



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

NICOLE MAJESKI
SECRETARY

November 15, 2023

Ms. Nicole Kline-Elsier
McMahon, a Bowman Company
835 Springdale Drive, Suite 200
Exton, PA 19341

Dear Ms. Nicole Kline-Elsier:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Bridgeville Town Center** (Tax Parcels: 131-15.00-24.00, 24.01) multi-use 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 Group Project Engineer

AF:km

Enclosures

cc with enclosures: Joseph Calabro, Bridgeville Development Co., LLC
Alan Hill, A.H. Davenport LLC
Braden Garrison, McMahon, a Bowman Company
David L. Edgell, Office of State Planning Coordination
Bethany Debussey, Town of Bridgeville
Jason Loar, Town of Bridgeville
Brandon Slater, Town of Bridgeville
Jamie Whitehouse, Sussex County Planning & Zoning
Andrew J. Parker, McCormick Taylor, Inc.
Tucker Smith, McCormick Taylor, Inc.
DelDOT Distribution

DelDOT Distribution

Brad Eaby, Deputy Attorney General

Shanté Hastings, Deputy Secretary / Director of Transportation Solutions (DOTS)

Mark Luszcz, Deputy Director, DelDOT Traffic, DOTS

Michael Simmons, Assistant Director, Project Development South, DOTS

Peter Haag, Chief Traffic Engineer, DelDOT Traffic, DOTS

Wendy Carpenter, Traffic Calming & Subdivision Relations Manager, DelDOT Traffic, DOTS

Sean Humphrey, Traffic Engineer, DelDOT Traffic, DOTS

Matt Schlitter, South District Public Works Engineer, Maintenance & Operations

Jared Kauffman, Service Development Planner, Delaware Transit Corporation

Tremica Cherry, Service Development Planner, Delaware Transit Corporation

Pamela Steinebach, Director, Planning

Todd Sammons, Assistant Director, Development Coordination, Planning

Wendy Polasko, Subdivision Engineer, Development Coordination, Planning

Kevin Hickman, Sussex County Review Coordinator, Development Coordination, Planning

Jose Quixtan, Sussex County Subdivision Reviewer, Development Coordination, Planning

Sireen Muhtaseb, TIS Group Manager, Development Coordination, Planning

Anthony Aglio, Planning Supervisor, Statewide & Regional Planning, Planning



November 14, 2023

Ms. Annamaria Furrato
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1946F
Traffic Impact Study Services
Task No. 4A Subtask 06A – Bridgeville Town Center

Dear Ms. Furrato:

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the Bridgeville Town Center prepared by McMahon, Inc., dated October 7, 2022. McMahon, Inc. prepared the report in a manner generally consistent with DelDOT's Development Coordination Manual.

The TIS evaluates the impacts of the proposed Bridgeville Town Center development, to be located on the east side of US Route 13 and southwest of Seashore Highway (Delaware Route 404), just south of the intersection of US 13 and Passwaters Farm Road / Bridgeville Park Circle in Sussex County, Delaware. The proposed development would consist of 192 mid-rise multi-family housing units (apartments), 150 age-restricted attached houses (apartments), a 100-room hotel, 8,500 square-feet of fast-food restaurant space, a 3,600 square-foot convenience store with gas pumps, and 71,890 square-feet of retail space.

The subject land is located on an approximately 46.93-acre assemblage of parcels. The subject land is split-zoned as C-1 (General Commercial) and R-2 (Residential) in Sussex County, and the developer does not plan to rezone the land.

Currently, there are two DelDOT projects within the area of study.

The first initiative is DelDOT's Corridor Capacity Preservation Program (CCPP), a statewide program intended to sustain the through capacity of adopted highway corridors by various means such as limiting access points and using service roads for local vehicle trips. The general purpose of the program is to ensure that existing principal arterial roadways, including this section of US Route 13, are able to efficiently carry regional traffic without impedance from the effects of local development. The Bridgeville Town Center development proposes direct (rights-in/rights-out) access to US Route 13 and full access to Delaware Route 404, in an area identified as Investment Level 2 in the Strategies for State Policies and Spending. Direct access to US Route 13 may be permitted if limiting the direct access onto an existing secondary road only, such as Delaware Route 404, would degrade the operation or safety of an adjacent intersection. Based on additional analysis with access only on Delaware Route 404, the signalized intersection of Delaware Route 404 and Tatman Farm Road, would exhibit increased delay.

