ms. Linda Osiecki, DelDOT's Pedestrian Coordinator, the following improvements were recommended:

- This site shall install a 10' wide SUP along its property frontage and connect to the existing ramp on the egress side of the Troop 3 entrance with angled terminations into the shoulder, and the shared-use path extended to the property line on the northern property limits.
- An internal connection from the shared-use path along South State Street is required.
- The site shall dedicate right-of-way per the roadway classification and establish a 15' wide permanent easement along the property frontage.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then

a separate bike lane shall be incorporated along the right turn lane; if a left turn lane is required any roadway improvements shall include a shoulder matching the roadway functional classification or existing conditions (minimum 5-feet).

Bicycle Level of Traffic Stress in Delaware: Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontage are summarized below. The Bicycle LTS was determined utilizing the map on the DelDOT Gateway.

- S. State Street – LTS: 3

Crash Evaluation

Per the crash data included in the TIS from May 11, 2018, to May 11, 2021 and provided by the Delaware Crash Analysis Reporting System, a total of 102 crashes were reported at or within study interactions, including 19 reported injuries and no reported fatalities. Of these 109 crashes, 23 occurred at the Rising Sun Road/Walnut Shade Road/Star Hill Road intersection, 22 occurred at the S. State Street/Sorghum Mill Road intersection, and 15 occurred at the S. State Street/Woodlytown Road/Plaindealing Road intersection.

Of the 23 crashes at the Rising Sun Road/Walnut Shade Road/Star Hill Road intersection, 13 were rear end crashes, four were angle crashes, four were single vehicle crashes, and two were head on crashes. Of the 22 crashes at the S. State Street/Sorghum Mill Road intersection, 12 were rear end crashes, three were angle crashes, three were sideswipe crashes, two were head on crashes, and two were single vehicle crashes. Of the 15 crashes at the S. State Street/Woodlytown Road/Plaindealing Road intersection, nine were rear end crashes, two were angle crashes, two were sideswipe crashes, one was a single vehicle crash, and one was a head on crash.

Previous Comments

All comments from DelDOT for the Preliminary TIS (PTIS) were addressed in the Final TIS (FTIS).

General HCS Analysis Comments

(See table footnotes on the following pages for specific comments)

1. JMT and the TIS utilized version 7.9 of HCS7.

2. Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analyses, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for analysis of future scenarios, whereas the TIS utilized existing heavy vehicle percentages for all movements and all scenarios.

3. Due to a lack of heavy vehicle count data and per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in all cases at intersections where count data was not available.

4. Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways and site entrances, whereas the TIS utilized the existing heavy vehicle percentage at all unsignalized intersections.

5. Per DelDOT's *Development Coordination Manual,* JMT utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 2, 3 and 4 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher. The TIS utilized existing PHF for all cases.

6. The analysis includes the TIS Addendum which reviewed an increased development size with a proposed construction completion date of 2026 (Case 3b). JMT modified the Case 3b volumes in coordination with DelDOT. Due to differing volume development approaches, there are slight volume discrepancies between the Case 3b volumes utilized in the TIS Addendum and the Case 3b volumes utilized by JMT.

7. Per Kent County APFO, JMT conducted a Case 4a analysis evaluating the TIS future build with development conditions in 2027 and Case 4b analysis evaluating the TIS Addendum future build with development conditions in 2028.

Table 2
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Site Entrance /S. State Street (Kent Road 27)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 with Development (Case 3a)				
Westbound Site Entrance Approach	C (21.9)	D (25.5)	C (21.9)	D (25.5)
Southbound S. State Street Left Turn	A (9.7)	A (9.2)	A (9.7)	A (9.2)
2025 with Development (Case 3a) *with Two-Way Left-Turn Lane* [3]				
Westbound Site Entrance Approach	-	-	C (17.9)	C (16.7)
Southbound S. State Street Left Turn	-	-	A (9.7)	A (9.2)
2026 with Development (Case 3b)				
Westbound Locust Grove Road Approach	C (23.4)	C (27.3)	C (23.4)	D (27.3)
Southbound S. State Street Left Turn	A (9.7)	A (9.3)	A (9.7)	A (9.3)
2026 with Development (Case 3b) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (18.7)	C (17.2)
Southbound S. State Street Left Turn	-	-	A (9.7)	B (9.3)

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] For Case 3b analysis, The Traffic Group submitted a TIS Addendum utilizing HCS files provided by JMT.
[3] JMT conducted an additional analysis incorporating a two-way left-turn lane along S. State Street from Locust Grove Road to Ponderosa Drive.

Table 2 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Site Entrance /S. State Street (Kent Road 27)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2027 with Development (Case 4a)				
Westbound Locust Grove Road Approach	-	-	D (22.4)	D (26.3)
Southbound S. State Street Left Turn	-	-	A (9.7)	A (9.2)
2027 with Development (Case 4a) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (18.1)	C (16.9)
Southbound S. State Street Left Turn	-	-	A (9.7)	A (9.2)
2028 with Development (Case 4b)				
Westbound Locust Grove Road Approach	-	-	C (24.0)	D (28.2)
Southbound S. State Street Left Turn	-	-	A (9.8)	A (9.3)
2028 with Development (Case 4b) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (19.0)	C (17.4)
Southbound S. State Street Left Turn	-	-	A (9.8)	A (9.3)

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Locust Grove Road (Kent Road 362)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)				
Westbound Locust Grove Road Approach	C (18.4)	C (20.8)	C (18.5)	C (20.9)
Southbound S. State Street Left Turn	A (8.9)	A (8.4)	A (9.0)	A (8.5)
2025 without Development (Case 2)				
Westbound Locust Grove Road Approach	C (23.9)	E (41.2)	C (24.1)	E (41.7)
Southbound S. State Street Left Turn	A (9.6)	A (8.9)	A (9.6)	A (8.9)
2025 without Development (Case 2) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (16.6)	C (20.5)
Southbound S. State Street Left Turn	-	-	A (9.6)	A (8.9)
2025 with Development (Case 3a)				
Westbound Locust Grove Road Approach	D (25.8)	F (52.3)	D (26.0)	F (53.1)
Southbound S. State Street Left Turn	A (9.8)	A (9.0)	A (9.8)	A (9.0)
2025 without Development (Case 3a) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (17.3)	C (22.3)
Southbound S. State Street Left Turn	-	-	A (9.8)	A (9.0)

