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

SHANTÉ A. HASTINGS
SECRETARY

June 18, 2025

Mr. Jama Carey
Traffic Concepts, Inc.
7525 Connelley Drive, Suite B
Hanover, MD 21076

Dear Mr. Carey,

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Dunkin Donuts Shopping Center Delmar** (Tax Parcel: 532-20.00-104.08) 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 found the TIS to conform to DelDOT's Development Coordination Manual and other accepted practices and procedures for such studies. DelDOT accepts this letter and concurs with the recommendations. 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: Nick Nistazos, Franchise Management Services, Inc
Kevin Aydelotte, Parker and Associates, Inc
David L. Edgell, Office of State Planning Coordination
Jeff Fleetwood, Town of Delmar
Twain Evanson, Town of Delmar
Jamie Whitehouse, Sussex County Planning & Zoning
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
Alistair Probert, South District Engineer, M&O
Matt Schlitter, South District Public Works Engineer, M&O
Jared Kauffman, Service Development Planner, DTC
Tremica Cherry, Service Development Planner, DTC
Anthony Aglio, Planning Supervisor, Active Transportation & Community Connections, Planning
Anson Gock, Planner, Statewide & Regional Planning, Planning
Todd Sammons, Assistant Director, Development Coordination
Wendy Polasko, Subdivision Engineer, Development Coordination
John Pietrobono, Acting Sussex Review Coordinator, Development Coordination
Jose Quixtan, Sussex Review Engineer, Development Coordination
Sireen Muhtaseb, TIS Engineer, Development Coordination
Ben Fisher, TIS Review Engineer, Development Coordination
Tijah Jones, TIS Review Engineer, Development Coordination

June 18, 2025

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

RE: Agreement No: 2138S
TIS Support Services – T202369005
Task Name: Task 1-3 Dunkin Donuts Shopping Center Delmar
JMT No.: 24-01365-103

Dear Ms. Muhtaseb:

Johnson, Mirmiran, and Thompson (JMT) has completed a review of the Traffic Impact Study (TIS) for the DelMaR Commercial development (a.k.a. Dunkin Donuts Shopping Center Delmar) which was prepared by Traffic Concepts, Inc. dated January 31, 2025. This review was assigned as Task Number 1-3. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual* and other Department standards. Since the completion of the TIS, the proposed sizes of the land uses have changed and those changes are documented within an updated TIS report prepared by Traffic Concepts, Inc dated May 30, 2025. As the proposed land use changes would decrease the projected daily and peak hour trips, DelDOT is requiring that the traffic analysis results from the January 31, 2025 TIS report be utilized in this TIS review. However, the recommendations contained within this letter are based on the updated land use sizes.

The January 31, 2025 TIS evaluates the impacts of a proposed commercial development in the Town of Delmar, Sussex County, Delaware. The commercial development would consist of 5,833 square feet of retail space and a 2,916 square foot coffee/donut shop with drive through. The updated land uses documented within the May 30, 2025 TIS contains 7,071 square feet of retail space and a 1,715 square foot coffee/donut shop with drive-through. The following table summarizes a comparison between the original and updated land use sizes.

Dunkin Donuts Shopping Center Delmar Trip Generation Comparison – Daily Trips

Land Use	January 31, 2025 TIS		Updated May 30, 2025 TIS	
	Size	Weekday ADT	Size	Weekday ADT
Strip Retail Plaza (ITE LUC 822)	5,833 SF	476	7,071 SF	528
Coffee/Donut Shop with Drive-Through (ITE LUC 937)	2,916 SF	1,558	1,715 SF	918
Total		**2,034**		**1,446**

Dunkin Donuts Shopping Center Delmar Trip Generation Comparison – New Trips

Land Use	Weekday ADT	PM Peak Hour		
		In	Out	Total
January 31, 2025 TIS	2,034	41	40	81
Updated May 30, 2025 TIS	1,446	38	39	77
Total	**-588**	**-3**	**-1**	**-4**

*Trip generation for the AM peak hour is located in Tables 1a and 1b starting on Page 12

The land is located on the east side of US Route 13, north of the Delaware Route 54 intersection. Access is proposed via one existing rights-in/rights-out/lefts-in (Thornton Boulevard) entrance along US Route 13 and one existing full movement entrance (Thornton Boulevard) along Old Stage Road (Sussex Road 68). An interconnection is also proposed through the southerly parcel, Delmar Commons Shopping Center (Tax Parcel 532-20.00-93.00), which connects to a shopping center that has an access point to Delaware Route 54 as a rights-in/rights-out/lefts-in access. Construction is anticipated to be complete in 2027. The Town of Delmar has agreed on a quicker buildout year of 2026.

