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

JENNIFER COHAN
SECRETARY

October 25, 2016

Betty Tustin
The Traffic Group, Inc.
104 Kenwood Court
Berlin, MD 21811

Dear Ms. Tustin:

The enclosed Traffic Impact Study (TIS) review letter for the **TLBT Dover** commercial development (Tax Parcels 2-05-068.00-01-20.00-00001, 21.00-00001, 22.00-00001, 23.00-00001, 24.00-00001, 25.00-00001) 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 review letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2167.

Sincerely,

Troy Brestel
Project Engineer

TEB:km
Enclosures
cc with enclosures: Mr. David Kuklish, Bohler Engineering, Inc.
Ms. Ann Marie Townshend, City of Dover
Mr. Mir Wahed, Johnson, Mirmiran & Thompson, Inc.
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc.
DelDOT Distribution

DelDOT

DelDOT Distribution

Ms. Annie Cordo, Deputy Attorney General
Mr. Robert McCleary, Director, Transportation Solutions (DOTS)
Mr. Drew Boyce, Director, Planning
Mr. Mark Luszcz, Chief Traffic Engineer, Traffic, DOTS
Mr. Michael Simmons, Assistant Director, Project Development South, DOTS
Mr. J. Marc Coté, Assistant Director, Development Coordination
Mr. T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Mr. Peter Haag, Traffic Studies Manager, Traffic, DOTS
Mr. Adam Weiser, Safety Engineer, Traffic, DOTS
Mr. David Dooley, Service Development Planner, Delaware Transit Corporation
Mr. Anthony Aglio, Planning Supervisor, Statewide & Regional Planning
Ms. Donna Robinson, Administrative Assistant, Statewide & Regional Planning
Mr. Mark Galipo, Traffic Engineer, Traffic, DOTS
Ms. Wendy Polasko, Kent County Subdivision Coordinator, Development Coordination
Mr. Jonathan Moore, Subdivision Manager, Development Coordination
Mr. Claudy Joinville, Project Engineer, Development Coordination

Engineering A Brighter Future®

October 24, 2016

Mr. Troy Brestel
Project Engineer
Development Coordination
DelDOT Division of Planning
P O Box 778
Dover, DE 19903

RE: Agreement No. 1654
Project Number T201469011
Traffic Impact Study Services
Task 13A-TLBT, LLC Dover

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Traffic Impact Study (TIS) for TLBT, LLC Dover, prepared by The Traffic Group. This review was assigned Task Number 13A. The Traffic Group prepared the report in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed 36,185 square foot grocery store on the southwest corner of the intersection of US Route 13 (Kent Road 7) and Kings Highway (Kent Road 66) in the City of Dover. The retail development is proposed on a 6.68-acre parcel of land that is zoned C-4 (Commercial). Access to the development will be provided via three proposed entrances; one rights-in/rights-out access point along US Route 13, one full access point along Kings Highway, and one full access point along Maple Parkway. Construction is expected to be completed in 2018.

DelDOT currently has six relevant work efforts within the study area: the 2010 Hazard Elimination Program (HEP) Site DD along Kings Highway/White Oak Road; the 2012 HEP Site S along SR 8/Forrest Avenue/Division Street; the 2012 HEP Site CC along Forest Street/Loockerman Street; Phase 3 of the *Statewide Divided Highway Safety Study* (Contract #T200950017); the *Statewide Horizontal Curve Safety* study (Contract #T200950017); and the *Senator Bikeway Project* along Division Street. Descriptions of these work efforts are appended to this letter.

Based on our review of the Traffic Impact Study, we have the following comments and recommendations:

None of the intersections within the study area experience level of service (LOS) deficiencies in the existing scenario, nor are they anticipated to experience LOS deficiencies in 2018 with or without the TLBT, LLC Dover development. However, the following intersections would have long 95th percentile queue lengths that would exceed available storage lengths without the implementation of physical roadway and/or traffic control improvements:

Intersection	*Approach Movement*	*Storage Length**	*2018 Case 2 Queues*		*2018 Case 3 Queues*	
			PM	*Saturday*	*PM*	*Saturday*
US Route 13/ Kings Highway/ White Oak Road	Eastbound Kings Highway Left	130 feet	225 feet	240 feet	245 feet	270 feet
US Route 13/ Loockerman Street	Eastbound Loockerman Street Left	180 feet	250 feet	-	250 feet	-
US Route 13/ Loockerman Street	Southbound US Route 13 Left	170 feet	250 feet	300 feet	250 feet	305 feet

* - Storage lengths exclude taper lengths

Intersection	*Approach Movement*	*Storage Length**	*2018 Case 2 Queues*		*2018 Case 3 Queues*	
			AM	*PM*	*AM*	*PM*
US Route 13/ Division Street/ North Little Creek Road	Eastbound Division Street Right	130 feet	180 feet	225 feet	180 feet	230 feet
US Route 13/ Division Street/ North Little Creek Road	Westbound North Little Creek Road Left	130 feet	220 feet	165 feet	220 feet	165 feet

* - Storage lengths exclude taper lengths

Queuing issues exist at all three signalized intersections along US Route 13 (Kings Highway/White Oak Road, Division Street/North Little Creek Road, and Loockerman Street) and traffic entering and exiting from the proposed grocery store will increase those queue lengths in the Case 3 conditions. The proposed grocery store traffic will have the most impact at the US Route 13/Kings Highway/White Oak Road intersection. Therefore, we recommend the developer's efforts be focused at this intersection.

As outlined in the revised scoping memorandum by DelDOT dated March 11, 2016, the proposed full movement Site Driveway location along Kings Highway is contingent on the projected queue lengths along the eastbound Kings Highway approach to the US Route 13 traffic signal. The Kings Highway eastbound approach to US Route 13 is currently configured with a separate left turn lane and a shared through/left/right turn lane. Although the left turn lane is striped for 130 feet of storage, the Kings Highway eastbound approach is wide enough (22 feet) to provide two approach lanes from the Luther Towers driveway to US Route 13, which is approximately 330 feet. If the Case 3 queue lengths extend past the Luther Towers driveway, the need to align the proposed site entrance with either South Lakeview Drive or Lewis Mill Drive would be included as part of the analysis. However, based on the projected future 2018 queue lengths (Case 3) along the eastbound approach of Kings Highway to US Route 13, queues are not projected to extend past the Luther Towers driveway.

Based on the TLBT, LLC Dover site layout and the vacant parcel of land to the west, there appears to be a potential development on the adjacent vacant lot. DelDOT encourages interconnection between properties with minimal access points on the roadway network. Therefore, the ideal location for the full movement Site Driveway location along Kings Highway would be opposite South Lakeview Drive, as this location would consolidate access driveways along Kings Highway and provide interconnection between the two properties.