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Locust Grove Road (Kent Road 362)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Development (Case 3b)				
Westbound Locust Grove Road Approach	D (26.8)	F (58.2)	D (26.8)	F (58.1)
Southbound S. State Street Left Turn	A (9.9)	A (9.1)	A (9.9)	A (9.1)
2026 without Development (Case 3b) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (17.6)	C (23.0)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.1)
2027 with Development (Case 4a)				
Westbound Locust Grove Road Approach	-	-	D (26.7)	F (55.8)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.1)
2027 with Development (Case 4a) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (17.5)	C (22.7)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.1)

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Locust Grove Road (Kent Road 362)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2028 with Development (Case 4b)				
Westbound Locust Grove Road Approach	-	-	D (27.5)	F (61.3)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.1)
2028 with Development (Case 4b) *with Two-Way Left-Turn Lane* [3]				
Westbound Locust Grove Road Approach	-	-	C (17.8)	C (23.5)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.1)

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Locust Grove Road (Kent Road 362) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 with Development (Case 2)				
Westbound Site Entrance Approach	-	-	A (6.8)	A (5.8)
Northbound S. State Street Approach	-	-	B (10.3)	A (7.7)
Southbound S. State Street Approach	-	-	A (5.3)	B (12.1)
Overall	-	-	A (8.7)	B (10.1)
2025 with Development (Case 3a)				
Westbound Site Entrance Approach	-	-	A (7.2)	A (6.2)
Northbound S. State Street Approach	-	-	B (11.1)	A (8.0)
Southbound S. State Street Approach	-	-	A (5.4)	B (13.6)
Overall	-	-	A (9.4)	B (11.1)
2026 with Development (Case 3b)				
Westbound Site Entrance Approach	-	-	A (7.3)	A (6.3)
Northbound S. State Street Approach	-	-	B (11.5)	A (8.1)
Southbound S. State Street Approach	-	-	A (5.5)	B (14.1)
Overall	-	-	A (9.6)	B (11.4)

[4] JMT conducted an additional analysis of the intersection as a single lane roundabout.

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Locust Grove Road (Kent Road 362) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2027 with Development (Case 4a)				
Westbound Site Entrance Approach	-	-	A (7.3)	A (6.3)
Northbound S. State Street Approach	-	-	B (11.4)	B (8.1)
Southbound S. State Street Approach	-	-	A (5.5)	B (14.0)
Overall	-	-	A (9.6)	B (11.3)
2028 with Development (Case 4b)				
Westbound Site Entrance Approach	-	-	A (7.4)	A (6.4)
Northbound S. State Street Approach	-	-	B (11.7)	A (8.3)
Southbound S. State Street Approach	-	-	A (5.5)	B (14.6)
Overall	-	-	A (9.8)	B (11.8)

Table 3 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Signalized Intersection [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Locust Grove Road (Kent Road 362) [5]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 without Development (Case 2)	-	-	A (3.1)	A (2.4)
2025 with Development (Case 3a)	-	-	A (3.4)	A (3.2)
2026 with Development (Case 3b)	-	-	A (3.7)	A (3.4)
2027 with Development (Case 4a)	-	-	A (3.7)	A (3.2)
2028 with Development (Case 4b)	-	-	A (3.8)	A (3.4)

[5] JMT conducted an additional scenario modeling the intersection as part of a coordinated corridor along S. State Street including the intersections with Locust Grove Road, Banning Road, and Ponderosa Drive. All three intersections were assumed to be converted to signalized while maintaining existing lane configurations. The corridor was modeled utilizing a 120 second cycle length during the AM and PM peak hours.

Table 4
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Sorghum Mill Road (Kent Road 26)/Locust Grove Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)				
Westbound Sorghum Mill Road Left Turn	A (8.2)	A (7.8)	A (8.2)	A (7.8)
Northbound Locust Grove Road Approach	B (12.1)	B (10.8)	B (12.1)	B (10.8)
2025 without Development (Case 2)				
Westbound Sorghum Mill Road Left Turn	A (8.2)	A (7.9)	A (8.3)	A (7.9)
Northbound Locust Grove Road Approach	B (12.5)	B (10.9)	B (12.5)	B (10.9)
2025 with Development (Case 3a)				
Westbound Sorghum Mill Road Left Turn	A (8.3)	A (7.9)	A (8.3)	A (8.0)
Northbound Locust Grove Road Approach	B (12.6)	B (10.9)	B (12.7)	B (11.0)
2026 with Development (Case 3b)				
Westbound Sorghum Mill Road Left Turn	A (8.3)	A (8.0)	A (8.3)	A (8.0)
Northbound Locust Grove Road Approach	B (12.8)	B (11.0)	B (12.8)	B (11.0)

Table 4 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Sorghum Mill Road (Kent Road 26)/Locust Grove Road	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2027 with Development (Case 4a)				
Westbound Sorghum Mill Road Left Turn	-	-	A (8.3)	A (8.0)
Northbound Locust Grove Road Approach	-	-	B (12.8)	B (11.0)
2028 without Development (Case 4b)				
Westbound Sorghum Mill Road Left Turn	-	-	A (8.3)	A (8.0)
Northbound Locust Grove Road Approach	-	-	B (12.9)	B (11.0)