Relevant and On-Going Projects and Studies

DelDOT has the *Corridor Capacity Preservation Program* (CCPP), which aims to maintain the regional importance and preserve the intended function and capacity of existing designated transportation routes within the Program. The main objectives of the program are listed below:

- Prevent the need to build an entirely new road
- Minimize the transportation impacts of increased economic growth
- Maintain an existing road's ability to handle traffic efficiently and safely
- Preserve the ability to make future improvements
- Sort local and through traffic

US Route 13 is one of the highways included in the CCPP. It should be noted that the local roadway connections depicted between US Route 13 and Old Stage Road on the November 2001 DelDOT Delmar Plan for the US 13 Corridor Capacity Preservation Program have been implemented. More information regarding the CCPP can be found at https://deldot.gov/Programs/corr_cap/index.shtml.

Summary of Analysis Results

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

The following intersection exhibits level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements.

Intersection	LOS Deficiencies Occur		Case
	AM	PM	
4 - Old Stage Road / Delaware Route 54	-	X	Case 2 – 2026 without Development
	X	X	Case 3 – 2026 with Development

4 - Old Stage Road / Delaware Route 54 (See Table 5, Page 21, Development Improvement #5)

The unsignalized Delaware Route 54 intersection with Old Stage Road would exhibit LOS deficiencies during the AM peak hour under future conditions with the proposed development (Case 3) and the PM peak hour under future conditions with or without the proposed development (Cases 2 and 3). The failures would exist along the southbound Old Stage Road left turn/through movement. Specifically, during the AM peak hour under future conditions with the proposed development (Case 3) the intersection would operate at LOS E along the southbound Old Stage Road left turn/through movement with a delay of approximately 36 seconds per vehicle and a 95th percentile queue of approximately 63 feet. Additionally, the intersection would operate at LOS F along the southbound Old Stage Road left turn/through movement during the PM peak hour under future conditions without (Case 2) and with (Case 3) the proposed development with delays of approximately 57 seconds and 60 seconds, and 95th percentile queue lengths of approximately 90 feet and 98 feet, respectively.

The deficiencies at the intersection could be mitigated with the installation of a traffic signal. However, the mitigation measure should be evaluated as part of a larger study, outside the scope of this TIS. DelDOT and the Town have been coordinating to identify a solution. As such, we do not recommend the developer implement improvements at this intersection. However, it is recommended that the developer contribute to the Traffic Signal Revolving Fund (TSRF).

Thornton Boulevard / Gerald Court

Although this is not a study intersection, the crash data identified a total of five crashes, including two head-on, one angle, one sideswiped (opposite direction), and one other. The developer should consider safety related improvements such as additional lighting or speed calming treatments at the intersection.

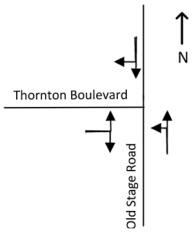
Development Improvements

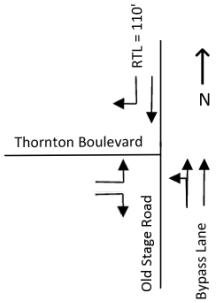
Should the Town of Delmar approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan, unless a Design Deviation is requested and approved by the Department. All applicable agreements (i.e., letter agreements for off-site improvements 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 (US Route 13) 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 developer should improve the existing unsignalized full access Site Entrance A (Thornton Boulevard) along Old Stage Road to provide separate turn lanes along Thornton Boulevard as well as a northbound bypass lane and a southbound right turn lane along Old Stage Road. The intersection should be designed to be consistent with the lane configurations indicated in the table below:

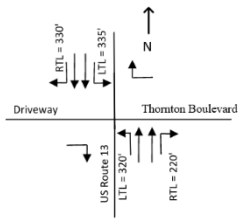
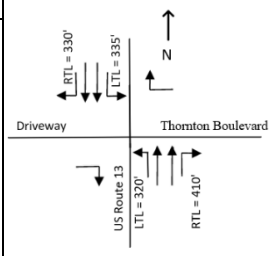
Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound Site Entrance A (Thornton Boulevard)	One shared left turn/right turn lane		Eastbound Site Entrance A (Thornton Boulevard)	One left turn lane and one right turn lane	
Northbound Old Stage Road	One shared left turn/through lane		Northbound Old Stage Road	One shared left turn/through lane and one bypass lane	
Southbound Old Stage Road	One shared through/right turn lane		Southbound Old Stage Road	One through lane and one right turn lane	





Based on DelDOT's *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the northbound bypass lane is 50 feet and the southbound right turn lane is 110 feet. The projected queues from the traffic analysis can be accommodated within the recommended storage lengths.