However, as the site is currently configured, without direct access to South Lakeview Drive, it is recommended that the Site Driveway along Kings Highway be constructed opposite the Luther Towers driveway to form a full movement unsignalized intersection. Figure 1 outlines the proposed layout of Kings Highway from South Lakeview Drive to US Route 13. Based on discussions with DelDOT, a separate left turn lane and a shared through/right turn lane should be provided along the eastbound and westbound Kings Highway approaches to the Site Driveway. Restriping along the eastbound Kings Highway approach to US Route 13 will be needed to accommodate the left turn lane into the Site Driveway. Therefore, as part of the Entrance Plan design, the developer should submit a plan depicting the relocated site entrance and the resulting impacts to Kings Highway, including additional right-of-way acquisition. Based on the Case 3 scenario, it is expected that the calculated 95th percentile queue lengths would not extend past the Luther Towers driveway, as outlined below:

Intersection	***Approach Movement***	***Existing Storage (including taper)***	***Proposed Storage (including taper)***	***2018 Case 3 Queues***		
				AM	***PM***	***Saturday***
US Route 13/ Kings Highway/ White Oak Road	Eastbound Kings Highway Left	190 feet	275 feet	135 feet	245 feet	270 feet
	Eastbound Kings Highway Shared Through/Left/Right	330 feet	330 feet	215 feet	315 feet	240 feet

It should be noted that a 50-foot shared taper is recommended (instead of a 100-foot taper as outlined in DelDOT's *Development Coordination Manual*) for the Kings Highway eastbound left turn lane at US Route 13 and the Kings Highway westbound left turn at the Site Entrance/Luther Towers driveway intersection. This taper length is recommended due to the short distance between the Site Entrance/Luther Towers driveway and US Route 13 intersection, low posted speed limit along Kings Highway (25 mph), and the proposed design of the back-to-back left turn lanes.

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. 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.

1. The developer should provide a bituminous concrete overlay, as needed, due to changes in striping to the southbound US Route 13 right turn lane along the site frontage from Kings Highway to the Site Driveway, at DelDOT's discretion. DelDOT should analyze the

existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

2. The developer should provide a bituminous concrete overlay, as needed, to the Kings Highway existing travel lanes along the site frontage from the Luther Towers driveway to US Route 13, at DelDOT's discretion. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer, if necessary.

3. The developer should construct a rights-in/rights-out only Site Driveway for the proposed TLBT, LLC Dover development on US Route 13 (as shown in the Site Map on page 10), approximately 300 feet south of the Kings Highway/White Horse Road and US Route 13 intersection, to be consistent with the proposed lane configurations as shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance A	Approach does not exist	One right turn lane
Southbound US Route 13	Three through lanes	Three through lanes and one right turn lane

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) is 190 feet for the southbound US Route 13 right turn lane. The storage lengths based on the HCS analysis provide shorter queue lengths than what is reported here.

4. The developer should consider interconnection between the proposed TLBT, LLC Dover development and the vacant parcel of land to the west.

5. The developer should consider a single access driveway along Kings Highway opposite South Lakeview Drive, which would consolidate multiple driveway locations for the TLBT, LLC Dover development and the vacant parcel of land to the west. Barring issues with this single access scenario, the developer should construct a full movement Site Driveway for the proposed TLBT, LLC Dover development on Kings Highway (as shown in the Site Map on page 10), opposite the Luther Towers driveway, approximately 385 feet west of US Route 13, to be consistent with the proposed lane configurations as shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Kings Highway	One shared through/left turn lane	One left turn lane and one shared through/right turn lane
Westbound Kings Highway	One shared through/right turn lane	One left turn lane and one shared through/right turn lane
Northbound Site Entrance B	Approach does not exist	One shared through/left/right turn lane
Southbound Luther Towers driveway	One shared left/right turn lane	One shared through/left/right turn lane

Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) is 50 feet for the eastbound and westbound Kings Highway left turn lanes. The storage lengths based on the HCS analysis provide shorter queue lengths than what is reported here.

6. The developer should restripe the existing eastbound Kings Highway approach to US Route 13 to accommodate the westbound left turn lane along Kings Highway at the Site Entrance. The developer should submit a plan and coordinate with DelDOT's Development Coordination Section to specifically identify the restriping needed along Kings Highway and any necessary additional right-of-way.

7. The developer should construct a full movement Site Driveway for the proposed TLBT, LLC Dover development on Maple Parkway (as shown in the Site Map on page 10), approximately 145 feet west of US Route 13, to be consistent with the proposed lane configurations as shown in the table below:

Approach	Current Configuration	Proposed Configuration
Eastbound Maple Parkway	One shared through/left turn lane	No Change
Westbound Maple Parkway	One shared through/right turn lane	No Change
Southbound Site Driveway C	One shared left/right turn lane (Wells Fargo Bank)	One shared left/right turn lane

Based on the March 18, 2016 Site Plan from Bohler Engineering, the Wells Fargo Bank driveway will tie-in to the proposed TLBT, LLC Dover Site Entrance north of Maple Parkway. As potential grade issues may exist with this proposed site entrance, the developer should coordinate with DelDOT regarding the final design of the Maple Parkway/Site Driveway intersection.

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

    a. A five-foot wide ADA compliant sidewalk with a five-foot setback from the roadway should be constructed (and maintained) along the US Route 13 site frontage. The sidewalk should be within a fifteen-foot wide dedicated permanent easement to DelDOT and/or State right of way. If feasible, the sidewalk should be placed behind utility poles and street trees should be provided within the buffer area.
    b. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Kings Highway site frontage. Within this easement, the developer should construct a ten-foot wide shared-use path that meets current AASHTO and ADA standards. A minimum five-foot setback should be maintained from the edge of the pavement to the shared-use path. If feasible, the shared-use path should be placed behind utility poles and street trees should be provided within the buffer area.
    c. ADA compliant curb ramps and marked crosswalks should be provided at the site entrance locations along US Route 13, Kings Highway, and Maple Parkway. The use of diagonal curb ramps is discouraged.
    d. For the proposed right turn lane along southbound US Route 13, the five-foot wide bike lane should be maintained through the right turn lane in order to facilitate safe and unimpeded bicycle travel. A RIGHT TURN YIELD TO BIKES sign (*DE MUTCD* R4-4) should be added before the start of each right turn lane.
    e. Utility covers should be moved outside of any bike lanes and paved shoulders or should be flush with the pavement.
    f. Sidewalk connection should be provided along the north, south, and west sides of the proposed building to connect with the proposed ten-foot wide shared use path on Kings Highway, sidewalk along Maple Parkway, and vacant land, respectively.
    g. Bike parking racks should be provided near the building entrances. Where the building architecture provides for an awning or other overhang, the bike parking should be covered.
    h. Provide interconnection with the existing property on the southwest corner of the US Route 13 and Kings Highway/White Oak Road intersection, adjacent property to the west, and the Wells Fargo Bank on the northwest corner of the US Route 13 and Maple Parkway intersection.
    i. The developer should coordinate with DART to install an ADA compliant bus stop along the US Route 13 site frontage with a pedestrian pathway to the entrance of the grocery store. A concrete pad (five-foot by eight-foot) large enough to accommodate a future DART bus shelter should also be included.
    j. ADA compliant curb ramps and marked crosswalks should be provided from the sidewalk east of the proposed building to US Route 13, including any concrete island connections.
    k. Coordinate with the City of Dover and DelDOT regarding the Senator Bikeway Project.

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 subdivision review process.

Improvements in this TOA may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at http://www.deldot.gov/information/pubs_forms/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Adam Weiser of DelDOT's Traffic Section. Mr. Weiser can be reached at (302) 659-4073 or by email at Adam.Weiser@state.de.us.

