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

SHANTÉ A. HASTINGS
SECRETARY

September 2, 2025

Mr. Jason Lyon
City of Dover, Planning Director
City Hall
PO Box 475
Dover, DE 19903

Dear Mr. Lyon,

The enclosed Traffic Impact Study (TIS) review letter for the **Garrison Oak Technical Park** (Tax Parcel: 2-05-06800-01-0100-00001, 4-05-06800-01-0300-00001, 4-05-06800-01-0300-00001, 4-05-06800-01-0302-00001) commercial 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 performed 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. If you have any questions concerning this letter or the enclosed review letter, please contact me at Annamaria.Furmato@delaware.gov

Sincerely,

Annamaria Furmato
TIS Review Engineer

AF:km
Enclosures
cc with enclosures: Dave Hugg, Manager, City of Dover
Dawn Melson-Williams, Principal planner, City of Dover
Mir Wahed, Johnson, Mirmiran, & Thompson, Inc.
Joanne M. Arellano, Johnson, Mirmiran, & Thompson, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Lanie Clymer, Deputy Secretary
Mark Luszcz, Chief Engineer, Transportation Solutions (DOTS)
Brad Eaby, Deputy Attorney General, DOTS
Michael Simmons, Chief Project Development South, DOTS
Peter Haag, Chief Traffic Engineer, DOTS
Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, Traffic, DOTS
Sean Humphrey, Traffic Engineer, Traffic, DOTS
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Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
Brian Yates, Process and Quality Control Engineer, Development Coordination
Will Mobley, Acting Kent Review Coordinator, Development Coordination
Brian Williams, Kent Review Engineer, Development Coordination
Sireen Muhtaseb, TIS Engineer, Development Coordination
Ben Fisher, TIS Review Engineer, Development Coordination
Tijah Jones, TIS Review Engineer, Development Coordination

August 29, 2025

Ms. Sireen Muhtaseb, P.E.
TIS Group Manager
Delaware Department of Transportation
Development Coordination
800 Bay Road
Dover, DE 19901

RE: Agreement No: 2138S
Traffic Impact Study Services – T202569004
Task Name: Task 2-1: Garrison Oak Technical Park
JMT No.: 24-01365-201

Dear Ms. Muhtaseb:

Johnson, Mirmiran, and Thompson (JMT) has completed the Traffic Impact Study (TIS) for the Garrison Oak Technical Park development. The TIS was assigned as Task Number 2-1. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual* and other Department standards.

The TIS evaluates the impacts of a proposed industrial development in the City of Dover, Kent County, Delaware. The industrial development would consist of a total of 560,000 square feet of industrial park, 165,000 square feet of high cube cold storage warehousing, and 10,000 square feet of a specialty contractor facility. Currently, there are 99,567 square feet of existing businesses on the site. However, the TIS accounts for the entire site, which includes the existing businesses in addition to the proposed uses. The land is proposed on an assemblage of parcels totaling approximately 361.56-acres (Tax Parcels 4-05-06800-02-0100-0001 through 4-05-06800-02-1800-00001) and is located on the north side of White Oak Road (Kent Road 66), surrounding the roadway of Garrison Oak Drive. The land is currently zoned as IPM-2 (Industrial Park Manufacturing – Business and Technology Center) with a SWPOZ overlay (Source Water Protection Overlay Zone), and the developer does not plan to rezone the land.

There are two existing full movement access points along White Oak Road that would be maintained with the development of the site. Construction is anticipated to be completed in 2027.

Relevant and On-Going Projects and Studies

DelDOT has relevant and on-going improvement projects in the vicinity of the study area. DelDOT has the *Hazard Elimination Program (HEP)*, formally known as the Highway Safety Improvement Program (HSIP), which identifies high crash locations and makes operational improvements to address safety concerns. Within the project area, there are HEP projects along US Route 13, Kings Highway, White Oak Road, Leipsic Road, East Division Street, and North State Street. More general information regarding the HEP program can be found at the following link:

https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-04/HSIP%28Delaware%29%202023%20Report.pdf.

In the last five years, three HEP locations that include a TIS study intersection have been evaluated. Site H within the 2020 HEP examines the segment of East Division Street/Delaware Route 8 from 0.04 miles east of North American Avenue to 0.03 miles west of US Route 13. Preliminary recommendations to this segment include improving coordination between the Park Drive and Kent Avenue signals, improving the sidewalk west of Maple Lane at Delaware Route 8 to meet ADA-compliance and Pedestrian Accessibility Standards, upgrading the red signal ahead when flashing beacons to current standards, increasing the eastbound left turn yellow interval from 3 to 4 seconds, adding signing improvements such as upgrading sign sizing and locations as well as refreshing damaged signs at various intersections, and adding striping improvements at various intersections, including refreshing faded pavement markings. Based on a recent site visit, most of the recommendations have been implemented, with some striping improvements not implemented.

Site C within the 2020 HEP examines the segment of Leipsic Road from US Route 13 to 0.29 miles north of US Route 13. Preliminary recommendations to this segment include signing improvements, implementing time-of-day Flashing Red Arrow (FRA) phasing for the US Route 13 southbound left-turn movement at Leipsic Road, implementing recommendations from the US Route 13 Pedestrian Safety Study, and considering the conversion of the US Route 13 southbound left-turn movement at Leipsic Road to full-time protected-only, and increasing the storage length and/or widening to provide a double left-turn lane. Based on a recent site visit, only the time-of-day FRA phasing has been implemented.

Site S-3 within the 2022 HEP studies the intersection of US Route 13 at Townsend Boulevard/Lakeview Drive. Preliminary recommendations to this intersection include installing through arrows in the northbound and southbound US Route 13 through lane approaches to the intersection, installing SIGNAL AHEAD pavement markings on the northbound and southbound US Route 13 approaches, reviewing the southbound US Route 13 signal timing offsets/corridor progression to increase coordination between signals on US Route 13, installing additional intersection lighting, and improving signal visibility with the installation of mast arms and backplates, while considering installing a pedestrian crossing on the south leg. Based on a recent site visit, only the northbound and southbound US Route 13 through arrows have been installed.