3. The developer should improve the existing unsignalized rights-in/rights-out/lefts-in Site Entrance B (Thornton Boulevard) along US Route 13 to provide a longer northbound US Route 13 right-turn lane storage length. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration		Approach	Proposed Configuration	
Westbound Site Entrance B (Thornton Boulevard)	One right turn lane		Westbound Site Entrance B (Thornton Boulevard)	No change	
Northbound US Route 13	One left turn, two through lanes, and one right turn lane		Northbound US Route 13	No change	
Southbound US Route 13	One left turn, two through lanes, and one right turn lane		Southbound US Route 13	No change	

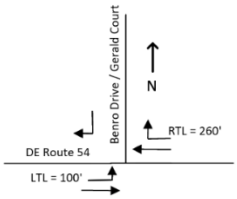
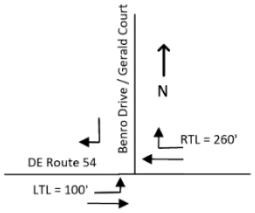
Based on DelDOT's *Development Coordination Manual*, and the results from the traffic analysis, the recommended minimum storage length (excluding taper) are shown in the following table:

Approach	Left Turn (Feet)	Right Turn (Feet)
Northbound US Route 13	320*	410
Southbound US Route 13	335*	330*

*Existing storage length that should be maintained

The developer should coordinate with DelDOT's Development Coordination Section during the Entrance Plan review process to determine the exact design of the intersection.

4. The developer should maintain the existing unsignalized rights-in/rights-out/lefts-in Site Entrance C (Benro Drive / Gerald Court) along Delaware Route 54. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration		Approach	Proposed Configuration	
Eastbound Delaware Route 54	One left turn lane and one through lane		Eastbound Delaware Route 54	No change	
Westbound DE Route 54	One through lane and one right turn lane		Westbound DE Route 54	No change	
Southbound Site Entrance C (Benro Drive / Gerald Court)	One right turn lane		Southbound Site Entrance C (Benro Drive / Gerald Court)	No change	

The existing storage lengths should be maintained. The projected queues from the traffic analysis can be accommodated within the existing storage lengths.

5. The developer should enter into an agreement with DelDOT to contribute to the Traffic Signal Revolving Fund (TSRF) for the intersection of Delaware Route 54 with Old Stage Road. The contribution amount is $2,904.

6. 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 US Route 13 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/sidewalk. 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 should be provided.

    c. ADA-compliant curb ramps and marked crosswalks should be provided along the site entrances (Thornton Boulevard / Old Stage Road, Thornton Boulevard / US Route 13, and Benro Drive / Gerald Court / Delaware Route 54).

    d. Internal bicycle racks should be provided at each building.

e. 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.

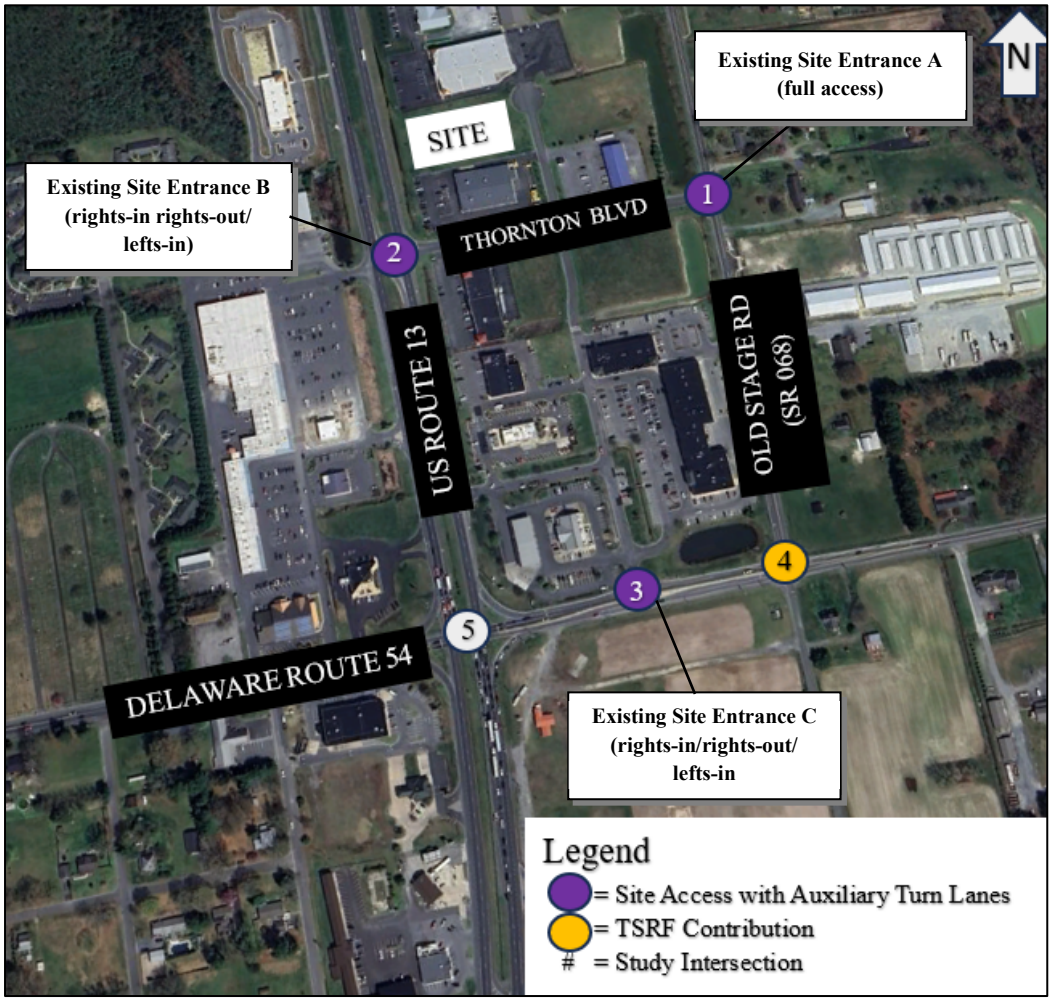
Additional details on our review of the TIS are attached. Please contact me at (302) 266-9600 if you have any questions concerning this review.