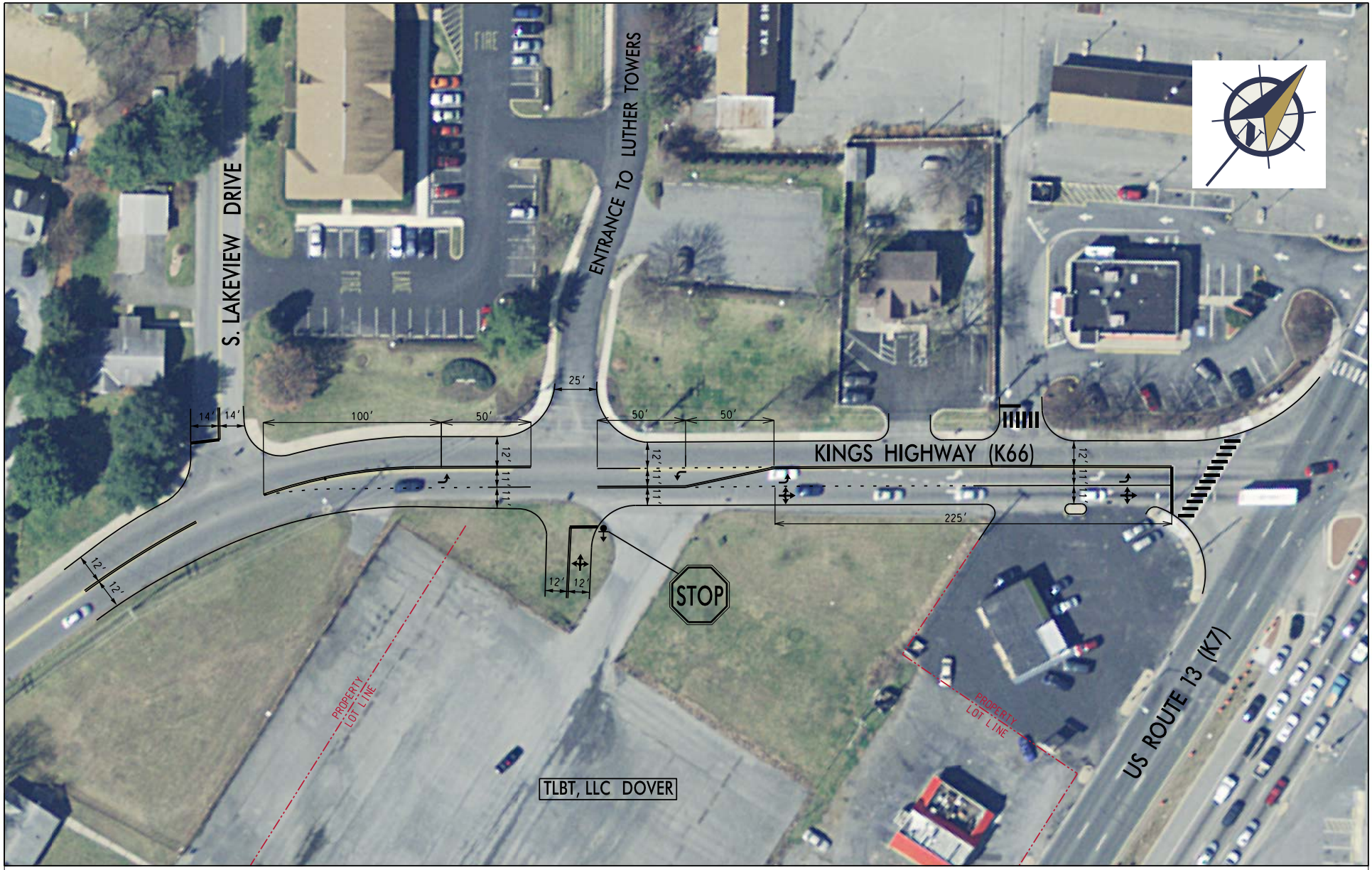
Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Mir Wahed, P.E., PTOE

cc: Joanne Arellano, P.E., PTOE

Enclosure



JMT CONCEPTUAL SKETCH

JMT	TLBT, LLC DOVER TRAFFIC IMPACT STUDY CITY OF DOVER, KENT COUNTY, DELAWARE	
N.T.S	FIGURE 1	OCTOBER, 2016

General Information

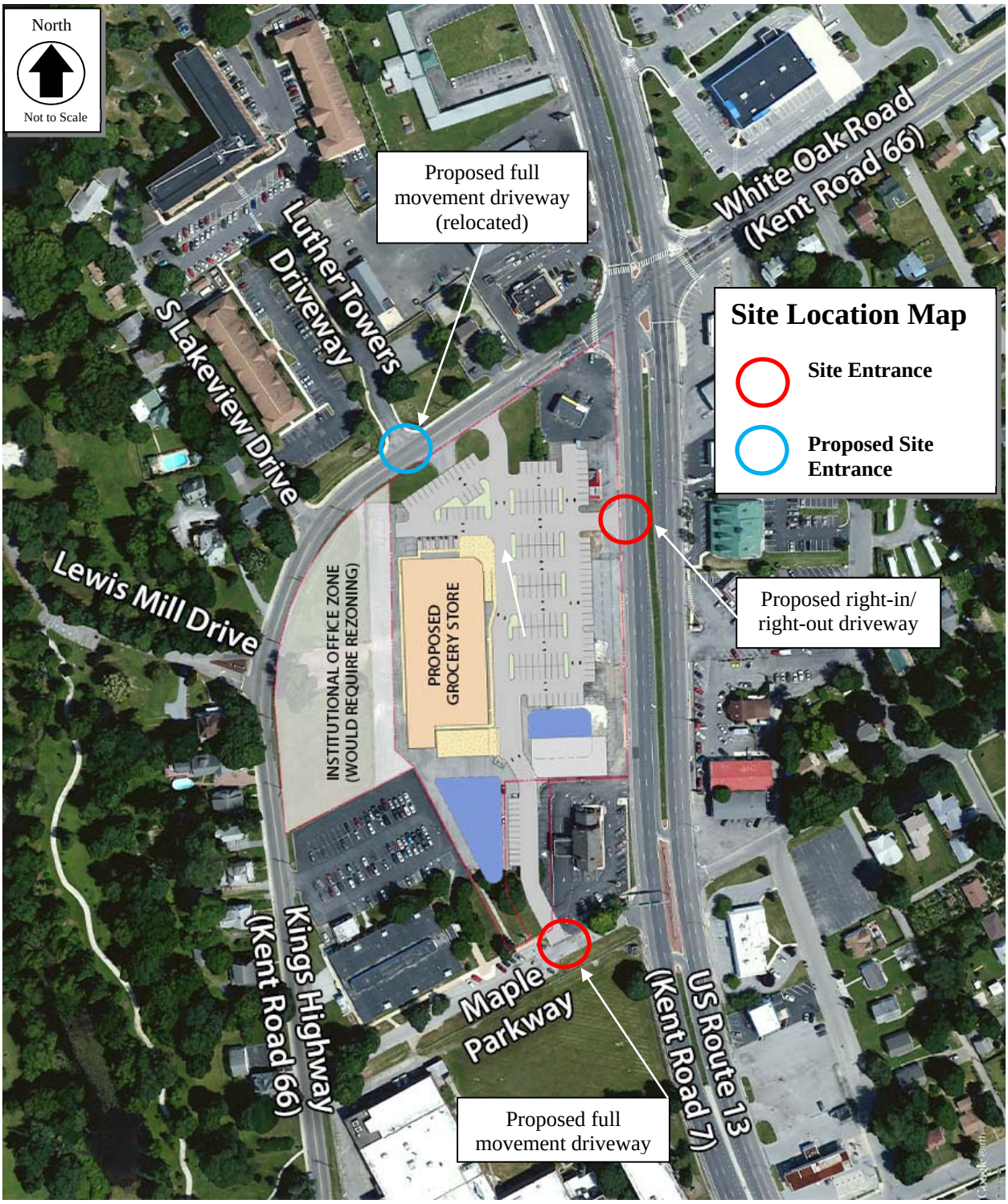
Report date: June 16, 2016
Prepared by: The Traffic Group
Prepared for: Bohler Engineering
Tax Parcel: 2-05-068.00-01-20.00-00001, 21.00-00001, 22.00-00001, 23.00-00001, 24.00-00001, 25.00-00001
Generally consistent with DelDOT's *Development Coordination Manual*: Yes.