In addition to the HEP studies conducted in the last five years, there was one more location that was included in the 2019 HEP that involved a TIS study intersection. Site F within the 2019 HEP included the US Route 13 intersection with White Oak Road. The recommendations for the study identified improvements to signage and pavement markings, rebuilding the intersection with mast arms, conducting FRA updates, and improving the signal timing. Based on a recent site visit, signal timing improvements have been implemented at the intersection.

The *Garrison Oak Connector from SR 1 via White Oak Road Improvements* project aims to provide improvements that would enhance connections and access to the Central Delaware Aviation Complex (CDAC) at the Dover Air Force Base and the Garrison Oak Business and Technology Center (Garrison Oak) to the north from the regional highway network, as well as improve connections between these two facilities. These improved connections could potentially draw in

more businesses to CDAC and Garrison Oak. An additional benefit would be the reduction of traffic, particularly heavy-truck traffic, on the area's local roadway network. The project is scheduled for design to begin in fiscal year 2026 (FY26). More information about the project can be found at the following link: https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202509502.

Summary of Analysis Results

Based on our review of the TIS, we have the following comments and recommendations:

There are no intersections that exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements.

Although there are no capacity constraints at the existing Site Entrances, ten crashes were reported along the site frontage within a three year study period and seven of those incidents involved roadway departure crashes. Therefore, it is recommended that the developer implement frontage improvements, such as physical traffic calming measures or horizontal alignment signage to minimize those occurrences.

The US Route 13/White Oak Road/Kings Highway intersection had a total of 59 crashes reported within a three-year study period. Of the 59 crashes, 16 were angle incidents, 14 crashes involved personal injury, and one crash involved a pedestrian fatality. The intersection is a DelDOT HEP location. As such, it is not recommended that the developer implement any additional improvements at the intersection.

The US Route 13/Townsend Boulevard/Lakeview Drive intersection had a total of 59 crashes reported within a three-year study period. Of the 59 crashes, eight were angle incidents and 15 crashes involved personal injury. The intersection is a DelDOT HEP location. As such, it is not recommended that the developer implement any additional improvements at the intersection.

The US Route 13/Leipsic Road/North State intersection had a total of 65 crashes reported within a three-year study period. Of the 65 crashes, 17 were angle incidents and 20 crashes involved personal injury. The intersection is a DelDOT HEP location. As such, it is not recommended that the developer implement any additional improvements at the intersection.

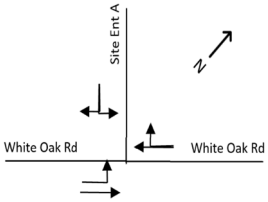
Development Improvements

Should the City of Dover approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan, entrance plans, or construction plans by note or illustration unless a Design Deviation is requested and approved by the Department. 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 should be implemented at the same time as site construction once all agency approvals and permits are secured and completed in accordance with DelDOT's Standards and Specifications.

1. The developer shall improve the State-maintained roads on which they front (White Oak Road) within the limits of their frontage. 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" means the length along the state right-of-way of a single property tract where an entrance is proposed or required. If a single property tract has frontage along multiple roadways, any segment of roadway including an entrance shall be improved to meet DelDOT's Functional Classification criteria as found in Section 1.1 of the Development Coordination Manual and elsewhere therein, and/or improvements established in the Traffic Operational Analysis and/or Traffic Impact Study. "Secondary Frontage" means the length along the state right-of-way of a single property tract where no entrance is proposed or required. The segment of roadway may be upgraded by improving the pavement condition of the existing roadway width. The Pavement Management Section and Subdivision Section will determine the requirements to improve the pavement condition.

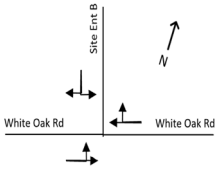
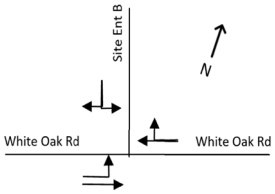
2. The White Oak Road site frontage design should include the implementation of physical traffic calming measures and horizontal alignment signage to address concerns with roadway departures. Physical traffic calming measures are available in Chapter 3 and Chapter 4 of the DelDOT Traffic Calming Design Manual, which is available at https://deldot.gov/Publications/manuals/traffic_calming/pdfs/Delaware_TrafficCalmingDesignManual.pdf. Horizontal alignment signage is available in Part 2 of the Delaware Manual on Uniform Traffic Control Devices (MUTCD), which is available at http://regulations.delaware.gov/register/may2018/final/MUTCDPart2Signs.pdf. The developer should coordinate with DelDOT's Development Coordination Section to determine the potential traffic calming and horizontal alignment signage during the site plan review.

3. The developer should improve the existing unsignalized full access of Site Entrance A (Garrison Oak Drive) with White Oak Road to provide a separate left turn lane along the eastbound White Oak Road approach. The intersection should be designed to be consistent with the lane configurations indicated in the table below:

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound White Oak Road	One shared left turn/through lane		Eastbound White Oak Road	One left turn and one through lane	
Westbound White Oak Road	One shared through/right turn lane		Westbound White Oak Road	No Change	
Southbound Site Entrance A	One shared left turn/right turn lane		Southbound Site Entrance A	No Change	

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the eastbound White Oak Road left turn lane is 95 feet. The projected queues from the traffic analysis can be accommodated within the recommended storage lengths.