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Joanne M. Arellano, P.E., PTOE

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

Recommendations Map



General Information

Report date: January 31, 2025
Prepared by: Traffic Concepts, Inc.
Prepared for: Dunkin Donuts Franchise Management Services, Inc.
Tax parcel: 532-20.00-104.08
Generally consistent with DelDOT's Development Coordination Manual (DCM): Yes

Project Description and Background

Description: The proposed development consists of 5,833 square feet of retail space and 2,916 square feet of a coffee/donut shop with drive through.
Location: The site is located on the east side of US Route 13, north of Delaware Route 54 intersection in the Town of Delmar, Sussex County, Delaware.
Amount of land to be developed: An approximately 1.58-acre parcel.
Land use approval(s) needed: Entrance Plan.
Proposed completion date: 2026.
Proposed access locations: One existing rights-in/rights-out/lefts-in (Thornton Boulevard) entrance along US Route 13 and one existing full movement entrance (Thornton Boulevard) along Old Stage Road (Sussex Road 68). An interconnection is also proposed through the southerly parcel, Delmar Commons Shopping Center (Tax Parcel 532-20.00-93.00), which connects to a shopping center that has an access point to Delaware Route 54 as a rights-in/rights-out/lefts-in access.

Daily traffic volumes:

- 2023 Average Annual Daily Traffic (AADT)
    - Old Stage Road (Sussex Road 068): 1,269 vehicles per day
    - US Route 13 (Sussex Road 001): 26,468 vehicles per day
    - Delaware Route 54 (Sussex Road 419): 7,300 vehicles per day.

*AADT is sourced from DelDOT Gateway.

Site Map

**Graphic is an approximation based on the Preliminary Site Development Plan prepared by Parker Associates Inc. for Dunkin Donuts Shopping Center Delmar, dated May 8, 2024.*

Relevant and On-going Projects

DelDOT has the *Corridor Capacity Preservation Program* (CCPP), which aims to maintain the regional importance and preserve the intended function and capacity of existing designated transportation routes within the Program. The main objectives of the program are listed below:

- Prevent the need to build an entirely new road
- Minimize the transportation impacts of increased economic growth
- Maintain an existing road's ability to handle traffic efficiently and safely
- Preserve the ability to make future improvements
- Sort local and through traffic

US Route 13 is one of the highways included in the CCPP. It should be noted that the local roadway connections depicted between US Route 13 and Old Stage Road on the November 2001 DelDOT

Delmar Plan for the US 13 Corridor Capacity Preservation Program have been implemented. More information regarding the CCPP can be found at https://deldot.gov/Programs/corr_cap/index.shtml.

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 1.

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 a variety of 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, and to promote well-designed and efficient new growth 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. Investment Level 1 Areas are ideal locations for Transportation Improvement Districts as well as Complete Community Enterprise Districts. Further, Level 1 areas are the priority for planning projects and studies, bicycle facilities, signal-system enhancements, and the promotion of interconnectivity of neighborhoods and public facilities.