Table 5
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Sorghum Mill Road/Cypress Branch Road (Kent Road 363)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)				
Westbound Sorghum Mill Road Approach	C (15.9)	B (13.8)	C (15.9)	B (14.0)
Southbound Cyprus Branch Road Left Turn	A (8.4)	A (8.1)	A (8.5)	A (8.1)
2025 without Development (Case 2)				
Westbound Sorghum Mill Road Approach	C (18.1)	C (15.2)	C (17.2)	C (15.5)
Southbound Cyprus Branch Road Left Turn	A (8.6)	A (8.2)	A (8.6)	A (8.3)
2025 with Development (Case 3a)				
Westbound Sorghum Mill Road Approach	C (18.5)	C (15.6)	C (17.6)	C (15.9)
Southbound Cyprus Branch Road Left Turn	A (8.6)	A (8.3)	A (8.6)	A (8.3)
2026 with Development (Case 3b)				
Westbound Sorghum Mill Road Approach	C (17.8)	C (16.0)	C (17.8)	C (16.9)
Southbound Cyprus Branch Road Left Turn	A (8.6)	A (8.3)	A (8.6)	A (8.4)

Table 5 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Sorghum Mill Road/Cypress Branch Road (Kent Road 363)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2027 with Development (Case 4a)				
Westbound Sorghum Mill Road Approach	-	-	C (17.8)	C (16.0)
Southbound Cyprus Branch Road Left Turn	-	-	A (8.6)	A (8.3)
2028 with Development (Case 4b)				
Westbound Sorghum Mill Road Approach	-	-	C (18.0)	C (16.2)
Southbound Cyprus Branch Road Left Turn	-	-	A (8.7)	A (8.4)

Table 6
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Rising Sun Road (Kent Road 29) [6]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)				
Eastbound Rising Sun Road Approach	D (34.3)	B (12.9)	E (35.3)	C (16.2)
Westbound School Driveway Approach	F (147.9)	E (36.3)	F (138.8)	D (33.0)
Northbound S. State Street Left Turn	A (7.7)	A (8.7)	A (7.7)	A (8.7)
Southbound S. State Street Left Turn	A (9.1)	A (8.1)	A (9.1)	A (8.1)
2025 without Development (Case 2)				
Eastbound Rising Sun Road Approach	F (120.9)	C (18.7)	F (93.6)	C (23.2)
Westbound School Driveway Approach	F (*)	F (135.2)	F (*)	F (104.2)
Northbound S. State Street Left Turn	A (8.0)	A (9.3)	A (8.0)	A (9.3)
Southbound S. State Street Left Turn	A (9.6)	A (8.3)	A (9.6)	A (8.3)
2025 with Development (Case 3a)				
Eastbound Rising Sun Road Approach	F (180.4)	C (20.7)	F (122.1)	D (25.5)
Westbound School Driveway Approach	F (*)	F (194.7)	F (*)	F (145.8)
Northbound S. State Street Left Turn	A (8.0)	A (9.5)	A (8.0)	A (9.5)
Southbound S. State Street Left Turn	A (9.6)	A (8.3)	A (9.6)	A (8.3)

*HCS calculated delay more than 1000 seconds/vehicle

[6] JMT modeled the intersection with one right turn lane and one shared left turn/through lane along the eastbound approach, whereas the TIS modeled the intersection with one shared left turn/through/right turn lane along the eastbound approach.

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Rising Sun Road (Kent Road 29) [6]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Development (Case 3b)				
Eastbound Rising Sun Road Approach	F (140.1)	D (26.5)	F (132.0)	D (26.6)
Westbound School Driveway Approach	F (*)	F (166.3)	F (*)	F (170.0)
Northbound S. State Street Left Turn	A (8.0)	A (9.5)	A (8.0)	A (9.6)
Southbound S. State Street Left Turn	A (9.7)	A (8.4)	A (9.6)	A (8.4)
2027 with Development (Case 4a)				
Eastbound Rising Sun Road Approach	-	-	F (150.7)	D (26.4)
Westbound School Driveway Approach	-	-	F (*)	F (165.6)
Northbound S. State Street Left Turn	-	-	A (8.0)	A (9.5)
Southbound S. State Street Left Turn	-	-	A (9.7)	A (8.4)
2028 with Development (Case 4b)				
Eastbound Rising Sun Road Approach	-	-	F (156.7)	D (27.6)
Westbound School Driveway Approach	-	-	F (*)	F (193.7)
Northbound S. State Street Left Turn	-	-	A (8.1)	A (9.6)
Southbound S. State Street Left Turn	-	-	A (9.7)	A (8.4)

*HCS calculated delay more than 1000 seconds/vehicle

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Rising Sun Road (Kent Road 29) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 without Development (Case 2)				
Eastbound Rising Sun Road Approach	-	-	A (6.9)	B (11.7)
Westbound School Driveway Approach	-	-	B (13.1)	A (6.4)
Northbound S. State Street Approach	-	-	C (20.3)	A (8.2)
Southbound S. State Street Approach	-	-	A (7.2)	B (10.5)
Overall	-	-	B (14.6)	A (9.6)
2025 with Development (Case 3a)				
Eastbound Rising Sun Road Approach	-	-	A (7.0)	B (12.7)
Westbound School Driveway Approach	-	-	B (13.9)	A (6.6)
Northbound S. State Street Approach	-	-	C (22.7)	A (8.4)
Southbound S. State Street Approach	-	-	A (7.5)	B (11.1)
Overall	-	-	C (16.1)	B (10.2)

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Rising Sun Road (Kent Road 29) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Development (Case 3b)				
Eastbound Rising Sun Road Approach	-	-	A (7.0)	B (13.1)
Westbound School Driveway Approach	-	-	B (14.0)	A (6.7)
Northbound S. State Street Approach	-	-	C (23.3)	A (8.6)
Southbound S. State Street Approach	-	-	A (7.5)	B (11.4)
Overall	-	-	C (16.4)	B (10.5)
2027 with Development (Case 4a)				
Eastbound Rising Sun Road Approach	-	-	A (7.1)	B (13.0)
Westbound School Driveway Approach	-	-	B (14.2)	A (6.7)
Northbound S. State Street Approach	-	-	C (24.2)	A (8.6)
Southbound S. State Street Approach	-	-	A (7.6)	B (11.4)
Overall	-	-	C (16.9)	B (10.4)