4. The developer should improve the existing unsignalized full access of Site Entrance B (Garrison Oak Drive) with White Oak Road to provide a separate left turn lane along the eastbound White Oak Road approach. The intersection should be designed to be consistent with the lane configurations indicated in the table below:

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound White Oak Road	One shared left turn/through lane		Eastbound White Oak Road	One left turn and one through lane	
Westbound White Oak Road	One shared through/right turn lane		Westbound White Oak Road	No change	
Southbound Site Entrance B	One shared left turn/right turn lane		Southbound Site Entrance B	No Change	

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the eastbound White Oak Road left turn lane is 95 feet. The projected queues from the traffic analysis can be accommodated within the recommended storage lengths.

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

    a. A minimum fifteen-foot-wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the White Oak Road frontage. Along the frontage, the developer should construct a ten-foot-wide shared use path (SUP). 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. The developer should coordinate with DelDOT's Development Coordination Section during the plan review process to identify the exact location of the SUP.

    b. Internal connections from the frontage SUP into the site are required.

    c. ADA-compliant curb ramps and marked crosswalks should be provided along the site entrances.

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

Please note that this review generally focuses on capacity and level of service issues; additional safety, operational, and constructability 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.

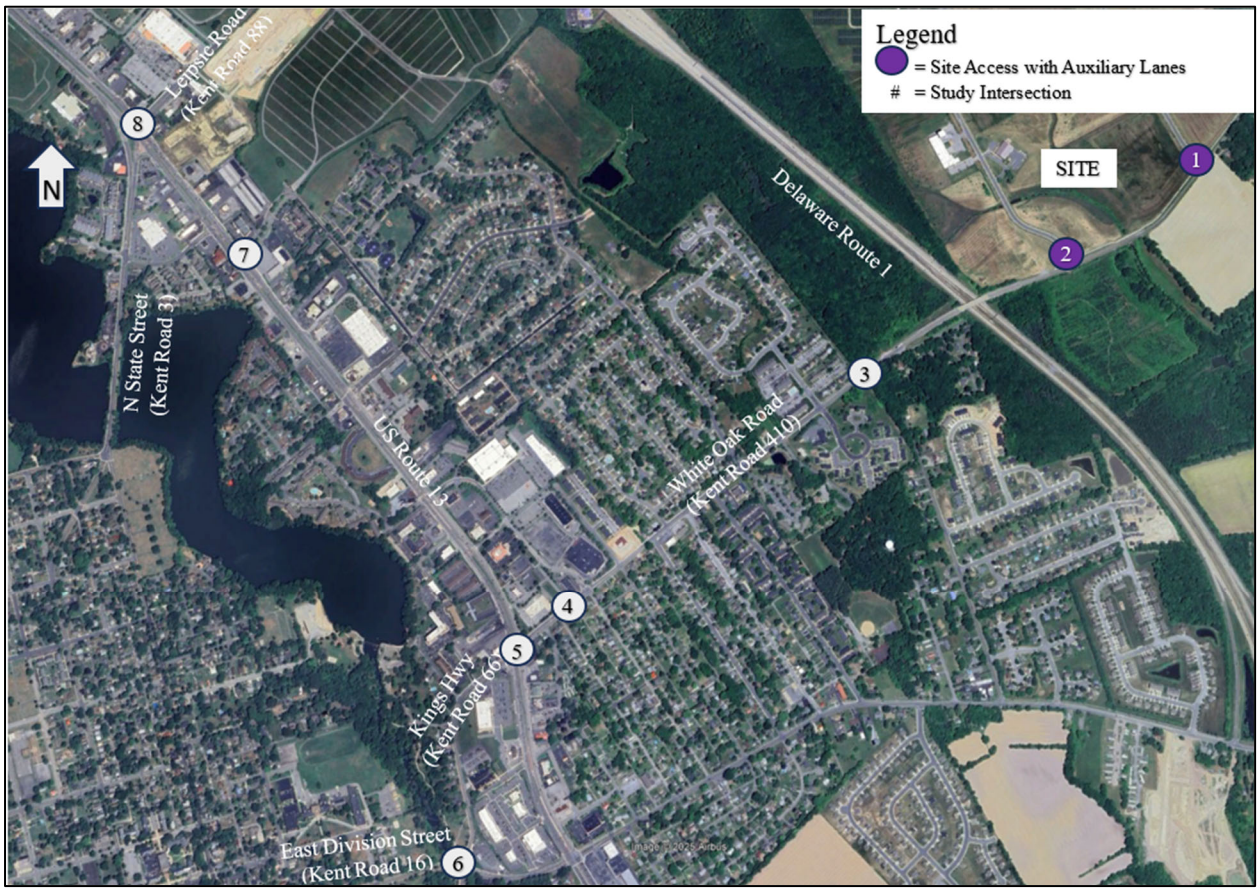
Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

cc: Annamaria Furmato, EIT
Mir Wahed, P.E., PTOE
Tanner Chiamprasert, EIT
Enclosure

Recommendations Map



General Information

Report date: July 2025
Prepared by: JMT
Prepared for: City of Dover
Tax parcel: 4-05-06800-02-0100-0001 through 4-05-06800-02-1800-00001
Generally consistent with DelDOT's Development Coordination Manual (DCM): Yes