Proposed development's compatibility with Livable Delaware:
The proposed development is located within Investment Level 1. Level 1 areas are the most favorable locations for preserving existing facilities, promoting transit enhancements, fostering economic revitalization, encouraging community-focused design, and services to promote a sense of community. The proposed development consists of 5,833 square feet of retail space and 2,916 square feet of a coffee/donut shop with drive through. Therefore, the proposed development is consistent with the 2020 update of *Livable Delaware Strategies for State Policies and Spending.*

Comprehensive Plan

(Source: Town of Delmar Comprehensive Plan, 2020)

Town of Delmar Comprehensive Plan:
Per the Town of Delmar Comprehensive Plan Existing Land Use Map, the proposed development is currently zoned as Commercial. Per the Town of Delmar Comprehensive Plan Future Land Use Map, the development is zoned as Commercial.

Proposed development's compatibility with the Town of Delmar Comprehensive Plan:
The *Town of Delmar Comprehensive Plan* states that the commercial category land use seeks to intensify the area to facilitate an economically vibrant center for commercial activities. Therefore, the development is generally consistent with the commercial land use plan of the *Town of Delmar 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 937 (Coffee/Donut Shop with Drive-Through) and ITE Land Use Code 822 (Retail Strip Plaza).

Table 1a
Dunkin Donuts Shopping Center Delmar Trip Generation – January 31, 2025

Land Use	ADT	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
5,833 SF Retail Strip Plaza (ITE LUC 822)	476	8	6	14	27	26	53
2,916 SF Coffee/Donut Shop with Drive-Through (ITE LUC 937)	1,558	128	123	251	57	57	114
Total	2,034	136	129	265	84	83	167
Internal Capture		18	18	36	0	0	0
Pass-By		90	84	174	43	43	86
New Trips		28	27	55	41	40	81

Notes:
-Trip generation was reviewed by DelDOT as part of the Preliminary TIS (PTIS) submission.
-Internal Capture for Retail includes entire shopping center that has access to Gerald Court, Thornton Boulevard, and Benro Drive. Internal Capture was not applied to PM peak hour to maintain a conservative analysis.
-Pass-by Rate applied only to Coffee/Donut Shop with Drive-Through.

Table 1b
Dunkin Donuts Shopping Center Delmar Trip Generation – Updated May 30, 2025

Land Use	ADT	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
7,071 SF Retail Strip Plaza (ITE LUC 822)	528	10	7	17	30	31	61
1,715 SF Coffee/Donut Shop with Drive-Through (ITE LUC 937)	918	75	73	148	34	33	67
Total	1,446	85	80	165	64	64	128
Internal Capture		29	29	58	0	0	0
Pass-By		43	48	91	26	25	51
New Trips		13	3	16	38	39	77

Notes:
-Internal Capture for Retail includes entire shopping center that has access to Gerald Court, Thornton Boulevard, and Benro Drive. Internal Capture was not applied to PM peak hour to maintain a conservative analysis.
-Pass-by Rate applied only to Coffee/Donut Shop with Drive-Through.

Dunkin Donuts Shopping Center Delmar Trip Generation Comparison – New Trips

Land Use	Weekday ADT	PM Peak Hour		
		In	Out	Total
January 31, 2025 TIS	2,034	41	40	81
Updated May 30, 2025 TIS	1,446	38	39	77
Difference Total New Trips	**-588**	**-3**	**-1**	**-4**

Overview of TIS

Intersections examined:

1. Site Entrance A (Thorton Boulevard) / Old Stage Road (Sussex Road 68)
2. Site Entrance B (Thorton Boulevard) / US Route 13
3. Site Entrance C (Benro Drive / Gerald Court) / Delaware Route 54
4. Old Stage Road / Delaware Route 54
5. US Route 13 / Delaware Route 54

Conditions examined:

1. Case 1 – 2024 existing
2. Case 2 – 2026 without development
3. Case 3 – 2026 with development

Committed developments considered:

1. **Stillwater Landing:** 172 single-family detached housing.
2. **Kilteel Estates:** 83 of single-family detached housing.

The committed development information contained within the TIS report supersedes the October 15, 2024, Scoping Meeting Memorandum.

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

Intersection Descriptions

1. **Site Entrance A (Thorton Boulevard) / Old Stage Road (Sussex Road 68)**
   Type of Control: Two-way stop-controlled intersection (T-intersection).
   Eastbound Approach: (Thorton Boulevard) Existing one left turn lane and one right turn lane, stop-controlled.
   Northbound Approach: (Old Stage Road) Existing one left turn lane and one through lane.
   Southbound Approach: (Old Stage Road) Existing one through lane and one right turn lane.