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Rising Sun Road (Kent Road 29) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2028 with Development (Case 4b)				
Eastbound Rising Sun Road Approach	-	-	A (7.1)	B (13.4)
Westbound School Driveway Approach	-	-	B (14.3)	A (6.8)
Northbound S. State Street Approach	-	-	C (24.3)	A (8.7)
Southbound S. State Street Approach	-	-	A (7.5)	B (11.7)
Overall	-	-	C (17.1)	B (10.7)

Table 6 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Signalized Intersection [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Rising Sun Road (Kent Road 29) [6, 7, 8]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 without Development (Case 2)	-	-	C (33.0)	D (38.3)
2025 with Development (Case 3a)	C (30.0)	C (29.5)	C (33.8)	D (39.3)
2026 with Development (Case 3b)	-	-	C (33.9)	D (39.8)
2027 with Development (Case 4a)	-	-	C (34.4)	D (39.5)
2028 with Development (Case 4b)	-	-	C (34.6)	D (39.6)

[7] The intersection was modeled as an uncoordinated signalized intersection while maintaining existing lane configurations.
[8] JMT modeled the eastbound and westbound approaches as split phase, whereas the TIS modeled the approaches with concurrent phases. Additionally, JMT utilized field-measured phase times, whereas the TIS did not.

Table 7
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group

Signalized Intersection [1]	**LOS per TIS**		**LOS per JMT**	
S. State Street (Kent Road 27)/Sorghum Mill Road (Kent Road 26) [9, 10, 11]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)	-	-	E (55.7)	D (39.0)
2020 Existing (Case 1) *with Optimization*	C (27.3)	B (19.0)	C (29.0)	C (20.5)
2025 Without Development (Case 2)	-	-	E (55.3)	D (43.9)
2025 Without Development (Case 2) *with Optimization*	C (33.0)	C (20.2)	C (26.5)	C (24.2)
2025 With Development (Case 3a)	-	-	E (58.3)	D (45.3)
2025 With Development (Case 3a) *with Optimization*	C (34.4)	C (20.4)	C (26.8)	C (24.8)
2026 With Development (Case 3b) *with Optimization*	-	-	C (27.0)	C (25.0)
2027 With Development (Case 4a)	-	-	E (60.1)	D (46.0)
2027 With Development (Case 4a) *with Optimization*	-	-	C (27.3)	C (25.3)
2028 With Development (Case 4b) *with Optimization*	-	-	C (27.5)	C (25.5)

[9] JMT utilized an overlap right turn phase along the westbound Sorghum Mill Road and southbound S. State Street approaches to account for right turns on red, whereas the TIS did not.
[10] JMT included the pedestrian phases in the analysis consistent with DelDOT timings, whereas the TIS did not.
[11] Signal optimization scenario includes optimizing splits and cycle length during the AM and PM peak hours.

Table 8
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group

Signalized Intersection [1]	**LOS per TIS**		**LOS per JMT**	
Rising Sun Road (Kent Road 29)/Walnut Shade Road (Kent Road 30)/Star Hill Road (Kent Road 360) [12, 13, 14]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)	-	-	F (119.5)	F (94.4)
2020 Existing (Case 1) *with Optimization* [11]	D (48.7)	D (54.0)	E (56.0)	E (70.6)
2025 Without Development (Case 2)	-	-	F (125.0)	F (161.8)
2025 Without Development (Case 2) *with Optimization* [11]	D (49.8)	E (75.3)	E (56.4)	F (90.6)
2025 Without Development (Case 2) *with Improvement Option I* [15]	-	-	D (48.5)	D (48.6)

[12] Due to the limitation of HCS software to modeling the existing geometry of this intersection both TIS and JMT utilized the Synchro 11 software to analyze the intersection.
[13] The TIS modeled the intersection with right turn on red along all approaches, whereas JMT modeled the intersection with right turn on red along the northbound and southbound Rising Sun Road approaches per existing conditions.
[14] JMT utilized the green timing splits consistent with DelDOT Max times, whereas the TIS did not.
[15] Improvement Option I includes providing one shared turn lane from the eastbound Walnut Shade Road approach to northbound Rising Sun Road and Star Hill Road, and one shared turn lane to Sorghum Mill Road and southbound Rising Sun Road. Along the westbound Sorghum Mill Road approach, one shared turn lane is provided to northbound Rising Sun Road and Star Hill Road, and one shared turn lane is provided to Walnut Shade Road and southbound Rising Sun Road. Along the northbound Rising Sun Road approach, one shared left turn lane is provided to Star Hill Road and Walnut Shade Road, and one shared through/right turn lane is provided to Rising Sun Road and Sorghum Mill Road. Along the southbound Rising Sun Road approach, one shared right turn lane is provided to Star Hill Road and Walnut Shade Road, and one shared left turn/through lane is provided to Rising Sun Road and Sorghum Mill Road.

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group

Signalized Intersection [1, 2]	**LOS per TIS**		**LOS per JMT**	
Rising Sun Road (Kent Road 29)/Walnut Shade Road (Kent Road 30)/Star Hill Road (Kent Road 360) [12, 13, 14]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 Without Development (Case 2) *with Improvement Option II* [16]	-	-	D (43.5)	D (44.5)
2025 Without Development (Case 2) *with Improvement Option III* [17]	-	-	D (47.7)	E (73.1)
2025 With Development (Case 3a)	-	-	F (132.5)	F (181.8)
2025 With Development (Case 3a) *with Optimization* [11]	D (50.9)	D (54.8)	E (57.4)	F (94.5)
2025 With Development (Case 3a) *with Improvement Option I* [15]	-	-	D (48.6)	D (49.5)
2025 With Development (Case 3a) *with Improvement Option II* [16]	-	-	D (43.5)	D (43.9)
2025 With Development (Case 3a) *with Improvement Option III* [17]	-	-	D (49.1)	E (76.4)
2026 With Development (Case 3b)	F (134.9)	F (187.5)	F (136.2)	F (188.6)
2026 With Development (Case 3b) *with Optimization* [11]	-	-	E (58.4)	F (97.1)
2026 With Development (Case 3b) *with Improvement Option I* [15]	-	-	D (49.3)	D (50.3)
2026 With Development (Case 3b) *with Improvement Option II* [16]	-	-	D (44.0)	D (44.6)