Project Description and Background

Description: The proposed development will consist of a 36,185 square foot grocery store.
Location: The subject site is located on the southwest corner of the intersection of US Route 13 (Kent Road 7) and Kings Highway (Kent Road 66) in the City of Dover.
Amount of Land to be developed: The proposed development is on a 6.68-acre assemblage of parcels.
Land Use approval(s) needed: Entrance Plan.
Proposed completion date: 2018.
Proposed access locations: One rights-in/rights-out access point along US Route 13, one full access point along Kings Highway, and one full access point along Maple Parkway.
Daily Traffic Volumes:

- 2015 Average Annual Daily Traffic US Route 13: 42,895 vehicles per day.
- 2015 Average Annual Daily Traffic on Kings Highway: 6,452 vehicles per day.
- 2016 Average Annual Daily Traffic on Maple Parkway: 570 vehicles per day.

Site Map



**Graphic is an approximation based on the Site Plan prepared by Bohler Engineering dated March 18, 2016.*

Relevant and On-going Projects

DelDOT currently has six relevant work efforts within the study area: the 2010 Hazard Elimination Program (HEP) Site DD along Kings Highway/White Oak Road; the 2012 HEP Site S along SR 8/Forrest Avenue/Division Street; the 2012 HEP Site CC along Forest Street/Loockerman Street; Phase 3 of the *Statewide Divided Highway Safety Study* (Contract #T200950017); the *Statewide Horizontal Curve Safety* study (Contract #T200950017); and the *Senator Bikeway Project* along Division Street.

DelDOT's 2010 HEP identified one location within the project area. The 2010 HEP Site DD is a 0.39-mile corridor located along Kings Highway/White Oak Road from 0.20-mile west of US Route 13 to 0.03-mile east of Upland Avenue. The Site DD Task I report included a crash summary, ball bank summary, as well as a review of the Kings Highway/White Oak Road corridor including the intersections of Lewis Mill Drive, Lakeview Drive, and US Route 13. The report recommended remedial improvements at the US Route 13 and Kings Highway/White Oak Road intersection to include the installation of pedestrian signals and crosswalks on the east (White Oak Road) and west (Kings Highway) legs of the intersection. Remedial signage improvements at the US Route 13 and Kings Highway/White Oak Road intersection include Signal Ahead signs with supplemental street name plaques, Turn Lane, Keep Right, and upgrade to a 48-inch Yield sign on the westbound White Oak Road approach in compliance with the *Delaware Manual on Uniform Traffic Control Devices (DE MUTCD)* as well as various striping improvements at the intersection including stop lines, pavement marking arrows, turning tracks, and piano key crosswalk pavement markings. In addition, Stop sign upgrades as well as various striping improvements were included along Kings Highway from Lewis Mill Drive to US Route 13. Field observations noted the majority of these signage and striping improvements were implemented except for the Signal Ahead sign upgrades to 48"x48" along northbound US Route 13 to Kings Highway/White Oak Road and the installation of a Stop sign (36"x36") and double yellow centerline on Luther Tower driveway.

DelDOT's 2012 HEP identified two locations within the project area. The 2012 HEP Site S is a 2.37-mile corridor located along SR 8/Forrest Avenue/Division Street from 0.02-mile east of Heatherfield Way to Kings Highway. The Site S Task I report included a crash summary as well as a review of signalized and unsignalized intersections along the corridor including the unsignalized intersection of Division Street and Kings Highway. Remedial improvements at the unsignalized intersection of Kings Highway and Division Street include the replacement of the 30-inch Stop sign with a 36-inch Stop sign along with upgrading the corresponding street blades to 6-inch upper-case/lower case legends for the northbound Kings Highway approach. Field visits confirm the signage improvements have been implemented.

The 2012 HEP Site CC is a 1.08-mile corridor located along Forest Street/Loockerman Street from 0.02 mile west of South West Street to US Route 13. The Site CC Task I report included a crash summary as well as a review of signalized and unsignalized intersections along the corridor, including the signalized intersection of US Route 13 and Loockerman Street. Signage improvements include Advance Intersection Lane Control, Signal Ahead warning signs with Advance Street Names, and Traffic Signal Photo Enforcement signs. Field visits confirm that most of these signage improvements have not yet been implemented. In addition, pavement marking improvements including the addition of a right turn arrow to the westbound Loockerman Street

approach to US Route 13 and the removal of the stop line provided for the eastbound Loockerman Street right turn movement onto southbound US Route 13. Field visits confirm these pavement marking improvements have been implemented. Other improvements as part of this Task I report include trimming trees blocking the signs on eastbound Loockerman Street approaching US Route 13 and consolidating driveways at the Comfort Inn/TGI Fridays along Loockerman Street. Field visits confirm these improvements have been implemented.

Phase 3 of the *Statewide Divided Highway Safety Study* (Contract #T2000950017) is designed to improve safety along divided highways throughout Delaware. As part of the study, signing and striping were evaluated at signalized intersections along divided highways within the state roadway network per the *DE MUTCD* standards. US Route 13 was evaluated as part of this study, which included the signalized intersections of US Route 13 with Kings Highway, Division Street, and Loockerman Street. Recommendations as part of this study include signage improvements (Divided Highway, Do Not Enter, Wrong Way, Signal Ahead, One Way, Yield, Speed Limit, Traffic Signal Photo Enforced, Advanced Street Name plaques, etc.) following *DE MUTCD* specifications. In addition, striping improvements are recommended to replace the faded turn arrows on the eastbound approach of Division Street to US Route 13. As this is an ongoing project, the above improvements have not been implemented.

The *Statewide Horizontal Curve Safety* study (Contract #T200950017) is designed to improve safety along horizontal curves for all roadway classifications throughout Delaware. As part of this study, all the horizontal curve locations are evaluated per the *DE MUTCD* standards. Improvements are recommended based on ball bank studies of each horizontal curve with proper signage and spacing based on Figure 2C-2 and Tables 2C-5 and 2C-6 of the *DE MUTCD*. Horizontal curves are slated for review and recommendations along US Route 13, Division Street, and Loockerman Street. Currently, this project is in the design stages in relation to these study locations.

The *Senator Bikeway Project* is for the design of bicycle facilities outlined in the City of Dover's Bicycle Plan. The project corridor begins at Dover High School along Delaware Route 8 and across US Route 13 to North Edgehill Avenue. Alternative alignments along Fulton Street and Delaware Avenue are also being considered. A ten-foot wide shared-use path is proposed along each side of Delaware Route 8 from the Dover High School to Mifflin Road. A ten-foot wide shared-use path is proposed along the south side of Delaware Route 8 from Mifflin Road to Saulsbury Road. The path then moves to the north side of Delaware Route 8 from Saulsbury Road to Weston Drive. A five-foot wide sidewalk with bicycle facilities is proposed from Weston Drive to West Street. The bicycle facilities would require the removal of some on-street parking. Along the west side of West Street from Delaware Route 8 to Fulton Street is a proposed ten-foot wide shared-use path. A bicycle boulevard is being proposed along Fulton Street from West Street to State Street. Along the north side of Delaware Avenue from State Street to Pennsylvania Avenue a five-foot wide sidewalk is proposed. Continuing along the north side of Delaware Avenue, a ten-foot wide shared-use path is proposed along the Dover Central Middle School which will connect at the existing bridge within Silver Lake Park. Then a ten-foot wide shared-use path is proposed from the entrance into Silver Lake Park to US Route 13.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2015)

Location with respect to the Strategies for State Policies and Spending Map of Delaware: The proposed development is located within the Investment Level 1 area.