2. **Site Entrance B (Thorton Boulevard) / US Route 13**
   Type of Control: Two-way stop-controlled intersection.
   Eastbound Approach: (Shopping Center Driveway) Existing one right turn lane, stop-controlled
   Westbound Approach: (Thorton Boulevard) Existing one right turn lane, stop-controlled.
   Northbound Approach: (US Route 13) Existing one left turn lane, two through lanes, and one right turn lane.
   Southbound Approach: (US Route 13) Existing one left turn lane, two through lanes, and one right turn lane.

3. **Site Entrance C (Benro Drive / Gerald Court) / Delaware Route 54**
   Type of Control: Two-way stop-controlled intersection (T-intersection).
   Eastbound Approach: (Delaware Route 54) Existing one left turn lane and one through lane.
   Westbound Approach: (Delaware Route 54) Existing one through lane and one right turn lane.
   Southbound Approach: (Benro Drive / Gerald Court) Existing one right turn lane, stop-controlled.

4. **Old Stage Road / DE Route 54**
   Type of Control: Existing two-way stop-controlled intersection (Four-legged).
   Eastbound Approach: (Delaware Route 54) Existing one left turn lane and one shared through/right turn lane.
   Westbound Approach: (Delaware Route 54) Existing one shared left turn/through/right turn lane.

Northbound Approach: (Stage Road) Existing one shared left turn/through/right turn lane, stop-controlled.
Southbound Approach: (Old Stage Road) Existing one shared left turn/through lane and one right turn lane, stop-controlled.

5. **US Route 13 / DE Route 54**
Type of Control: Existing signalized intersection (Four-legged).
Eastbound Approach: (Delaware Route 54) Existing one left turn lane, one shared left turn/through lane and one channelized right turn lane.
Westbound Approach: (Delaware Route 54) Existing one left turn lane, one through lane and one channelized right turn lane.
Northbound Approach: (US Route 13) Existing one left turn lane, two through lanes and one channelized right turn lane.
Southbound Approach: (US Route 13) Existing one left turn lane, two through lanes and one channelized right turn lane.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Per DelDOT Gateway, DART Route 212 operates along US Route 13 and has two stops within the study area. Route 212 provides 11 round trips on weekdays, and 11 round trips on Saturdays.

Planned transit service: Per email correspondence from William Williamson, DART Fixed-Route Planner, on March 4, 2025, DART does not have any comments.

Existing bicycle and pedestrian facilities: Per DelDOT's Sussex County Bicycle Map, several study roadways are considered bicycle routes. Old Stage Road, US Route 13, and Delaware Route 54 are considered connector bicycle routes. Bicycle lanes are present along Old Stage Road and on Delaware Route 54 between the US Route 13 and Old Stage Road intersections.

Planned bicycle and pedestrian facilities: Anthony Aglio, DelDOT's Bicycle Coordinator, was sent an email on February 21, 2025 regarding the proposed site. 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 frontage are summarized below. The Bicycle LTS was determined utilizing DelDOT's Gateway.

US Route LTS: 3

Crash Evaluation

Per the crash data included in the TIS from October 23, 2021, to November 23, 2021, provided by the Delaware Department of Transportation (DelDOT), a total of 20 crashes were reported within the intersections of US Route 13 and Thorton Boulevard, and Old Stage Road and Thorton Boulevard. Of the 15 crashes reported, no fatalities occurred.

10 Crashes were reported at the US Route 13 and Thorton Boulevard intersection, including five rear-end, one angle, one sideswipe (opposite direction), one not a collision between two vehicles, and two others.

Five Crashes were reported at the Thorton Boulevard and Gerald Court intersection, including two head-on, one angle, one sideswiped (opposite direction), and one other.

Previous Comments

All comments from the PTIS have been addressed in the Final TIS.

Sight Distance Evaluation

No sight distance constraints were noted at the proposed site entrance location per the field visit conducted on February 6, 2025.

General Synchro Analysis Comments

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

1) JMT used HCM 7th edition within HCS 2025 traffic analysis software to complete the analysis, while the TIS used HCM 7th edition within HCS 2024 traffic analysis software

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 while the TIS utilized the existing PHF.

3) JMT and the TIS 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 Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways in the analyses whereas the TIS utilized the existing heavy vehicle percentage.

5) 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, whereas the TIS utilized existing heavy vehicle percentages.

6) JMT and the TIS utilized a Saturation Flow Rate of 1,900 vehicles per hour per lane for the signalized intersection.

7) JMT and the TIS utilized the same PHF for every movement.