Additionally, DelDOT’s Coastal Corridors Study aims to study the east-west travel patterns in Sussex County including, but not limited to, Delaware Route 16 and Delaware Route 404, including the section nearest the proposed development. Initial efforts will identify the east-west routes/corridors in northwestern Sussex County that are currently congested or are at risk for congestion based on anticipated growth in the area. The study will focus on a number of factors including longer trips from the Chesapeake Bay Bridge to the Delaware beaches and Ocean City, Maryland, regional traffic between Maryland’s Eastern Shore and Sussex County, and local east-west traffic within the northwestern part of Sussex County. The latest updates indicate that the study is in the data collection / public outreach phase.

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

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

<i>Intersection</i>	<i>Existing Traffic Control</i>	<i>Situations for which deficiencies occur</i>
Site Entrance B and US Route 13	Unsignalized	2027 with development Saturday (Case 3)
Seashore Highway (DE Route 404) and Oak Road	Unsignalized	2027 without development Saturday (Case 2) 2027 with development PM/Saturday (Case 3)
US Route 13 and Antique Alley / Joggers Lane	Unsignalized	2021 existing AM (Case 1) 2027 without development AM/PM/Saturday (Case 2) 2027 with development AM/PM/Saturday (Case 3)
US Route 13 and Heritage Shores Drive	Unsignalized	2027 with development Saturday (Case 3)

Site Entrance B and US Route 13 (Table 3, Page 20)

This unsignalized intersection experiences LOS deficiencies during the Saturday peak hour for Case 3. The westbound site entrance B right-turn is expected to operate at LOS F with 52.1 seconds of delay and a 95th percentile queue length of over 180 feet long. Given that this is a site egress, not public right-of-way, and the LOS deficiency occurs only on Summer Saturdays, only a northbound right-turn lane is required at this intersection.

Seashore Highway (DE Route 404) and Oak Road (Table 6, Page 23)

This unsignalized intersection experiences LOS deficiencies on the southbound Oak Road approach during the Saturday peak hour for Case 2 and the PM and Saturday peak hours in Case 3. In Case 2 during the Saturday peak hour, this two-way stop-controlled intersection is expected to operate at LOS E with 37.8 seconds of delay. In Case 3 during the weekday PM and Saturday peak hours this intersection is expected to operate at LOS E with 39.7 seconds and 49.4 seconds of delay, respectively. To mitigate the Case 3 operational deficiencies, the developer should construct a right-turn lane on southbound Oak Road.

US Route 13 and Antique Alley / Joggers Lane (Table 13, Page 30)

This unsignalized intersection experiences LOS deficiencies on the westbound approach during the weekday AM peak hour for Cases 1, 2, and 3. It should be noted that this delay is due to one vehicle making a left turn. The intersection also experiences LOS deficiencies during the weekday PM and Saturday peak hour on the eastbound approach for Cases 2 and 3. The eastbound approach during the PM peak hour is expected to operate at LOS E with 41.9 seconds of delay for Case 2 and LOS E with 44.9 seconds of delay for Case 3. Similarly, the eastbound approach during the Saturday peak hour is expected to operate at LOS F with 100.2 seconds of delay for Case 2 and LOS F with 115.3 seconds of delay for Case 3. The LOS deficiencies could be mitigated by a traffic signal or roundabout, however neither a traffic signal nor roundabout are warranted or planned for this intersection. Therefore, to mitigate the deficiencies, we recommend the restriction of eastbound and westbound left-turn and through movements. In addition, we recommend further coordination between the developer, the Town of Bridgeville, and DelDOT's Development Coordination section.

US Route 13 and Heritage Shores Drive (Table 15, Page 32)

This unsignalized intersection experiences LOS deficiencies during the Saturday peak hour for Case 3. The southbound US Route 13 U-Turn is expected to operate at LOS E with 37.1 seconds of delay. The delay on this movement increases by only 3.3 seconds from Case 2 to Case 3, and is only deficient during Saturday Case 3 conditions. Therefore, we recommend that the developer make no improvements at this intersection.