Investment Level 1

These areas are often municipalities, towns, or urban/urbanizing places in counties where density is generally higher than in surrounding areas. In 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. Overall, it is the state's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in Investment Level 1 Areas.

In Level 1 Areas the state's first priority will be for preserving existing facilities and making safety improvements. Level 1 areas will also be the highest priority for context sensitive transportation system capacity enhancements, transit-system enhancements, ADA accessibility, and for closing gaps in the pedestrian system, including the Safe Routes to School projects. Further, Level 1 areas are the first priority for planning projects and studies, bicycle facilities, signal-system enhancements, and the promotion of interconnectivity between neighborhoods and public facilities.

Proposed Development's Compatibility with Livable Delaware:

The proposed development is located in Investment Level 1 area. According to Livable Delaware, Level 1 focuses on new or expansion of economic development projects located in these areas. Therefore, the proposed development is generally consistent with the 2015 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans
(Source: City of Dover, 2008 Comprehensive Plan)

City of Dover Comprehensive Plan:

According to the City of Dover Comprehensive Plan, the subject property is currently zoned as Commercial land use and located in a Development area.

Proposed Development's Compatibility with the City of Dover Comprehensive Plan:

Per the City of Dover's Comprehensive Plan, expansion of tourism and commercial retail sectors is vital to city's economic development. Dover has an opportunity to further promote itself as a "tax free shopping and dining" destination. Furthermore, the City of Dover's goal is to maintain and improve the City's position as a regional commercial center, while providing its citizens convenient access to needed goods and services through well designed and spaced community and

neighborhood commercial centers. As such, the development is generally compatible with the City of Dover Comprehensive Plan.

Trip Generation

As per the TIS, the trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 9th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 850 (Supermarket).

The peak period trip generation for the proposed development is included in Table 1.

Table 1
TLBT, LLC Dover Development

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
36,185 Square Feet Supermarket	3,700	76	47	123	175	168	343	196	189	385
Pass-By Trips		0	0	0	63	60	123	0	0	0
Net New Trips		76	47	123	112	108	220	196	189	385

Overview of TIS

Intersections examined:

1. Site Entrance A / US Route 13 (Kent Road 7)
2. Site Entrance B / Kings Highway (Kent Road 66)
3. Site Entrance C / Maple Parkway
4. Kings Highway / Maple Parkway
5. US Route 13 / Division Street / North Little Creek Road (Kent Road 16)
6. US Route 13 / Loockerman Street
7. US Route 13 / Kings Highway / White Oak Road (Kent Road 66)
8. Kings Highway / South Lakeview Drive (City of Dover)
9. Kings Highway / Lewis Mill Drive (City of Dover)
10. Kings Highway / Division Street / Park Drive
11. Kings Highway (Kent Road 16) / Division Street

Note: Per the first revised scoping letter dated March 11, 2016, the City of Dover intersections of Kings Highway and South Lakeview Drive and Kings Highway and Lewis Mill Drive will only be included in the TIS if queuing along Kings Highway reveals the need to align the proposed site entrance with either South Lakeview Drive or Lewis Mill Drive.

Conditions examined:

1. Case 1 – 2016 Existing conditions
2. Case 2 – 2018 No Build conditions without TLBT, LLC Dover development
3. Case 3 – 2018 Build conditions with TLBT, LLC Dover development

Peak hours evaluated: Weekday morning, weekday evening, and Saturday midday peak hours.

Committed Developments considered:

1. Watertower Place (5,030 square feet fast-food restaurant, 6,400 square feet high-turnover sit-down restaurant, 24,420 square feet retail space)

   Note: This committed development expired on April 30, 2016 and no application has been submitted with the City of Dover to extend this approval. Therefore, this committed development has been excluded from the Case 2 and Case 3 volumes.

Intersection Descriptions

1. **Site Entrance A / US Route 13 (Kent Road 7)**
   Type of Control: proposed stop controlled intersection (T-intersection)
   Eastbound Approach: (Site Entrance A) proposed one right turn lane, stop controlled
   Northbound Approach: (US Route 13) existing one left turn lane (for Kings Highway) and three through lanes
   Southbound Approach: (US Route 13) existing three through lanes; proposed three through lanes and one channelized right turn lane

2. **Site Entrance B/ Luther Towers driveway / Kings Highway (Kent Road 66)**
   Type of Control: existing stop controlled intersection (T-intersection); proposed stop controlled intersection (full movement)
   Eastbound Approach: (Kings Highway) existing one shared through/left turn lane; proposed one left turn lane and one shared through/right turn lane
   Westbound Approach: (Kings Highway) existing one shared through/right turn lane; proposed one left turn lane and one shared through/right turn lane
   Northbound Approach: (Proposed Site Entrance B) proposed one shared through/right turn/left turn lane, stop controlled
   Southbound Approach: (Luther Towers driveway) existing one shared right turn/left turn lane, stop controlled; proposed one shared through/left turn/right turn lane, stop controlled

3. **Site Entrance C / Maple Parkway**
   Type of Control: existing stop controlled intersection (T-intersection)
   Eastbound Approach: (Maple Parkway) existing one shared through/left turn lane
   Westbound Approach: (Maple Parkway) existing one shared through/right turn lane
   Southbound Approach: (Proposed Site Entrance C) existing one shared right turn/left turn lane, stop controlled

4. **Kings Highway / Maple Parkway**
   Type of Control: existing stop controlled intersection (T-intersection)

Westbound Approach: (Maple Parkway) existing one shared left turn/right turn lane, stop controlled
Northbound Approach: (Kings Highway) existing one shared through/right turn lane
Southbound Approach: (Kings Highway) existing one shared through/left turn lane

5. **US Route 13 / Division Street / North Little Creek Road (Kent Road 16)**
   Type of Control: existing signal controlled intersection
   Eastbound Approach: (Division Street) existing one left turn lane, one shared through/left turn lane, and one right turn lane
   Westbound Approach: (North Little Creek Road) existing one left turn lane, one shared through/left turn lane, and one right turn lane
   Northbound Approach: (US Route 13) existing two left turn lanes, two through lanes, and one shared through/right turn lane
   Southbound Approach: (US Route 13) existing one left turn lane, two through lanes, and one shared through/right turn lane

6. **US Route 13 / Loockerman Street**
   Type of Control: existing signal controlled intersection
   Eastbound Approach: (Loockerman Street) existing one left turn, one through lane, and one channelized right turn lane
   Westbound Approach: (Loockerman Street) existing one left turn lane and one shared through/left turn/right turn lane
   Northbound Approach: (US Route 13) existing one left turn lane, three through lanes, and one right turn lane
   Southbound Approach: (US Route 13) existing one left turn lane, two through lanes, and one shared through/right turn lane

7. **US Route 13 / Kings Highway / White Oak Road (Kent Road 66)**
   Type of Control: existing signal controlled intersection
   Eastbound Approach: (Kings Highway) existing one left turn lane and one shared through/left turn/right turn lane
   Westbound Approach: (White Oak Road) existing one left turn lane, one shared through/left turn lane, and one channelized right turn lane
   Northbound Approach: (US Route 13) existing one left turn lane, two through lanes, and one shared through/right turn lane
   Southbound Approach: (US Route 13) existing one left turn lane, two through lanes, and one shared through/right turn lane