Project Description and Background

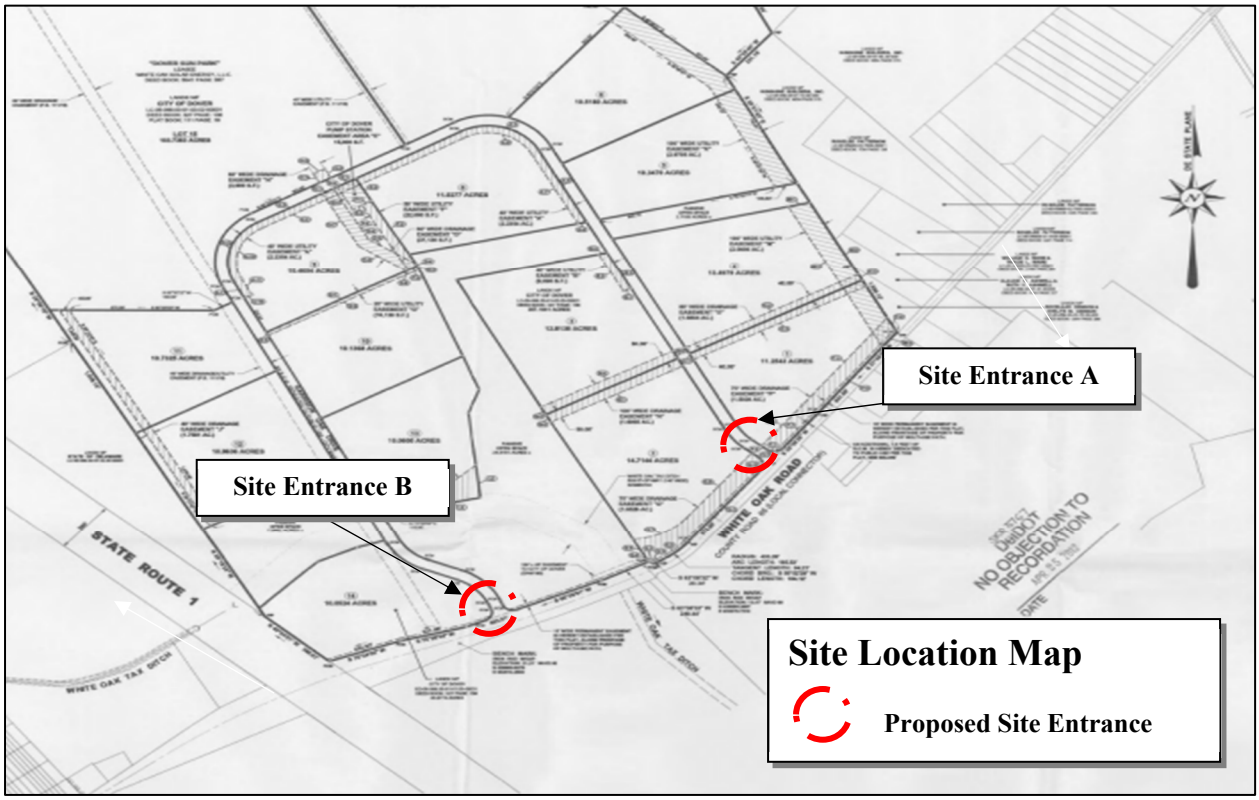
Description: The proposed development consists of 560,000 square feet of industrial park, 165,000 square feet of high cube cold storage warehousing, 10,000 square feet specialty contractor facility. The site also includes 99,567 square feet of existing businesses. The TIS accounts for the entire site, which includes the existing businesses in addition to the proposed uses.
Location: The site is located on the north side of White Oak Road (Kent Road 66) surrounding the roadway of Garrison Oak Drive, in the City of Dover, Kent County, Delaware.
Amount of land to be developed: An approximately 361.56-acre assemblage of parcels.
Land use approval(s) needed: Entrance Plan.
Proposed completion date: 2027.
Proposed access locations: Two existing full movement access points along White Oak Road (Kent Road 66), at the intersections of White Oak Road with Garrison Oak Drive East and White Oak Road and Garrison Oak Drive West, would be maintained.

Daily traffic volumes:

- 2025 Average Daily Traffic (ADT)
    - White Oak Road (Kent Road 66): 1,415 vehicles per day

*ADT is sourced from ATR count data from 05/16/2025 to 05/22/2025.

Site Map



**Graphic is an approximation based on the Record Plat Subdivision Lots 1-14 plan prepared by Becker Morgan Group, last revised April 3, 2012.*

Relevant and On-going Projects

DelDOT has relevant and on-going improvement projects in the vicinity of the study area. DelDOT has the *Hazard Elimination Program (HEP)*, formally known as the Highway Safety Improvement Program (HSIP), which identifies high crash locations and makes operational improvements to address safety concerns. Within the project area, there are HEP projects along US Route 13, Kings Highway, White Oak Road, Leipsic Road, East Division Street, and North State Street. More general information regarding the HEP program can be found at the following link: https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-04/HSIP%28Delaware%29%202023%20Report.pdf.

In the last five years, three HEP locations that include a TIS study intersection have been evaluated. Site H within the 2020 HEP examines the segment of East Division Street/Delaware Route 8 from 0.04 miles east of North American Avenue to 0.03 miles west of US Route 13. Preliminary recommendations to this segment include improving coordination between the Park Drive and Kent Avenue signals, improving the sidewalk west of Maple Lane at Delaware Route 8 to meet ADA-compliance and Pedestrian Accessibility Standards, upgrading the red signal ahead when flashing beacons to current standards, increasing the eastbound left turn yellow interval from 3 to 4 seconds, adding signing improvements such as upgrading sign sizing and locations as well as

refreshing damaged signs at various intersections, and adding striping improvements at various intersections, including refreshing faded pavement markings. Based on a recent site visit, most of the recommendations have been implemented, with some striping improvements not implemented.

Site C within the 2020 HEP examines the segment of Leipsic Road from US Route 13 to 0.29 miles north of US Route 13. Preliminary recommendations to this segment include signing improvements, implementing time-of-day Flashing Red Arrow (FRA) phasing for the US Route 13 southbound left-turn movement at Leipsic Road, implementing recommendations from the US Route 13 Pedestrian Safety Study, and considering the conversion of the US Route 13 southbound left-turn movement at Leipsic Road to full-time protected-only, and increasing the storage length and/or widening to provide a double left-turn lane. Based on a recent site visit, only the time-of-day FRA phasing has been implemented.