Table 2
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Dunkin Donuts Shopping Center Delmar
Report Dated: January 31, 2025
Prepared by: Traffic Concepts, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**		**LOS per JMT**	
1 - Site Entrance A (Thornton Boulevard) / Old Stage Road (Sussex Road 68)	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Case 1 – 2024 Existing[2]				
Eastbound Thornton Boulevard Approach	B (10.9)	B (10.6)	B (10.7)	B (10.7)
Northbound Old Stage Road Left Turn	A (7.7)	A (7.8)	A (7.6)	A (7.8)
Case 2 – 2026 without Development[2]				
Eastbound Thornton Boulevard Approach	B (10.9)	B (10.6)	B (10.7)	B (10.7)
Northbound Old Stage Road Left Turn	A (7.7)	A (7.8)	A (7.6)	A (7.9)
Case 3 – 2026 with Development[2]				
Eastbound Thornton Boulevard Approach	B (11.0)	B (10.7)	B (10.8)	B (10.8)
Northbound Old Stage Road Left Turn	A (7.7)	A (7.8)	A (7.6)	A (7.9)

[1] For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2] JMT utilized a PHF of 0.91, while the TIS utilized a PHF of 0.86 for the AM peak hour.

Table 3
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Dunkin Donuts Shopping Center Delmar
Report Dated: January 31, 2025
Prepared by: Traffic Concepts, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**		**LOS per JMT**	
2 - Site Entrance B (Thornton Boulevard) / US Route 13[3]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Case 1 – 2024 Existing				
Eastbound Shopping Center Access Right Turn	B (12.6)	B (14.2)	B (12.8)	B (14.4)
Westbound Thornton Boulevard Right Turn	B (12.4)	B (14.2)	B (12.5)	B (14.4)
Northbound US Route 13 Left Turn	C (15.8)	C (18.4)	C (16.1)	C (18.9)
Southbound US Route 13 Left Turn	B (10.7)	B (12.5)	B (10.9)	B (12.8)
Case 2 – 2026 without Development[4]				
Eastbound Shopping Center Access Right Turn	B (12.9)	B (14.9)	B (12.9)	C (15.1)
Westbound Thornton Boulevard Right Turn	B (12.8)	B (14.7)	B (12.8)	B (14.9)
Northbound US Route 13 Left Turn	C (16.6)	C (20.6)	C (16.7)	C (21.4)
Southbound US Route 13 Left Turn	B (11.1)	B (13.0)	B (11.2)	B (13.3)
Case 3 – 2026 with Development[4]				
Eastbound Shopping Center Access Right Turn	B (12.8)	B (14.9)	B (12.9)	C (15.2)
Westbound Thornton Boulevard Right Turn	B (13.7)	C (15.9)	B (13.7)	C (16.2)
Northbound US Route 13 Left Turn	C (16.4)	C (20.9)	C (16.5)	C (21.7)
Southbound US Route 13 Left Turn	B (11.5)	B (13.7)	B (11.6)	B (14.0)

[3] The TIS utilized heavy vehicle percentage of 2% for all movements.
[4] JMT utilized a PHF of 0.92, while the TIS utilized the existing PHF of 0.91 for the AM peak hour.

Table 4
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Dunkin Donuts Shopping Center Delmar
Report Dated: January 31, 2025
Prepared by: Traffic Concepts, Inc.

Unsignalized Intersection Two-Way Stop Control (T-intersection)[1]	**LOS per TIS**		**LOS per JMT**	
3 - Site Entrance C (Benro Drive / Gerald Court) / Delaware Route 54	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Case 1 – 2024 Existing[5]				
Eastbound Delaware Route 54 Left Turn	A (9.0)	A (9.0)	A (9.0)	A (9.1)
Southbound Benro Drive / Gerald Court Right Turn	B (12.6)	B (12.6)	B (12.6)	B (12.7)
Case 2 – 2026 without Development[5]				
Eastbound Delaware Route 54 Left Turn	A (9.4)	A (9.4)	A (9.4)	A (9.5)
Southbound Benro Drive / Gerald Court Right Turn	B (13.8)	B (13.5)	B (13.8)	B (13.8)
Case 3 – 2026 with Development[5]				
Eastbound Delaware Route 54 Left Turn	A (9.4)	A (9.4)	A (9.4)	A (9.5)
Southbound Benro Drive / Gerald Court Right Turn	B (14.6)	B (14.0)	B (14.6)	B (14.3)

[5] JMT utilized a PHF of 0.95 per the collected turning movement counts, while the TIS utilized a PHF of 0.96 for the PM peak hour.

Table 5
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Dunkin Donuts Shopping Center Delmar
Report Dated: January 31, 2025
Prepared by: Traffic Concepts, Inc.