8. **Kings Highway / South Lakeview Drive (City of Dover)**
   Type of Control: existing stop controlled intersection (T-intersection)
   Eastbound Approach: (South Lakeview Drive) existing one shared left turn/right turn lane, stop controlled
   Northbound Approach: (Kings Highway) existing one shared through/left turn lane
   Southbound Approach: (Kings Highway) existing one shared through/right turn lane

9. **Kings Highway / Lewis Mill Drive (City of Dover)**
   Type of Control: existing stop controlled intersection (T-intersection)

Eastbound Approach: (Lewis Mill Drive) existing one left turn lane and one right turn lane, stop controlled
Northbound Approach: (Kings Highway) existing one shared through/left turn lane
Southbound Approach: (Kings Highway) existing one shared through/right turn lane

10. **Kings Highway / Division Street / Park Drive**
    Type of Control: existing signal controlled intersection
    Eastbound Approach: (Division Street) existing one left turn lane and one shared through/right turn lane
    Westbound Approach: (Division Street) existing one left turn lane, one through lane, and one right turn lane
    Northbound Approach: (Park Drive) one left turn lane and one shared through/right turn lane
    Southbound Approach: (Kings Highway) one shared through/left turn lane and one channelized right turn lane

    Note: Street signs note both eastbound and westbound approaches of the intersection as Division Street.

11. **Kings Highway (Kent Road 16) / Division Street**
    Type of Control: existing stop controlled intersection (T-intersection)
    Eastbound Approach: (Division Street) existing one shared through/right turn lane
    Westbound Approach: (Kings Highway) existing one shared through/left turn lane
    Northbound Approach: (Kings Highway) existing one shared left turn/right turn lane, stop controlled

    Note: Street signs note both the westbound and northbound approaches of the intersection as Kings Highway.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Delaware Transit Corporation (DTC) currently provides existing services via DART Routes 108, 109, and 301. The designated bus stop for DART Route 108 that exists within the study are is located along Division Street at the intersection with Bayard Avenue. DART Route 108 provides 31 round trips on weekdays from 6:00 a.m. to 9:24 p.m. and does not operate on Saturdays. Designated Bus Stops for DART Route 109 that exist within the study area are located along Kings Highway approximately 150 feet south of the intersection with Maple Parkway, and approximately 350 feet north of the intersection with Maple Parkway. DART Route 109 provides 20 round trips on weekdays from 6:30 a.m. to 9:49 p.m., and 9 round trips on Saturday from 9:30 a.m. to 6:19 p.m. Furthermore, DART Route 301 is an intercounty bus route that stops in Dover, Smyrna, Odessa, Middletown, Christiana Mall, and Wilmington. DART Route 301 provides 16 round trips on weekdays from 4:38 a.m. to 8:50 p.m. and 2 round trips on Saturdays from 9:00 a.m. to 5:55 p.m.

Planned transit service: JMT contacted Tremica Cherry, Transit Planner at the DTC and David Dooley, Senior Planner at the DTC. As of the date of this letter, no recommendations have been received. However, the TIS mentioned that DTC requested a bus stop along the US Route 13 site

frontage with a pedestrian pathway to the entrance of the grocery store. A concrete pad large enough to accommodate a future DART bus shelter should also be included.

Existing bicycle and pedestrian facilities: According to DelDOT's *Kent County Bicycle Map*, regional and connector bicycle routes exist within the study area. The regional bicycle route along Division Street traverses through three of the project's study intersections (the US Route 13 intersection with Division Street, the Kings Highway/Park Drive intersection with Division Street, and the Kings Highway intersection with Division Street). The connector bicycle routes along White Oak Road and US Route 13 traverses through four of the project's study intersections (the US Route 13 Kings Highway/White Oak Road, the US Route 13 intersection with Site Entrance A, the US Route 13 intersection with Division Street, and the US Route 13 intersection with Loockerman Street).

Pedestrian facilities are present at the US Route 13 and Kings Highway signalized intersection and include curb ramps, crosswalks, and pedestrian signal heads to cross the north leg of US Route 13, the west leg of Kings Highway, and the east leg of White Oak Road. Sidewalks are present on the east and west side of US Route 13 as well the north sides of White Oak Road and Kings Highway. Pedestrian facilities are present at the US Route 13 and Division Street signalized intersection and include curb ramps, crosswalks, and pedestrian signal heads to cross the south leg of US Route 13 and the east and west legs of Division Street. Sidewalks are present on the east and west side of US Route 13 as well as the north and south sides of Division Street. Pedestrian facilities are present at the US Route 13 and Loockerman Street and include curb ramps, crosswalks, and pedestrian signal heads to cross the north leg of US Route 13 and the east and west legs of Loockerman Street. Sidewalks are present on the east and west sides of US Route 13 as well as the north side of Loockerman Street. In addition, sidewalk is present on the south side of Loockerman Street west of US Route 13.

Planned bicycle and pedestrian facilities: JMT contacted Mr. John Fiori and Ms. Sarah Coakley, DelDOT's Bicycle and Pedestrian Coordinators, respectively. John Fiori, DelDOT's Bicycle Coordinator, provided recommendations via a July 12, 2016 email. The following bicycle and pedestrian improvements have been included as recommendations:

- There are concerns about the full access from Kings Highway. The intersection at Route 13 backs up which prohibits motorists from turning in and out of the Dunkin Donuts. Proposing full access for this site from Kings Highway would make it difficult to make a left turn into the site.
- The site will need to coordinate with the City of Dover and DelDOT concerning the Senator Bikeway Project.
- 10' wide shared-use path required along Kings Highway. Per the Dover bike plan this is an alternative route to using Division Street to get to Route 13.
- A minimum 5' wide sidewalk with 5' wide buffer along Route 13.
- As part of any improvements to the entrance along Maple Parkway, verify if the existing sidewalk will need to be removed and reconstructed.
- Recommend an inter-connection with the property on the southwest corner of Route 13 and Kings Highway.
- All entrance, roadway and/or off-site improvements required shall incorporate bicycle facilities.

- The site would need to dedicate/establish the required right-of-way and permanent easement per the Development Coordination Manual.

In addition, there is a capital bikeway project along Division Street that DelDOT Planning is managing. The Senator Bikeway project is for the design of bicycle facilities outlined in the City of Dover's Bicycle Plan.

Bicycle Level of Service and Bicycle Compatibility Index: According to the League of Illinois Bicyclists (LIB), Bicycle Level of Service (BLOS) is an emerging national standard for quantifying the bike-friendliness of a roadway by measuring on-road bicyclist comfort levels for specific roadway geometries and traffic conditions. Utilizing the 10-year projected AADT along the site frontage, the BLOS with the construction of the proposed development and the provision of 5' bike lanes along US Route 13 only are summarized below. The BLOS was determined utilizing the calculators published on the LIB website:
http://www.rideillinois.org/blos/blosform.htm

- US Route 13 – BLOS: B
- Kings Highway – BLOS: C
- Maple Parkway – BLOS C

Crash Summary

One fatal crash was reported within the study area. The crash involved a motorcycle rear ending a passenger vehicle along the left most through lane along southbound US Route 13 south of the Kings Highway/White Oak Road signalized intersection. Based on various witnesses, the motorcycle accelerated in such a way that the front wheel came off the ground which inhibited the visibility of the motorcyclist who struck the vehicle in front of him. The motorcyclist was ejected and struck a sign post. This crash occurred at 8:45 a.m. on September 7, 2013 with the police report noting daylight and dry surface conditions. The police report indicated this crash as a non-prosecutable event. No additional recommendations due to this crash is proposed.