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In addition to the HEP studies conducted in the last five years, there was one more location that was included in the 2019 HEP that involved a TIS study intersection. Site F within the 2019 HEP included the US Route 13 intersection with White Oak Road. The recommendations for the study identified improvements to signage and pavement markings, rebuilding the intersection with mast arms, conducting FRA updates, and improving the signal timing. Based on a recent site visit, signal timing improvements have been implemented at the intersection.

The *Garrison Oak Connector from SR 1 via White Oak Road Improvements* project aims to provide improvements that would enhance connections and access to the Central Delaware Aviation Complex (CDAC) at the Dover Air Force Base and the Garrison Oak Business and Technology Center (Garrison Oak) to the north from the regional highway network, as well as improve connections between these two facilities. These improved connections could potentially draw in more businesses to CDAC and Garrison Oak. An additional benefit would be the reduction of traffic, particularly heavy-truck traffic, on the area's local roadway network. The project is scheduled for design to begin in fiscal year 2026 (FY26). More information about the project can be found at the following link:
https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T202509502.

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 within Investment Level 2 and Investment Level 3.

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 proposed development is located within Investment Level 2 and Investment Level 3 and is adjacent to Investment Level 1. Investment Level 2 areas are intended to accommodate growth adjacent to already developed communities, with an emphasis on economic development, job creation, and efficient use of existing or planned infrastructure. Level 3 supports employment generating uses when development occurs in a manner that preserves rural character, protects environmental resources, and aligns with local land use planning efforts, especially when intermingled with fast-growing areas such as Investment Level 1. The inclusion of 560,000 square feet of industrial park, 165,000 square feet of cold storage warehousing, and a 10,000 square foot specialty contractor facility aligns with these objectives by fostering employment opportunities and supporting industrial and logistical uses that benefit the regional economy. The reuse and retention of 99,567 square feet of existing business space, along with proximity to Investment Level 1 areas, further reinforce the site as an active economic area. Therefore, the proposed development is consistent with the 2020 update of *Livable Delaware Strategies for State Policies and Spending.*

Comprehensive Plan

(Source: City of Dover Comprehensive Plan, 2019)

City of Dover Comprehensive Plan:
Per the City of Dover Comprehensive Plan Existing Land Use Map, the proposed development is currently zoned as Active agricultural and Open space. Per the City of Dover Comprehensive Plan Land Development Map, the development is zoned as Industrial and Open space, Conservation, Recreation.

Proposed development's compatibility with the City of Dover Comprehensive Plan:
The land is currently zoned as IPM-2 (Industrial Park Manufacturing - Business and Technology Center) and the developer does not plan to rezone the land. Since the proposed industrial park, cold storage warehousing, and contractor facility are consistent with the future land use

designation and permitted under the existing zoning, the development is consistent with the *City of Dover 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, 11th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 150 (Warehousing), Land Use Code 130 (Industrial Park), Land Use Code 157 (High-Cube Cold Storage Warehouse), and Land Use Code 180 (Specialty Trade Contractor).

Table 1
Garrison Oak Technical Park Trip Generation

Land Use	ADT	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Site Specific Data (Existing Uses Provided by the City of Dover)	395	55	0	55	4	59	63
26,560 SF Existing Warehouse (Land Use Code 150)	82	21	6	27	8	22	30
80,000 SF Industrial Park (Land Use Code 130)	836	22	5	27	6	21	27
165,000 SF High-Cube Cold Storage Warehouse (Land Use Code 157)	350	9	9	18	10	10	20
10,000 SF Specialty Contractor (Land Use Code 180)	98	12	5	17	6	13	19
480,000 SF Industrial Park (Land Use Code 130)	2,123	132	31	163	36	127	163
Total Trips	**3,884**	**251**	**56**	**307**	**70**	**252**	**322**
Existing Site Trips (Derived from Existing Traffic Counts)	378	38	12	50	4	36	40
Remaining Total Trips	**3,506**	**213**	**44**	**257**	**66**	**216**	**282**

Overview of TIS

Intersections examined:

1. Site Entrance A (Garrison Oak Drive East) / White Oak Road (Kent Road 66)
2. Site Entrance B (Garrison Oak Drive West) / White Oak Road
3. White Oak Road / Acorn Lane (Kent Road 342)
4. White Oak Road / Centre Drive / Upland Avenue

5. US Route 13 / White Oak Road / Kings Highway (Kent Road 66)
6. East Division Street (Kent Road 16) / Park Drive / Kings Highway
7. US Route 13 / Townsend Boulevard / Lakeview Drive
8. US Route 13 / Leipsic Road (Kent Road 88) / North State Street (Kent Road 3)

Conditions examined:

1. Case 1 – 2025 existing
2. Case 2 – 2027 without development
3. Case 3 – 2027 with development

Committed developments considered:

1. **Luther Village Phase 4:** 220 dwelling unit congregate care facility.
2. **The Edge at Dover (f.k.a. Dover Apartments):** 216 low-rise multifamily dwelling units.
3. **Rojan Meadows:** 20 single family detached houses and 111 low-rise multifamily dwelling units remain to be built.
4. **Raising Canes 1180 - Dover:** 3,364 square foot fast-food restaurant with drive-through window replaces existing 2,954 square foot high turnover sit down restaurant.
5. **JJ's Learning Experience:** 12,000 square feet child day care facility.
6. **Tidal Wave - Dover:** 3,910 square feet automated car wash facility with 24 vacuum parking spaces.

The committed development information contained within the TIS report supersedes the April 14, 2025, Scoping Meeting Memorandum. The above information is taken from the correspondence with the City of Dover on May 29, 2025. Based on May 30, 2025, correspondence from DelDOT, Estates of Verona Wood were removed as this development is almost built out and included in the growth factors instead. Bay Village committed development is also removed as this site has not been approved by both DelDOT and City of Dover at the time of completion of the TIS

Peak hours evaluated: Weekday morning and weekday evening peak hours.