Should Town of Bridgeville choose to approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan by note or illustration. 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 shall improve the State-maintained road(s) on which they front (US Route 13 and Delaware Route 404), within the limits of their frontage, to meet DelDOT's standards for their Functional Classification as found in Section 1.1 of the Development Coordination Manual and elsewhere therein. The improvements shall include both directions of travel, regardless of whether the developer's lands are on one or both sides of the road. Frontage is defined in Section 1 of the Development Coordination Manual, which states "This length includes the length of roadway perpendicular to lines created by the projection of the outside parcel corners to the roadway." Questions on or appeals of this

requirement should be directed to the DelDOT Subdivision Review Coordinator in whose area the development is located.

2. For the proposed rights-in/rights-out access to US Route 13 to be permitted, the developer should secure perpetual cross-access easements with adjacent parcels 131-15.00-19.00 and 131-15.00-24.06. The cross-access easements shall allow adjacent properties to use the proposed Bridgeville Town Center access onto US Route 13. The easement will provide the opportunity to allow connections to adjacent properties and/or provide for the construction of a future access road or other improvements. Agriculture, landscaping, signs, and parking may be allowed as a temporary use within the easements. Any future removal or relocation of an item placed within the easement will be the responsibility of the property owner. No structures may be built within these areas.
3. The developer should construct the full-movement Site Access A on Delaware Route 404. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Eastbound Delaware Route 404	One through lane	One through lane and one right-turn lane
Westbound Delaware Route 404	One through lane	One left-turn lane and one through lane
Northbound Site Access A	Approach does not exist	One left-turn lane and one right-turn lane

Initial recommended minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below. The developer should coordinate with DelDOT’s Development Coordination Section to determine final turn-lane lengths and other design details during the site plan review.

Approach	Left-Turn Lane	Right-Turn Lane
Eastbound Delaware Route 404	N/A	190 feet *
Westbound Delaware Route 404	145 feet *	N/A
Northbound Site Access A	N/A	50 feet **

* Minimum initial turn-lane length based on DelDOT’s *Auxiliary Lane Worksheet*

** Initial turn-lane length based on queuing analysis

- The developer should construct the rights-in/rights-out Site Access B on northbound US Route 13. The proposed rights-in/rights-out direct access point on US Route 13 be approximately 1,000 feet south of the Passwaters Farm Road/Bridgeville Park Center intersection. The intersection should be consistent with the lane configuration shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Westbound Site Access B	Approach does not exist	One right-turn lane
Northbound US Route 13	Two through lanes	Two through lanes and one right-turn lane

Required minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below. The developer should coordinate with DelDOT’s Development Coordination Section to determine final turn-lane lengths and other design details during the site plan review.

Approach	Left-Turn Lane	Right-Turn Lane
Westbound Site Access B	N/A	N/A (one lane only)
Northbound US Route 13	N/A	365 feet *

* Minimum initial turn-lane length based on DelDOT’s *Auxiliary Lane Worksheet*

With the spacing of 1,000 feet south of the Passwaters Farm Road/Bridgeville Park Center intersection, building an adequate right-turn lane into the site would require encroachment onto the frontage of the parcel immediately to the south, Tax Parcel No. 131-15.00-24.06. In that event, the access easement to that parcel, mentioned in Item 2 above, would be essential to preserving that parcel’s viability for development.

- The developer should modify the median crossover along US Route 13 approximately 1,500 feet south of the Passwaters Farm Road/Bridgeville Park Center intersection. The modification should include the closure of the southbound left-turn lane to prohibit southbound left/U-turn movements. The developer should coordinate with the Town of Bridgeville and DelDOT Development Coordination section regarding the implementation of this improvement.
- The developer should design and construct a separate right-turn lane on the southbound approach of Oak Road at Seashore Highway. The southbound right-turn lane is initially recommended to be 50 feet in length (excluding taper), although DelDOT’s Development Coordination Section will determine final turn-lane length and design details. The

developer should coordinate with DelDOT's Development Coordination Section to determine details regarding design, schedule, and construction of the turn lane.