[16] Improvement Option II includes the improvements proposed for Improvement Option I, as well as providing one shared turn lane to northbound Rising Sun Road and Sorghum Mill Road, and one shared turn lane to Walnut Shade Road and southbound Rising Sun Road along the eastbound Star Hill Road approach.
[17] Improvement Option III includes modifying the Walnut Shade Road approach to provide one shared lane to Star Hill Road and northbound Rising Sun Road and one shared lane to Sorghum Mill Road and southbound Rising Sun Road.

Table 8 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group

Signalized Intersection [1, 2]	**LOS per TIS**		**LOS per JMT**	
Rising Sun Road (Kent Road 29)/Walnut Shade Road (Kent Road 30)/Star Hill Road (Kent Road 360) [12, 13, 14]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 With Development (Case 3b) *with Improvement Option III* [17]	-	-	D (49.6)	E (78.1)
2027 With Development (Case 4a)	-	-	F (135.4)	F (173.3)
2027 With Development (Case 4a) *with Optimization* [11]	-	-	E (58.9)	F (93.4)
2027 With Development (Case 4a) *with Improvement Option I* [15]	-	-	D (47.7)	D (50.6)
2027 With Development (Case 4a) *with Improvement Option II* [16]	-	-	D (39.8)	D (44.1)
2027 With Development (Case 4a) *with Improvement Option III* [17]	-	-	D (49.9)	E (76.7)
2028 With Development (Case 4b)	-	-	F (139.3)	F (191.7)
2028 With Development (Case 4b) *with Optimization* [11]	-	-	E (60.0)	F (96.8)
2028 With Development (Case 4b) *with Improvement Option I* [15]	-	-	D (46.9)	D (51.3)
2028 With Development (Case 4b) *with Improvement Option II* [16]	-	-	D (40.4)	D (42.3)
2028 With Development (Case 4b) *with Improvement Option III* [17]	-	-	D (50.9)	E (79.6)

Table 9
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Banning Road (Kent Road 366) [18, 19]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)				
Eastbound Banning Road Approach	C (18.3)	C (19.3)	C (20.4)	C (21.5)
Northbound S. State Street Left Turn	A (8.1)	A (9.3)	A (8.1)	A (9.0)
2025 without Development (Case 2)				
Eastbound Banning Road Approach	C (24.3)	F (52.3)	D (33.1)	F (68.8)
Northbound S. State Street Left Turn	A (8.2)	B (10.9)	A (8.3)	B (10.5)
2025 without Development (Case 2) *with Eastbound Left Turn Lane* [20]				
Eastbound Banning Road Approach	-	-	C (24.0)	F (45.8)
Northbound S. State Street Left Turn	-	-	A (8.3)	B (10.5)
2025 without Development (Case 2) *with Two-Way Left-Turn Lane* [3]				
Eastbound Banning Road Approach	-	-	C (19.4)	D (25.4)
Northbound S. State Street Left Turn	-	-	A (8.3)	B (10.5)

[18] The TIS modeled the intersection as a flared minor street along the eastbound approach, whereas JMT did not.
[19] The TIS and JMT did not include the residential private roadway that has access at the easterly leg of the intersection due to the minimal traffic volumes.
[20] JMT conducted an additional analysis with a separate left turn lane along the eastbound Banning Road approach.

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Banning Road (Kent Road 366) [18, 19]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 with Development (Case 3a)				
Eastbound Banning Road Approach	D (25.9)	F (65.3)	E (35.7)	F (78.9)
Northbound S. State Street Left Turn	A (8.3)	B (11.0)	A (8.4)	B (10.6)
2025 without Development (Case 3a) *with Eastbound Left Turn Lane* [20]				
Eastbound Banning Road Approach	-	-	D (25.3)	F (50.9)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.6)
2025 without Development (Case 3a) *with Two-Way Left-Turn Lane* [3]				
Eastbound Banning Road Approach	-	-	C (20.0)	D (26.5)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.6)
2026 with Development (Case 3b)				
Eastbound Banning Road Approach	E (37.0)	F (83.4)	E (37.0)	F (84.4)
Northbound S. State Street Left Turn	A (8.4)	B (10.6)	A (8.4)	B (10.6)
2026 without Development (Case 3b) *with Eastbound Left Turn Lane* [20]				
Eastbound Banning Road Approach	-	-	D (25.9)	F (53.7)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.6)

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Banning Road (Kent Road 366) [18, 19]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 without Development (Case 3b) *with Two-Way Left-Turn Lane* [3]				
Eastbound Banning Road Approach	-	-	C (20.3)	D (27.1)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.6)
2027 with Development (Case 4a)				
Eastbound Banning Road Approach	-	-	E (37.4)	F (85.0)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.7)
2027 without Development (Case 4a) *with Eastbound Left Turn Lane* [20]				
Eastbound Banning Road Approach	-	-	D (26.2)	F (53.9)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.7)
2027 without Development (Case 4a) *with Two-Way Left-Turn Lane* [3]				
Eastbound Banning Road Approach	-	-	C (20.3)	D (27.2)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.7)
2028 with Development (Case 4b)				
Eastbound Banning Road Approach	-	-	E (39.0)	F (90.8)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.7)

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Banning Road (Kent Road 366) [18, 19]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2028 without Development (Case 4b) *with Eastbound Left Turn Lane* [20]				
Eastbound Banning Road Approach	-	-	D (27.0)	F (56.7)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.7)
2028 without Development (Case 4b) *with Two-Way Left-Turn Lane* [3]				
Eastbound Banning Road Approach	-	-	C (20.7)	D (27.7)
Northbound S. State Street Left Turn	-	-	A (8.4)	B (10.7)