Intersection Descriptions

1. **Site Entrance A (Garrison Oak Drive East) / White Oak Road (Kent Road 66)**
   Type of Control: Existing two-way stop-controlled (T-intersection).
   Eastbound Approach: (White Oak Road) Existing one shared left turn/through lane. Proposed one left turn lane and one through lane.
   Westbound Approach: (White Oak Road) Existing one shared through/right turn lane.
   Southbound Approach: (Site Entrance A) Existing one stop-controlled shared left turn/right turn lane.

2. **Site Entrance B (Garrison Oak Drive West) / White Oak Road**
   Type of Control: Existing two-way stop-controlled (T-intersection).
   Eastbound Approach: (White Oak Road) Existing one shared left turn/through lane. Proposed one left turn lane and one through lane.

Westbound Approach: (White Oak Road) Existing one shared through/right turn lane.
Southbound Approach: (Site Entrance B) Existing one stop-controlled shared left turn/right turn lane.

3. **White Oak Road / Acorn Lane (Kent Road 342)**
   Type of Control: Existing stop-controlled intersection (T-intersection).
   Eastbound Approach: (White Oak Road) Existing one shared through/right turn lane.
   Westbound Approach: (White Oak Road) Existing one shared left turn/through lane.
   Northbound Approach: (Acorn Lane) Existing one stop-controlled shared left turn/right turn lane.

4. **White Oak Road / Centre Drive / Upland Avenue**
   Type of Control: Existing four-legged signalized intersection.
   Eastbound Approach: (White Oak Road) Existing one left turn lane and one shared through/right turn lane.
   Westbound Approach: (White Oak Road) Existing one left turn lane, one through lane, and one right turn lane.
   Northbound Approach: (Upland Avenue) Existing one shared left turn/through/right turn lane.
   Southbound Approach: (Centre Drive) Existing one shared left turn/through lane and one right turn lane.

5. **US Route 13 / White Oak Road / Kings Highway (Kent Road 66)**
   Type of Control: Existing four-legged signalized intersection.
   Eastbound Approach: (Kings Highway) Existing one left turn lane and one shared left turn/through/right turn lane.
   Westbound Approach: (White Oak Road) Existing one left turn lane, one shared left turn/through lane, and one channelized right turn lane.
   Northbound Approach: (US Route 13) Existing one channelized left turn lane, two through lanes, and one shared through/right turn lane.
   Southbound Approach: (US Route 13) Existing one channelized left turn lane, two through lanes, and one shared through/right turn lane.

6. **East Division Street (Kent Road 16) / Park Drive / Kings Highway**
   Type of Control: Existing four-legged signalized intersection.
   Eastbound Approach: (East Division Street) Existing one left turn lane and one shared through/right turn lane.
   Westbound Approach: (East Division Street) Existing one left turn lane, one through lane, and one right turn lane.
   Northbound Approach: (Park Drive) Existing one left turn and one shared through/right turn lane.

Southbound Approach: (Kings Highway) Existing one shared left turn/through lane and one channelized right turn lane.

7. **US Route 13 / Townsend Boulevard / Lakeview Drive**
   Type of Control: Existing four-legged signalized intersection.
   Eastbound Approach: (Lakeview Drive) Existing one shared left turn/through lane and one right turn lane.
   Westbound Approach: (Townsend Boulevard) Existing one left turn lane, one shared left turn/through lane, and one channelized right turn lane.
   Northbound Approach: (US Route 13) Existing one left turn lane, three through lanes, and one channelized right turn lane.
   Southbound Approach: (US Route 13) Existing one left turn lane, two through lanes, and one shared through/right turn lane.

8. **US Route 13 / Leipsic Road (Kent Road 88) / North State Street (Kent Road 3)**
   Type of Control: Existing four-legged signalized intersection.
   Eastbound Approach: (North State Street) Existing two left turn lanes, one shared left turn/through lane, and one channelized right turn lane.
   Westbound Approach: (Leipsic Road) Existing two left turn lanes, one through lane, and one channelized right turn lane.**Northbound Approach:** (US Route 13) Existing one u-turn lane, three through lanes, and one channelized right turn lane.
   Southbound Approach: (US Route 13) Existing one left turn lane, three through lanes, and one channelized right turn lane.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, DART Routes 108, 109, 112, 120, 301, and Route 301 Local operate within the study area, with one bus stop along Leipsic Road, one along Townsend Boulevard, two along Kings Highway, four along East Division Street, two along Center Drive, and three along US Route 13.

Planned transit service: Per email correspondence from Mr. Bill Williamson, DART Fixed-Route Planner, on May 27, 2025, DART does not have any comments.

Existing bicycle and pedestrian facilities: Per DelDOT's Kent County Bicycle Map, several study roadways are considered bicycle routes. North State Street is considered a high-traffic Statewide bicycle route without a bikeway, whereas Leipsic Road is designated as a Statewide bicycle route with a bikeway. East Division Street is classified as a high-traffic Regional Bicycle Route without a bikeway. US Route 13 and part of White Oak Road are considered a high traffic Connector bicycle route with bikeway and the rest of the White Oak Road is without bikeway. US Route 13 and North State Street are noted on the bike map as particularly challenging for cyclists. Pedestrian crosswalks are provided along southbound US Route 13 to facilitate east-west crossings at the intersections with Leipsic Road, Townsend Road, and White Oak Road. At these

intersections, crosswalks are also present on westbound Leipsic Road, eastbound Lakeview Drive, westbound Townsend Road, eastbound Kings Highway, and westbound White Oak Road, allowing for north-south pedestrian movement. Furthermore, pedestrian crossings are available at the intersection of East Division Street and Kings Highway, along southbound Kings Highway, northbound Park Drive, and eastbound East Division Street. Crosswalks are also located along at the Center Drive and White Oak Road intersection. Pedestrian crossings are present at both the east and west entrances of Garrison Oak Drive.