Unsignalized Intersection Two-Way Stop Control[1]	**LOS per TIS**		**LOS per JMT**	
4 - Old Stage Road / Delaware Route 54	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Case 1 – 2024 Existing				
Eastbound Delaware Route 54 Left Turn	A (8.4)	A (8.2)	A (8.3)	A (8.2)
Westbound Delaware Route 54 Left Turn	A (7.7)	A (7.8)	A (7.8)	A (7.9)
Northbound Old Stage Road Approach	C (20.7)	C (22.1)	C (20.4)	C (22.3)
Southbound Old Stage Road Left Turn/Through	D (28.6)	D (31.9)	D (29.0)	D (32.8)
Southbound Old Stage Road Right Turn	B (12.1)	B (10.9)	B (12.1)	B (10.9)
Case 2 – 2026 without Development[6]				
Eastbound Delaware Route 54 Left Turn	A (8.7)	A (8.4)	A (8.5)	A (8.4)
Westbound Delaware Route 54 Left Turn	A (7.8)	A (8.1)	A (7.8)	A (8.2)
Northbound Old Stage Road Approach	D (33.1)	D (33.9)	D (27.2)	D (34.1)
Southbound Old Stage Road Left Turn/Through	E (41.9)	F (54.3)	D (34.9)	F (56.7)
Southbound Old Stage Road Left Turn/Through 95th Percentile Queue Length	73’	88’	-	90’
Southbound Old Stage Road Right Turn	B (13.2)	B (11.4)	B (12.8)	B (11.5)
Case 3 – 2026 with Development[6]				
Eastbound Delaware Route 54 Left Turn	A (8.7)	A (8.4)	A (8.5)	A (8.4)
Westbound Delaware Route 54 Left Turn	A (7.8)	A (8.1)	A (7.8)	A (8.2)
Northbound Old Stage Road Approach	D (33.6)	D (34.5)	D (27.5)	D (34.8)
Southbound Old Stage Road Left Turn/Through	E (43.5)	F (57.6)	E (35.9)	F (60.3)
Southbound Old Stage Road Left Turn/Through 95th Percentile Queue Length	78’	93’	63’	98’
Southbound Old Stage Road Right Turn	B (13.3)	B (11.5)	B (12.9)	B (11.6)

[6] JMT utilized a PHF of 0.92, while the TIS utilized the existing PHF of 0.87 for the AM peak hour.

Table 5 (Continued)
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Dunkin Donuts Shopping Center Delmar
Report Dated: January 31, 2025
Prepared by: Traffic Concepts, Inc.

Signalized Intersection[1, 7]	**LOS per TIS**		**LOS per JMT**	
4 - Old Stage Road / Delaware Route 54	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Case 3 – 2026 with Development	-	-	B (11.6)	B (11.1)

[7] JMT analyzed the intersection as a signalized intersection using a cycle length of 60 seconds in the AM and PM peak hours with concurrent phasing along Old Stage Road and along Delaware Route 54. The eastbound Delaware Route 54 will provide one left turn lane and one shared through/right turn lane, the westbound Delaware Route 54 will provide one shared left turn/through/right turn lane, the northbound Old Stage Road will provide one shared left turn/through/right turn lane, and the southbound Old Stage Road will provide one shared left turn/through lane and one right turn lane.

Table 6
Peak Hour Levels of Service (LOS)
Based on Traffic Impact Study for Dunkin Donuts Shopping Center Delmar
Report Dated: January 31, 2025
Prepared by: Traffic Concepts, Inc.

Signalized Intersection[1]	**LOS per TIS**		**LOS per JMT**	
5 - US Route 13/ Delaware Route 54[8, 9, 10, 11]	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Case 1 – 2024 Existing[12]	C (30.6)	D (35.3)	D (43.9)	D (47.9)
Case 2 – 2026 without Development	C (33.7)	D (39.9)	D (44.7)	D (49.9)
Case 3 – 2026 with Development	D (35.0)	D (41.1)	D (45.2)	D (50.7)

[8] JMT modeled the saturation flow rate of the intersection at 1,900 pc/h/ln due to the intersection being located north of Salisbury, Maryland and having a higher ADT along US 13. The TIS also used 1,900 pc/h/ln. JMT also modeled the eastbound shared left turn/through lane as having 20% of turns in the shared lane.
[9] JMT utilized a cycle length of 120 seconds for the AM and PM peak hours under existing and future conditions, whereas the TIS utilized various cycle lengths.
[10] JMT utilized a cycle length of 120 seconds for the AM and PM peak hours under existing and future conditions, whereas the TIS utilized various cycle lengths.
[11] JMT utilized a speed limit of 35 mph for Delaware Route 54 westbound approach, while the TIS utilized a speed limit of 50 mph.
[12] JMT utilized a PHF of 0.88, while the TIS utilized the PHF of 0.90 for the AM peak hour.