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Banning Road (Kent Road 366) [4, 19]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 without Development (Case 2)				
Eastbound Banning Road Approach	-	-	A (6.1)	A (9.0)
Northbound S. State Street Approach	-	-	B (12.1)	A (8.7)
Southbound S. State Street Approach	-	-	A (5.8)	B (14.5)
Overall	-	-	A (9.5)	B (11.8)
2025 with Development (Case 3a)				
Eastbound Banning Road Approach	-	-	A (6.2)	A (9.2)
Northbound S. State Street Approach	-	-	B (12.2)	A (9.0)
Southbound S. State Street Approach	-	-	A (6.0)	B (14.9)
Overall	-	-	A (9.6)	B (12.1)
2026 with Development (Case 3b)				
Eastbound Banning Road Approach	-	-	A (6.3)	A (9.3)
Northbound S. State Street Approach	-	-	B (12.4)	A (9.2)
Southbound S. State Street Approach	-	-	A (6.0)	C (15.3)
Overall	-	-	A (9.7)	B (12.4)

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Banning Road (Kent Road 366) [4, 19]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2027 with Development (Case 4a)				
Eastbound Banning Road Approach	-	-	A (6.3)	A (9.4)
Northbound S. State Street Approach	-	-	B (12.5)	A (9.1)
Southbound S. State Street Approach	-	-	A (6.0)	C (15.4)
Overall	-	-	A (9.8)	B (12.5)
2028 with Development (Case 4b)				
Eastbound Banning Road Approach	-	-	A (6.3)	A (9.5)
Northbound S. State Street Approach	-	-	B (12.8)	A (9.3)
Southbound S. State Street Approach	-	-	A (6.1)	C (15.8)
Overall	-	-	A (10.0)	B (12.7)

Table 9 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Signalized Intersection [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Banning Road (Kent Road 366) [5, 19]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 without Development (Case 2)	-	-	B (11.6)	A (10.0)
2025 with Development (Case 3a)	-	-	B (12.7)	B (10.8)
2026 with Development (Case 3b)	-	-	B (13.5)	B (11.1)
2027 with Development (Case 4a)	-	-	B (12.9)	B (11.0)
2028 with Development (Case 4b)	-	-	B (13.6)	B (11.2)

Table 10
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Banning Road/Briarbush Road (Kent Road 367)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)				
Westbound Banning Road Approach	A (8.8)	A (8.9)	A (8.9)	A (8.9)
Southbound Briarbush Road Left Turn	A (7.4)	A (7.4)	A (7.4)	A (7.3)
2025 without Development (Case 2) [21]				
Eastbound School Access Approach	B (11.3)	A (9.5)	B (11.4)	A (9.4)
Westbound Banning Road Approach	B (13.3)	A (9.6)	B (13.4)	A (9.5)
Northbound Briarbush Road Left Turn	A (7.6)	A (7.4)	A (7.6)	A (7.4)
Southbound Briarbush Road Left Turn	A (7.5)	A (7.4)	A (7.5)	A (7.4)
2025 with Development (Case 3a) [21]				
Eastbound School Access Approach	B (11.4)	A (9.5)	B (11.4)	A (9.5)
Westbound Banning Road Approach	B (13.2)	A (9.6)	B (13.2)	A (9.5)
Northbound Briarbush Road Left Turn	A (7.6)	A (7.4)	A (7.6)	A (7.4)
Southbound Briarbush Road Left Turn	A (7.5)	A (7.4)	A (7.5)	A (7.4)

[21] Per the Caesar Rodney Elementary School Cover Sheet prepared by Becker Morgan Group, Inc. dated September 17, 2018, the intersection was modeled with the proposed Caesar Rodney Elementary School entrance in future cases. Specifically, one shared left turn/through lane and one right turn lane were provided along the eastbound approach and one left turn lane and one shared through/right turn lane were provided along the northbound and southbound approaches.

Table 10 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection) [1, 2]	**LOS per TIS**		**LOS per JMT**	
Banning Road/Briarbush Road (Kent Road 367)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Development (Case 3b) [21]				
Eastbound School Access Approach	B (11.4)	A (9.5)	B (11.4)	A (9.5)
Westbound Banning Road Approach	B (13.2)	A (9.5)	B (13.2)	A (9.5)
Northbound Briarbush Road Left Turn	A (7.6)	A (7.4)	A (7.6)	A (7.4)
Southbound Briarbush Road Left Turn	A (7.5)	A (7.4)	A (7.5)	A (7.4)
2027 with Development (Case 4a) [21]				
Eastbound School Access Approach	-	-	B (11.4)	A (9.5)
Westbound Banning Road Approach	-	-	B (13.2)	A (9.5)
Northbound Briarbush Road Left Turn	-	-	A (7.6)	A (7.4)
Southbound Briarbush Road Left Turn	-	-	A (7.5)	A (7.4)
2028 with Development (Case 4b) [21]				
Eastbound School Access Approach	-	-	B (11.4)	A (9.5)
Westbound Banning Road Approach	-	-	B (13.2)	A (9.5)
Northbound Briarbush Road Left Turn	-	-	A (7.6)	A (7.4)
Southbound Briarbush Road Left Turn	-	-	A (7.5)	A (7.4)