Planned bicycle and pedestrian facilities: DelDOT sent an email to Mr. Anthony Aglio on May 21, 2025. A response has not yet been received.

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 frontages are summarized below. The Bicycle LTS was determined utilizing DelDOT's Gateway.

- White Oak Road: 3 and 4

Crash Evaluation

Per the crash data included in TIS from June 2022 to June 2025, provided by the Delaware Department of Transportation (DelDOT), a total of 218 crashes were reported within the study area. Of the 218 crashes reported, 157 crashes were property damage only, 60 crashes involved personal injury and 1 resulted in fatality.

A total of ten crashes were reported at the intersections of White Oak Road with Garrison Oak Drive East and Garrison Oak Drive West. Of these, four occurred after the curvature near the East intersection, while six took place before the curvature near the West intersection. Nine out of ten crashes did not involve two vehicles, and one was a front to rear crash. At the East intersection, three crashes involved roadway departure, and one involved a vehicle overturn, mostly due to driving under the influence (DUI) or improper driving; two of these four crashes resulted in personal injury. At the West intersection, four crashes involved roadway departure, one was the front to rear crash that occurred due to inattentive driving or speeding, and one involved an animal. Two of these six crashes also resulted in personal injury.

Two total crashes were reported at the White Oak Road/Acorn Lane intersection, including one angle crash and one not a collision between two vehicles. Both crashes involved personal injury.

Eight total crashes were reported at the White Oak Road/Center Drive/Upland Avenue intersection, including two front to rear, four angle, one pedestrian, and one sideswipe crash in the same direction. Two of the eight crashes involved personal injury.

59 total crashes were reported at the US Route 13/White Oak Road/Kings Highway intersection, including 24 front to rear, one rear to front, 16 angle, two pedestrian, three not between two vehicles, and 13 sideswipe crashes in the same direction. 14 crashes involved personal injury, and one crash involved pedestrian fatality.

15 total crashes were reported at the East Division Street/Park Drive/Kings Highway intersection, including three front to rear, three front to front, six angle, two pedestrian, and one sideswipe crash in the same direction. Three of the 15 crashes involved personal injury.

59 total crashes were reported at the US Route 13/Townsend Boulevard/Lakeview Drive intersection, including 35 front to rear, one front to front, eight angle, four not between two vehicles, and 11 sideswipe crashes in the same direction. Of the 59 crashes, 15 crashes involved personal injury.

65 total crashes were reported at the US Route 13/Leipsic Road/North State intersection, including 27 front to rear, two front to front, 17 angle, six not between two vehicles, 12 sideswipe crashes in the same direction and one other. 20 of the 65 crashes involved personal injury.

Previous Comments

No Comments.

Sight Distance Evaluation

No sight distance constraints were noted at the proposed locations of the site entrances per the field visit conducted on May 21, 2025.

General Synchro Analysis Comments

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

1) JMT used HCM 7th edition within Synchro 12 traffic analysis software to complete the analysis.

2) Per DelDOT's *Development Coordination Manual*, JMT utilized the future intersection PHF 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 used the existing PHF if higher.

3) JMT utilized the existing heavy vehicle percentage for each movement greater than 100 vph in the Case 1 - Existing analysis.

4) Per DelDOT's *Development Coordination Manual* and coordination with DelDOT, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways in the analysis.

5) JMT assumed a heavy vehicle percentage of 5% for the future proposed site traffic at the site entrances to account for the industrial nature of the proposed site during the Case 3 future scenario analysis.

6) Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in Case 2 and Case 3 future scenario analysis, 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 the analysis of future scenarios.

7) JMT utilized an ideal saturation flow rate of 1900 vehicles/hour/lane in all analysis scenarios at any signalized study intersections along US Route 13. An ideal saturation flow rate of 1,750 vehicles/hour/lane was utilized for the other signalized intersection in all analysis scenarios.

Table 2
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per JMT**	
1 - Site Entrance A (Garrison Oak Drive East) / White Oak Road (Kent Road 66)	Weekday AM[2]	Weekday PM
Case 1 – 2025 Existing		
Eastbound White Oak Road Left Turn	A (7.4)	A (7.4)
Southbound Site Entrance A Approach	A (8.8)	A (8.7)
Case 2 – 2027 without Development		
Eastbound White Oak Road Left Turn	A (7.4)	A (7.4)
Southbound Site Entrance A Approach	A (8.8)	A (8.7)
Case 3 – 2027 with Development[3]		
Eastbound White Oak Road Left Turn	A (7.7)	A (7.5)
Southbound Site Entrance A Approach	A (9.1)	A (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 analysis purposes, the 1 westbound White Oak Road u-turn movement during the AM peak hour period was omitted.
[3] The eastbound White Oak Road approach was modeled as one left turn lane and one through lane, consistent with the auxiliary lane worksheet.

Table 3
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per JMT**	
2 - Site Entrance B (Garrison Oak Drive West) / White Oak Road (Kent Road 66)	Weekday AM	Weekday PM
Case 1 – 2025 Existing		
Eastbound White Oak Road Left Turn	A (7.5)	A (7.4)
Southbound Site Entrance B Approach	A (8.7)	A (9.0)
Case 2 – 2027 without Development		
Eastbound White Oak Road Left Turn	A (7.5)	A (7.4)
Southbound Site Entrance B Approach	A (8.8)	A (9.0)
Case 3 – 2027 with Development[3]		
Eastbound White Oak Road Left Turn	A (7.8)	A (7.8)
Southbound Site Entrance B Approach	A (9.2)	B (10.9)

Table 4
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per JMT**	
3 – White Oak Road / Acorn Lane (Kent Road 342)	Weekday AM	Weekday PM
Case 1 – 2025 Existing		
Westbound White Oak Road Left Turn	A (7.5)	A (7.6)
Northbound Acorn Lane Approach	A (9.6)	B (10.4)
Case 2 – 2027 without Development		
Westbound White Oak Road Left Turn	A (7.5)	A (7.7)
Northbound Acorn Lane Approach	A (9.9)	B (10.8)
Case 3 – 2027 with Development		
Westbound White Oak Road Left Turn	A (8.0)	A (7.9)
Northbound Acorn Lane Approach	B (12.1)	B (13.9)