7. At the intersection of US Route 13 and Antique Alley / Joggers Lane, the developer should design and construct raised concrete islands or painted islands with delineators to eliminate left-turn and through movements on the eastbound and westbound approaches. The developer should coordinate implementation of this improvement with DelDOT's Development Coordination section and the Town of Bridgeville.
8. The following bicycle and pedestrian improvements should be included:
 - a. Per the DelDOT Development Coordination Manual section 5.2.9.2, bicycle lanes are required where right-turn lanes are being installed.
 - b. Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities and turn lanes within the project limits.
 - c. Utility covers should be made flush with the pavement.
 - d. A minimum 15-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontages along US Route 13 and Delaware Route 404. Within the easement, a minimum of a 10-foot wide shared-use path should be constructed. The shared-use path should meet AASHTO and ADA standards and should have a minimum of a five-foot buffer from the roadway. At the property boundaries, the shared-use path should connect to the adjacent property or to the shoulder in accordance with DelDOT's Shared-Use Path and/or Sidewalk Termination Reference Guide dated August 1, 2018. The developer shall coordinate with DelDOT's Development Coordination Section through the plan review process to determine the details of the shared-use path design and connections/terminations at or before both boundaries of the property.
 - e. The developer should work with the property owner of the parcel north of the proposed Bridgeville Town Center development (Parcel ID: 131-15.00-24.04) to provide a pedestrian interconnection to Food Lion and other retail.
 - f. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances. Type 3 curb ramps are discouraged.
 - g. The developer should construct Type 2 (17' x 8') shelter pads with bus pull-offs along the US Route 13 and Delaware Route 404 site frontages. The bus stop on US Route 13 should be at least 300 feet north of Site Access B and the bus stop on Delaware Route 404 should be on the east side (far-side) of Site Entrance A. The developer should coordinate with the Delaware Transit Corporation (DTC) regarding the design and construction of these bus stops.



- h. The developer proposes to extend the 35 mph speed limit zone along Delaware Route 404 east of the proposed development. The developer shall complete a speed study and submit to DelDOT and the Town of Bridgeville for review and approval.

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 http://deldot.gov/Publications/manuals/de_mutcd/index.shtml.

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 site plan review process.

Additional details on our review of this TIS are attached. Please contact me at (610) 640-3500 or through e-mail at ajparker@mccormicktaylor.com if you have any questions concerning this review.