Table 11
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)				
Eastbound Brookdale Road Approach	C (24.0)	C (16.3)	C (24.1)	C (16.6)
Westbound Ponderosa Drive Approach	C (19.0)	C (19.2)	C (18.6)	C (19.6)
Northbound S. State Street Left Turn	A (8.1)	A (8.9)	A (8.2)	A (9.0)
Southbound S. State Street Left Turn	A (9.5)	A (8.4)	A (9.4)	A (8.5)
2025 without Development (Case 2)				
Eastbound Brookdale Road Approach	E (42.4)	C (21.1)	E (37.3)	C (21.5)
Westbound Ponderosa Drive Approach	D (26.6)	D (29.7)	C (23.3)	D (30.7)
Northbound S. State Street Left Turn	A (8.5)	A (9.4)	A (8.5)	A (9.6)
Southbound S. State Street Left Turn	B (10.2)	A (9.0)	A (9.9)	A (9.1)
2025 without Development (Case 2) *with Two-Way Left-Turn Lane* [3]				
Eastbound Brookdale Road Approach	-	-	C (20.7)	C (21.1)
Westbound Ponderosa Drive Approach	-	-	C (19.8)	C (18.7)
Northbound S. State Street Left Turn	-	-	A (8.5)	A (9.6)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.1)

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 with Development (Case 3a)				
Eastbound Brookdale Road Approach	E (44.1)	C (21.7)	E (38.7)	C (22.1)
Westbound Ponderosa Drive Approach	D (27.2)	D (31.3)	C (23.7)	D (32.4)
Northbound S. State Street Left Turn	A (8.6)	A (9.5)	A (8.6)	A (9.6)
Southbound S. State Street Left Turn	B (10.3)	A (9.0)	A (9.9)	A (9.1)
2025 with Development (Case 3a) *with Two-Way Left-Turn Lane* [3]				
Eastbound Brookdale Road Approach	-	-	C (21.0)	C (21.7)
Westbound Ponderosa Drive Approach	-	-	C (20.0)	C (19.2)
Northbound S. State Street Left Turn	-	-	A (8.6)	A (9.6)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.1)
2026 with Development (Case 3b)				
Eastbound Brookdale Road Approach	E (39.8)	C (22.5)	E (39.9)	C (22.5)
Westbound Ponderosa Drive Approach	C (24.2)	D (33.4)	C (24.2)	D (33.6)
Northbound S. State Street Left Turn	A (8.6)	A (9.7)	A (8.6)	A (9.6)
Southbound S. State Street Left Turn	A (9.9)	A (9.2)	A (9.9)	A (9.2)

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Development (Case 3b) *with Two-Way Left-Turn Lane [3]*				
Eastbound Brookdale Road Approach	-	-	C (21.4)	C (22.0)
Westbound Ponderosa Drive Approach	-	-	C (20.3)	C (19.5)
Northbound S. State Street Left Turn	-	-	A (8.6)	A (9.6)
Southbound S. State Street Left Turn	-	-	A (9.9)	A (9.2)
2027 with Development (Case 4a)				
Eastbound Brookdale Road Approach	-	-	E (40.5)	C (22.6)
Westbound Ponderosa Drive Approach	-	-	C (24.5)	D (33.9)
Northbound S. State Street Left Turn	-	-	A (8.6)	A (9.7)
Southbound S. State Street Left Turn	-	-	A (10.0)	A (9.2)
2027 with Development (Case 4a) *with Two-Way Left-Turn Lane [3]*				
Eastbound Brookdale Road Approach	-	-	C (21.5)	C (22.2)
Westbound Ponderosa Drive Approach	-	-	C (20.5)	C (19.5)
Northbound S. State Street Left Turn	-	-	A (8.6)	A (9.7)
Southbound S. State Street Left Turn	-	-	A (10.0)	A (9.2)

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2028 with Development (Case 4b)				
Eastbound Brookdale Road Approach	-	-	E (41.7)	C (23.0)
Westbound Ponderosa Drive Approach	-	-	C (25.0)	E (36.2)
Northbound S. State Street Left Turn	-	-	A (8.6)	A (9.7)
Southbound S. State Street Left Turn	-	-	A (10.0)	A (9.2)
2028 with Development (Case 4b) *with Two-Way Left-Turn Lane* [3]				
Eastbound Brookdale Road Approach	-	-	C (21.8)	C (22.5)
Westbound Ponderosa Drive Approach	-	-	C (20.8)	C (20.0)
Northbound S. State Street Left Turn	-	-	A (8.6)	A (9.7)
Southbound S. State Street Left Turn	-	-	A (10.0)	A (9.2)

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 with Development (Case 2)				
Eastbound Brookdale Approach	-	-	A (4.5)	A (6.3)
Westbound Ponderosa Approach	-	-	A (7.6)	A (5.5)
Northbound S. State Street Approach	-	-	A (9.4)	A (6.8)
Southbound S. State Street Approach	-	-	A (5.7)	A (9.5)
Overall	-	-	A (8.0)	B (8.2)
2025 with Development (Case 3a)				
Eastbound Brookdale Approach	-	-	A (5.3)	A (7.2)
Westbound Ponderosa Approach	-	-	A (9.2)	A (6.6)
Northbound S. State Street Approach	-	-	B (11.6)	A (8.5)
Southbound S. State Street Approach	-	-	A (7.1)	B (12.0)
Overall	-	-	A (9.7)	B (10.3)

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2026 with Development (Case 3b)				
Eastbound Brookdale Approach	-	-	A (5.3)	A (7.1)
Westbound Ponderosa Approach	-	-	A (9.4)	A (6.6)
Northbound S. State Street Approach	-	-	B (11.8)	A (8.6)
Southbound S. State Street Approach	-	-	A (7.1)	B (11.8)
Overall	-	-	A (9.8)	B (10.3)
2027 with Development (Case 4a)				
Eastbound Brookdale Approach	-	-	A (5.3)	A (7.2)
Westbound Ponderosa Approach	-	-	A (9.4)	A (6.6)
Northbound S. State Street Approach	-	-	B (11.9)	A (8.6)
Southbound S. State Street Approach	-	-	A (7.2)	B (12.0)
Overall	-	-	A (9.9)	B (10.3)

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Roundabout [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364) [4]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2028 with Development (Case 4b)				
Eastbound Brookdale Approach	-	-	A (5.4)	A (7.3)
Westbound Ponderosa Approach	-	-	A (9.5)	A (6.7)
Northbound S. State Street Approach	-	-	B (12.2)	A (8.7)
Southbound S. State Street Approach	-	-	A (7.2)	B (12.2)
Overall	-	-	B (10.1)	B (10.5)

Table 11 (continued)
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group, Inc.