Previous Comments
All comments from the preliminary TIS have been addressed in the final TIS.

General HCS Analysis Comments

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

1. Per DelDOT's *Development Coordination Manual,* JMT used a heavy vehicle percentage of 3% for each movement in the future scenario analysis, unless the existing heavy vehicle percentage was greater than 3%, in which case the existing heavy vehicle percentage was used for analysis of future scenarios. The TIS maintained the heavy vehicle percentages utilized in their existing cases throughout the future cases.

2. JMT included lane widths obtained from field measurements, which differed from some lanes widths used in the TIS.

3. JMT included storage lengths field measured for turn lanes at signalized intersections, which differed from some storage lengths used in the TIS.

4. For signalized intersections, JMT entered the number of pedestrians traveling in the crosswalk that is crossed by vehicles turning right from the subject approach during the analysis period (for example, the pedestrian flow rate for the westbound approach would describe the pedestrian flow in the crosswalk on the north leg), whereas the TIS entered the number of pedestrians traveling in the crosswalk that is crossed by vehicles on the same approach.

5. The TIS used a saturation flow rate of 1750 vehicles per hour for signalized intersections along US Route 13, whereas JMT used a saturation flow rate of 1900 vehicles per hour, consistent with other TIS reviews along US Route 13 in the City of Dover.

6. JMT analyzed the signalized intersections from US Route 13 and Loockerman Street to US Route 13 and Kings Highway/White Oak Road as a corridor which allowed the input of offset data. The TIS did not input offset data as they individually analyzed each intersection as uncoordinated. This analysis difference could cause discrepancies between the TIS and JMT's level of service results.

7. Both the TIS and JMT utilized Arrival Type 4 along the US Route 13 approaches to each signalized intersection to account for progression along the coordinated corridor.

8. The TIS used green times less than the minimum values, whereas JMT utilized minimum green times based on the DelDOT timing plans.

9. JMT included passage times within the signal timing consistent with the DelDOT Timing Plans, whereas the TIS did not.

10. JMT included dual entry within the signal timing consistent with the DelDOT Timing Plans, whereas the TIS did not.

11. For existing conditions, the TIS utilized right-turn-on-red volumes from the traffic count data, whereas JMT calculated a percentage of the right-turn-on-red volumes (per existing count data). JMT utilized this percentage with the existing seasonally adjusted volumes to determine the right-turn-on-red volumes for each approach and proportionally increased them for future cases. The TIS maintained the existing right-turn-on-red volumes throughout the future cases.

12. At some unsignalized intersections, differences in critical headways were noticed between the TIS and JMT's analysis. JMT utilized the HCS 2010 Version 6.80 default values, except where otherwise noted.

13. Per the updated scoping memorandums, both the TIS and JMT did not include traffic analysis of the City of Dover intersections of Kings Highway/South Lakeview Drive and Kings Highway/Lewis Mill Drive, since queues from the eastbound approach of Kings Highway to US Route 13 do not extend past the proposed Site Entrance B/Luther Towers driveway.

Table 2
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Unsignalized Intersection[1] Two-Way Stop Control (T-Intersection)	**LOS per TIS**			**LOS per JMT**		
Site Entrance A / US Route 13[2]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 with development of TLBT, LLC. Dover (Case 3)						
Eastbound Site Entrance Approach	C (15.4)	D (30.5)	D (25.3)	B (12.7)	B (13.3)	B (12.8)

[1] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] JMT modeled US Route 13 as a corridor; therefore, the proportion of time blocked was included. The TIS did not include proportion of time blocked in their analysis.

Table 3
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Unsignalized Intersection[3] Two-Way Stop Control (T-Intersection)	**LOS per TIS**			**LOS per JMT**		
Site Entrance B / Kings Highway	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)						
Eastbound Kings Highway Approach	A (0.6)	A (0.6)	A (0.4)	A (0.6)	A (0.6)	A (0.4)
Southbound Luther Towers driveway Approach	B (11.2)	B (13.6)	B (12.2)	B (11.2)	B (13.4)	B (12.1)
2018 without the development of TLBT, LLC Dover (Case 2)						
Eastbound Kings Highway Approach	A (0.6)	A (0.6)	A (0.4)	A (0.6)	A (0.6)	A (0.4)
Southbound Luther Towers driveway Approach	B (11.3)	B (13.7)	B (12.2)	B (11.3)	B (13.6)	B (12.2)
2018 with the development of TLBT, LLC Dover (Case 3)[4]						
Eastbound Kings Highway Left	-	-	-	A (8.0)	A (8.1)	A (7.8)
Eastbound Kings Highway Approach	A (0.6)	A (0.6)	A (0.4)	-	-	-
Westbound Kings Highway Left	-	-	-	A (7.6)	A (8.0)	A (8.0)
Westbound Kings Highway Approach	A (0.7)	A (1.3)	A (2.0)	-	-	-
Northbound Site Entrance Approach	A (9.8)	B (12.0)	B (11.3)	A (9.8)	B (12.0)	B (11.2)
Southbound Luther Towers driveway Approach	B (11.9)	C (17.4)	C (16.5)	B (12.7)	C (17.3)	C (16.4)

[3] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[4] JMT analyzed the 2018 with development condition with eastbound and westbound left turn lanes based on DelDOT's *Development Coordination Manual* and discussions with DelDOT, whereas the TIS did not.

Table 4
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Unsignalized Intersection[5] Two-Way Stop Control (T-Intersection)	**LOS per TIS**			**LOS per JMT**		
Site Entrance C / Maple Parkway	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)						
Eastbound Maple Parkway Approach	A (5.2)	A (4.8)	A (7.1)	A (5.1)	A (4.7)	A (7.1)
Southbound Site Entrance Approach	A (8.7)	A (9.0)	A (9.1)	A (8.7)	A (9.0)	A (9.1)
2018 without the development of TLBT, LLC Dover (Case 2)[6]						
Eastbound Maple Parkway Approach	A (5.2)	A (4.8)	A (7.1)	A (5.2)	A (4.7)	A (7.1)
Southbound Site Entrance Approach	A (8.7)	A (9.0)	A (9.1)	A (8.6)	A (9.1)	A (9.2)
2018 with the development of TLBT, LLC Dover (Case 3)[6]						
Eastbound Maple Parkway Approach	A (6.7)	A (6.4)	A (7.3)	A (6.6)	A (6.3)	A (7.4)
Southbound Site Entrance Approach	A (9.3)	A (10.0)	B (10.7)	A (9.0)	A (10.0)	B (10.8)

[5] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[6] During the AM peak hour, the TIS used a PHF of 0.51, whereas JMT used a PHF of 0.80. During the PM peak hour, the TIS used a PHF of 0.79, whereas JMT used a PHF of 0.80, consistent with DelDOT's *Development Coordination Manual*.