Table 5
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Signalized[1]	**LOS per JMT**	
4 – White Oak Road / Centre Drive / Upland Avenue[4, 5]	Weekday AM	Weekday PM
Case 1 – 2025 Existing	A (9.8)	B (10.4)
Case 1 – 2025 Existing *with signal optimization*[6]	A (9.8)	B (10.4)
Case 2 – 2027 without Development *with signal optimization*[6]	B (11.1)	B (11.6)
Case 3 – 2027 with Development *with signal optimization*[6]	B (11.6)	B (12.2)

[4] Arrival type 4 was used for the eastbound approach due to the proximity of a nearby upstream signal (US Route 13 / White Oak Road / Kings Highway intersection)
[5] JMT modeled the intersection as an existing 24-hour free signal with a 150 second cycle length using the Max 1 Green times.
[6] Signal optimization scenario includes optimizing green split times while maintaining the 150 second cycle length.

Table 6
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Signalized[1]	**LOS per JMT**	
5 – US Route 13 / White Oak Road / Kings Highway (Kent Road 66)[7,8]	Weekday AM	Weekday PM
Case 1 – 2025 Existing	B (16.2)	C (23.0)
Case 1 – 2025 Existing *with signal optimization*[6]	B (16.0)	C (22.9)
Case 2 – 2027 without Development *with signal optimization*[6]	B (18.2)	C (26.6)
Case 3 – 2027 with Development *with signal optimization*[6]	C (23.1)	C (31.7)

[7] Arrival type 4 was used for all approaches due to proximity of nearby upstream signals. For the eastbound approach, the nearby upstream signal is the East Division Street / Park Drive / Kings Highway intersection. For the westbound approach, the nearby upstream signal is the White Oak Road / Centre Drive / Upland Avenue intersection. For the northbound approach, the nearby upstream signal is the US Route 13 / East Division Street intersection. For the southbound approach, the nearby upstream signal is the US Route 13 / Centre Drive intersection.
[8] JMT modeled the intersection as a signalized intersection with split phasing using the existing cycle length of 150 seconds for both the AM and PM peak hour with the northbound and southbound US Route 13 left turns controlled by a flashing red arrow.

Table 7
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Signalized[1]	**LOS per JMT**	
6 – East Division Street (Kent Road 16) / Park Drive / Kings Highway[9,10]	Weekday AM	Weekday PM
Case 1 – 2025 Existing	A (6.0)	A (7.6)
Case 1 – 2025 Existing *with signal optimization*[6]	A (6.0)	A (7.6)
Case 2 – 2027 without Development *with signal optimization*[6]	A (5.9)	A (7.6)
Case 3 – 2027 with Development *with signal optimization*[6]	A (6.1)	A (7.6)

[9] Arrival type 4 was used for the eastbound, westbound, and southbound approaches due to proximity of nearby upstream signals. For the eastbound approach, the nearby upstream signal is the East Division Street / Kent Avenue intersection. For the westbound approach, the nearby upstream signal is the US Route 13 / East Division Street intersection. For the southbound approach, the nearby upstream signal is the US Route 13 / White Oak Road / Kings Highway intersection.

[10] JMT modeled the intersection as a signalized intersection with concurrent phasing using a cycle length of 90 seconds for both the AM and PM peak hour with the eastbound and westbound East Division Street left turns controlled by a protected-permitted phase.

Table 8
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Signalized[1]	**LOS per JMT**	
7 – US Route 13 / Townsend Boulevard / Lakeview Drive[11,12]	Weekday AM	Weekday PM
Case 1 – 2025 Existing	A (8.8)	B (11.7)
Case 1 – 2025 Existing *with signal optimization*[6]	A (8.8)	B (11.5)
Case 2 – 2027 without Development *with signal optimization*[6]	A (8.4)	B (11.4)
Case 3 – 2027 with Development *with signal optimization*[6]	A (8.2)	B (11.3)

[11] Arrival type 4 was used for the northbound and southbound approaches due to proximity of nearby upstream signals. For the northbound approach, the nearby upstream signal is the US Route 13 / Centre Drive intersection. For the southbound approach, the nearby upstream signal is the US Route 13 / Lepore Road intersection.
[12] JMT modeled the intersection as a signalized intersection with split phasing using a cycle length of 150 seconds for both the AM and PM peak hour with the northbound and southbound US Route 13 left turns controlled by a protected phase.

Table 9
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Garrison Oak Technical Park
Report Dated: July 2025
Prepared by: JMT

Signalized[1]	**LOS per JMT**	
8 – US Route 13 / Leipsic Road (Kent Road 88) / North State Street (Kent Road 3)[13][14]	Weekday AM	Weekday PM
Case 1 – 2025 Existing	B (16.2)	C (20.0)
Case 1 – 2025 Existing *with signal optimization*[6]	B (16.2)	B (19.9)
Case 2 – 2027 without Development *with signal optimization*[6]	B (17.5)	C (21.5)
Case 3 – 2027 with Development *with signal optimization*[6]	B (17.1)	C (21.4)

[13] Arrival type 4 was used for the northbound and southbound approaches due to proximity of nearby upstream signals. For the northbound approach, the nearby upstream signal is the US Route 13 / Lepore Road intersection. For the southbound approach, the nearby upstream signal is the US Route 13 / College Road intersection.
[14] JMT modeled the intersection as a signalized intersection with split phasing using a cycle length of 150 seconds for both the AM and PM peak hour with the southbound US Route 13 left turns controlled by a protected phase. JMT modeled the northbound US Route 13 u-turns as permitted-only turns to be conservative