Signalized Intersection [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street/Ponderosa Drive (Kent Road 364) [5]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2025 without Development (Case 2)	-	-	B (13.5)	B (17.5)
2025 with Development (Case 3a)	-	-	B (13.8)	B (18.4)
2026 with Development (Case 3b)	-	-	B (16.6)	C (21.4)
2027 with Development (Case 4a)	-	-	B (16.1)	C (21.0)
2028 with Development (Case 4b)	-	-	B (16.9)	C (22.5)

Table 12
Peak Hour Levels Of Service (LOS)
Based on Traffic Impact Study for Patriots Crest
Report Dated June 28, 2021
Prepared by The Traffic Group

Signalized Intersection [1, 2]	**LOS per TIS**		**LOS per JMT**	
S. State Street (Kent Road 27)/Woodlytown Road (Kent Road 106) Plaindealing Road (Kent Road 365) [22]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
2020 Existing (Case 1)	-	-	C (25.6)	C (25.3)
2020 Existing (Case 1) *with Optimization [11]*	B (12.9)	B (14.1)	B (17.5)	B (16.5)
2025 without Development (Case 2)	-	-	C (28.9)	C (28.6)
2025 without Development (Case 2) *with Optimization [11]*	B (15.3)	B (17.8)	B (18.1)	C (26.0)
2025 with Development (Case 3a)	-	-	C (28.7)	C (28.9)
2025 with Development (Case 3a) *with Optimization [11]*	B (15.3)	B (18.3)	B (17.8)	C (27.4)
2026 with Development (Case 3b)	C (28.7)	C (29.1)	C (28.7)	C (29.1)
2026 with Development (Case 3b) *with Optimization [11]*	-	-	B (17.9)	C (27.7)
2027 with Development (Case 4a)	-	-	C (28.8)	C (29.0)
2027 with Development (Case 4a) *with Optimization [11]*	-	-	B (17.9)	C (27.6)
2028 with Development (Case 4b)	-	-	C (28.7)	C (29.3)
2028 with Development (Case 4b) *with Optimization [11]*	-	-	B (18.0)	C (27.9)

[22] JMT included the pedestrian phases in the analysis consistent with DelDOT timing whereas the TIS did not.

Avigation Nuisance Easement & Non-Suit Covenant

This indenture made this _____ day of _____, 20_____, by and between _____, hereinafter referred to as Grantor, and _____ hereinafter referred to as Grantee, witnesseth:

WHEREAS the Grantor is the owner in fee of a certain parcel of land ("the Property") in the County of _____, State of Delaware; and

WHEREAS said parcel of land is near or adjacent to _____, an operating airport ("Airport"); and

WHEREAS the Grantee is the owner of said airport; and

WHEREAS the Grantor proposes to make a use of said Property and to develop thereon the following:

_____
_____

_____
_____
, which use and development require approval by Municipal and County authorities subject to the applicable provisions of law; and

WHEREAS the Grantor has been advised that the subject Property is located adjacent to the Airport; that the present and future impacts of Airport operations might be considered annoying to users of the Property for its stated purpose and might interfere with the unrestricted use and enjoyment of the Property in its intended use; that these Airport impacts might change over time, for example and not by way of limitation by an increase in the number of aircraft using the Airport, louder aircraft, seasonal variations, and time-of-day variations; that changes in Airport, air traffic control operating procedures or in Airport layout could result in increased noise impacts; and that the Grantor's and users' own personal perceptions of the noise exposure could change and that his or her sensitivity to aircraft noise could increase;

NOW, THEREFORE, for and in consideration of the mutual covenants, agreements and conditions contained herein, the parties hereto agree as follows:

Grantor does hereby grant a permanent nuisance and avigation easement ("Easement") to Grantee over all of the following described real estate:

By virtue of this agreement, the Grantor, for and on behalf of himself and all successors in interest to any and all of the real property above described, waives as to Grantee or any successor agency legally authorized to operate said airport, any and all claims for damage of any kind whatsoever incurred as a result of aircraft using the Easement granted herein regardless of any future changes in volume or character of aircraft overflights, or changes in airport design and operating policies, or changes in air traffic control procedures.

The Grantor, for and on behalf of himself and all successors in interest to any and all of the real property above described, does further hereby covenant and agree with the Grantee, its successors and assigns, that it will not, from and after the effective date hereof, sue, prosecute, molest, or trouble the Grantee, its successors and assigns, in

These covenants and agreements shall run with the land of the Grantor, as hereinabove described, for the benefit of the Grantee, and its successors and assigns in the ownership, use and operation of the aforesaid Airport.

Grantee, its successors and assigns, shall have and hold said Easement and all rights appertaining thereto until said Airport shall be abandoned and shall cease to be used for airport purposes.

If any provision of this Easement or any amendments hereto, or the application thereof to any person, thing or circumstances is held invalid, such invalidity shall not affect the provisions or application of this Easement or such amendments that can be given effect without the invalid provisions or application, and to this end the provisions of this Easement and such amendments are declared to be severable.

IN WITNESS WHEREOF, the Grantor has hereunto set its hand and seal the day and year first above written.

_____(SEAL)

_____(SEAL)

NOTARY ACKNOWLEDGEMENT

STATE OF DELAWARE

ss.

COUNTY OF KENT

BE IT REMEMBERED that on this _____ day of _____, 20_____ personally, came before me, the subscriber, a Notary Public for the State and County aforesaid, _____, party(ies) to this Indenture, known to me personally to be such, and acknowledged this Indenture, to his/her (their) act or deed.

GIVEN under my Hand and Seal of office the day and year first above written.

_____

Notary Public, State of Delaware

My Commission Expires _____