Table 5
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Unsignalized Intersection[7] Two-Way Stop Control (T-Intersection)	**LOS per TIS**			**LOS per JMT**		
Kings Highway / Maple Parkway	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)						
Southbound Kings Highway Approach	A (0.1)	A (0.4)	A (0.2)	A (0.1)	A (0.4)	A (0.2)
Westbound Maple Parkway Approach	B (10.6)	B (11.8)	B (11.0)	B (10.6)	B (11.8)	B (11.0)
2018 without the development of TLBT, LLC Dover (Case 2)						
Southbound Kings Highway Approach	A (0.1)	A (0.4)	A (0.2)	A (0.1)	A (0.4)	A (0.2)
Westbound Maple Parkway Approach	B (10.6)	B (11.8)	B (11.0)	B (10.6)	B (11.9)	B (11.1)
2018 with the development of TLBT, LLC Dover (Case 3)						
Southbound Kings Highway Approach	A (0.1)	A (0.4)	A (0.2)	A (0.1)	A (0.4)	A (0.2)
Westbound Maple Parkway Approach	B (11.3)	B (13.6)	B (12.9)	B (11.4)	B (13.7)	B (13.0)

[7] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 6
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Signalized Intersection[8]	**LOS per TIS**			**LOS per JMT**		
US Route 13 / Division Street / North Little Creek Road[9,10,11,12]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)[13]	B (19.3)	C (21.3)	B (11.5)	C (31.1)	C (31.1)	C (21.0)
2018 without development of TLBT, LLC Dover (Case 2)[14]	B (19.6)	C (21.7)	B (11.7)	C (31.5)	C (31.5)	C (21.3)
2018 with development of TLBT, LLC Dover (Case 3)[14]	B (19.6)	C (21.9)	B (11.7)	C (31.6)	C (31.9)	C (21.4)

[8] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[9] For each timing phase the TIS utilized a 4 second yellow clearance time, whereas JMT utilized a 5 second yellow clearance time consistent with the DelDOT Timing Plan.
[10] JMT utilized 7% and 43% turns in the shared lane for eastbound and westbound Division Street respectively during all three peak periods from field data collected during the PM peak hour on June 30, 2016. The TIS utilized arbitrary percentages.
[11] JMT modeled the split phase along the westbound Division Street/North Little Creek Road approach as the lead consistent per field conditions, whereas the TIS modeled the eastbound approach as the lead phase.
[12] The TIS analyzed the intersection with protected/permitted left turn phasing along US Route 13, whereas JMT modeled the intersection with protected only left turn phasing consistent per field conditions.
[13] For the PM peak hour, JMT utilized 1% HV for the southbound left a shared through/right turns per the existing traffic count data, whereas the TIS utilized 2% HV for these movements.
[14] During the AM peak hour, the TIS used a PHF of 0.89, whereas JMT used a PHF of 0.92 consistent with DelDOT's *Development Coordination Manual*.

Table 7
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Signalized Intersection[15]	**LOS per TIS**			**LOS per JMT**		
US Route 13 / Loockerman Street[16,17,18]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)	B (10.6)	C (26.2)	B (11.6)	B (16.4)	C (29.8)	C (20.5)
2018 without development of TLBT, LLC Dover (Case 2)	B (10.8)	C (27.0)	B (11.8)	B (17.0)	C (30.8)	C (21.1)
2018 with development of TLBT, LLC Dover (Case 3)	B (10.9)	C (27.6)	B (12.1)	B (17.2)	C (30.8)	C (21.2)

[15] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[16] JMT utilized 31% and 21% turns in the shared lane for eastbound and westbound Loockerman Street respectively during all three peak periods from field data collected during the PM peak hour on June 30, 2016. The TIS utilized arbitrary percentages.
[17] JMT modeled the split phase along the westbound Loockerman Street approach as the lead consistent per field conditions, whereas the TIS modeled the eastbound approach as the lead phase.
[18] The TIS analyzed the intersection with protected/permitted left turn phasing along US Route 13, whereas JMT modeled the intersection with protected only left turn phasing consistent per field conditions.

Table 8
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Signalized Intersection[19]	**LOS per TIS**			**LOS per JMT**		
US Route 13 / Kings Highway / White Oak Road[20,21]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)[22]	B (15.4)	C (33.4)	B (18.8)	B (18.3)	C (27.9)	C (23.1)
2018 without development of TLBT, LLC Dover (Case 2)[23]	B (15.5)	C (34.7)	B (18.9)	B (18.4)	C (28.4)	C (23.8)
2018 with development of TLBT, LLC Dover (Case 3)	B (16.1)	C (34.8)	C (22.4)	B (18.9)	C (30.0)	C (26.4)

[19] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[20] JMT utilized yellow clearance and all red times consistent with the DelDOT Timing Plan, whereas the TIS did not.
[21] JMT utilized 18% and 29% turns in the shared lane for eastbound Kings Highway and westbound White Oak Road respectively during all three peak periods from field data collected during the PM peak hour on June 30, 2016. The TIS utilized arbitrary percentages.
[22] For the AM peak hour, JMT utilized 3% HV for the northbound US Route 13 shared through/right turns per the existing traffic count data, whereas the TIS utilized 2% HV for these movements.
[23] For the PM peak hour, the TIS utilized a westbound White Oak Road through volume of 159 vehicles whereas JMT utilized a volume of 129 vehicles for this movement consistent with the 2018 Background Peak Hour Traffic Volumes (Exhibit 5).

Table 9
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Signalized Intersection[24]	**LOS per TIS**			**LOS per JMT**		
Kings Highway / Division Street / Park Drive[25,26,27]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)	B (10.2)	B (13.1)	B (12.4)	B (10.3)	B (13.2)	B (12.3)
2018 without development of TLBT, LLC Dover (Case 2)[28]	B (10.3)	B (13.1)	B (12.4)	B (10.3)	B (13.3)	B (12.3)
2018 with development of TLBT, LLC Dover (Case 3)[28]	B (11.0)	B (16.0)	B (14.6)	B (10.6)	B (13.8)	B (13.2)

[24] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[25] The TIS utilized 6 second minimum green time for the eastbound, northbound, and southbound approaches, whereas JMT utilized 5 second minimum green time per the DelDOT Timing Plan.
[26] The TIS utilized a 4 second yellow clearance time for the eastbound Division Street advance phase, whereas JMT utilized a 3 second yellow clearance time, consistent with the DelDOT Timing Plan.
[27] The TIS utilized a 2 second passage time, whereas JMT utilized passage times consistent with the DelDOT Timing Plan.
[28] During the AM peak hour, the TIS used a PHF of 0.89, whereas JMT used a PHF of 0.92 consistent with DelDOT's *Development Coordination Manual*.

Table 10
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Final Traffic Impact Study for the TLBT, LLC Dover Development
Report Dated June 16, 2016
Prepared by The Traffic Group

Unsignalized Intersection[29] Two-Way Stop Control (T-Intersection)	**LOS per TIS**			**LOS per JMT**		
Kings Highway / Division Street	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 Existing (Case 1)[30]						
Northbound Kings Highway Approach	B (11.7)	B (13.1)	B (11.0)	B (11.7)	B (13.1)	B (11.0)
Westbound Kings Highway Approach	A (1.3)	A (0.9)	A (0.5)	A (1.3)	A (0.9)	A (0.5)
2018 without the development of TLBT, LLC Dover (Case 2)						
Northbound Kings Highway Approach	B (11.7)	B (13.2)	B (11.1)	B (11.7)	B (13.2)	B (11.1)
Westbound Kings Highway Approach	A (1.3)	A (0.9)	A (0.5)	A (1.3)	A (0.9)	A (0.5)
2018 with the development of TLBT, LLC Dover (Case 3)						
Northbound Kings Highway Approach	B (12.0)	B (13.7)	B (11.6)	B (12.0)	B (13.7)	B (11.6)
Westbound Kings Highway Approach	A (1.4)	A (1.1)	A (0.8)	A (1.4)	A (1.1)	A (0.8)

[29] For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[30] During the PM peak hour, the TIS used a northbound right turn percent heavy vehicles of 3%, whereas JMT used a northbound right turn percent heavy vehicles of 2% consistent with the existing traffic count data.