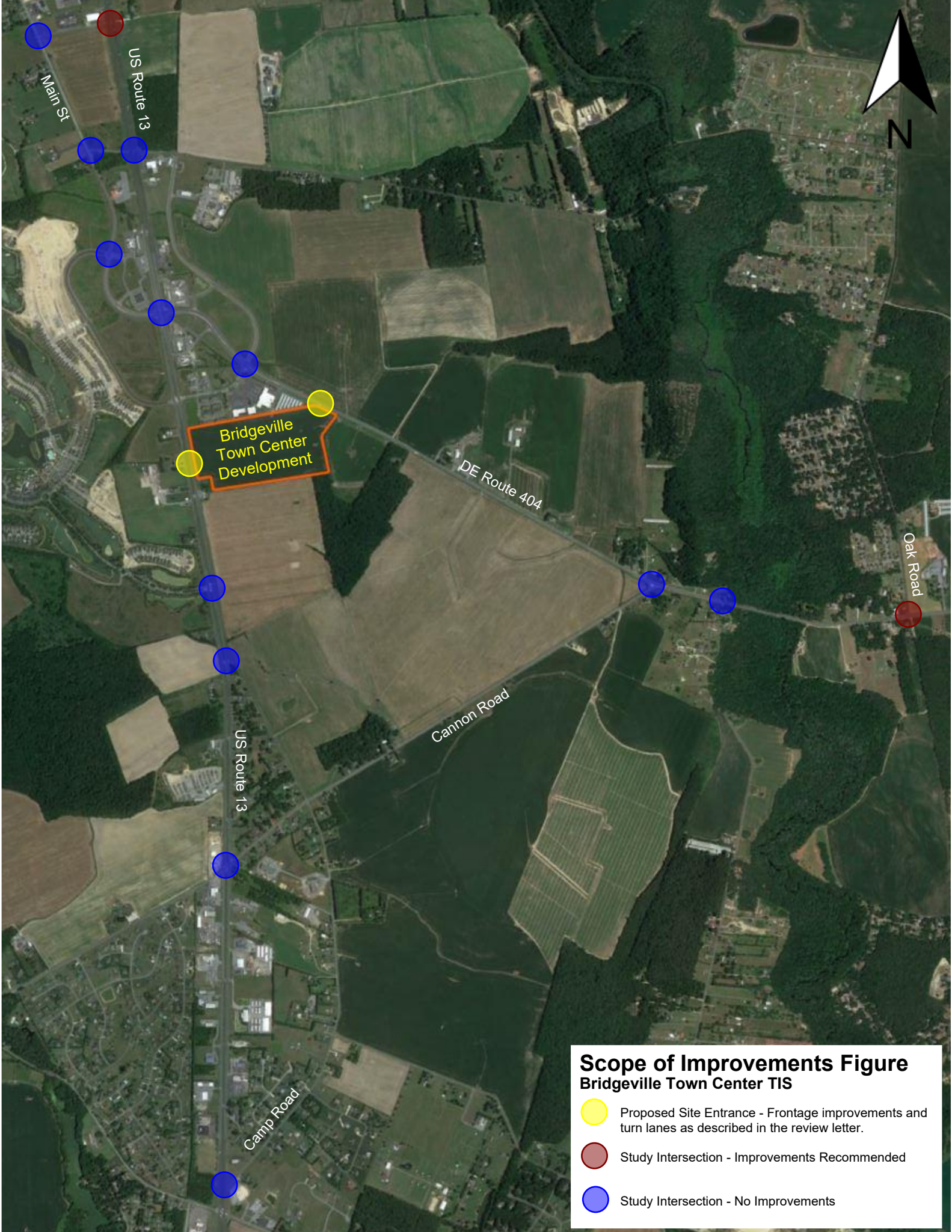
Sincerely,

McCormick Taylor, Inc.

A handwritten signature in black ink, appearing to read "Andrew J. Parker".




Andrew J. Parker, PE, PTOE
Project Manager

Enclosure



Bridgeville
Town Center
Development

Scope of Improvements Figure
Bridgeville Town Center TIS

-  Proposed Site Entrance - Frontage improvements and turn lanes as described in the review letter.
-  Study Intersection - Improvements Recommended
-  Study Intersection - No Improvements

General Information

Report date: October 7, 2022

Prepared by: McMahan, Inc.

Prepared for: Bridgeville Development Company, LLC.

Tax parcel: 131-15.00-24.00 and 131-15.00-24.01.

Generally consistent with DelDOT's Development Coordination Manual: Yes

Project Description and Background

Description: The proposed Bridgeville Town Center development would consist of 192 units of mid-rise multi-family houses (apartments), 150 age-restricted attached houses (apartments), a 100-room hotel, 9,580 square-feet of fast-food restaurant space, a 3,590 square-foot convenience store with gas pumps, and 71,840 square-feet of retail space.

Location: The site is located on the east side of US Route 13 and southwest of Seashore Highway (Delaware Route 404), just south of the intersection of US 13 and Passwaters Farm Road/Bridgeville Park Center in Sussex County, Delaware. A site location map is included on page 10.

Amount of land to be developed: approximately 46.93-acre assemblage of parcels

Land use approval(s) needed: The land is currently split-zoned as C-1 (General Commercial) and R-2 (Residential), and the developer does not plan to rezone the land.

Proposed completion year: 2027

Proposed access locations: One full access on Seashore Highway (Delaware Route 404) and a rights-in/rights-out access on US Route 13.

Average Daily Traffic Volumes (per DelDOT Traffic Summary 2021):

- Seashore Highway (Delaware Route 404): 12,123 vehicles/day
- Sussex Highway (US Route 13): 25,248 vehicles/day
- Wiggins Mill Road: 1,237 vehicles/day
- Levels Road: 4,304 vehicles/day



2020 Delaware Strategies for State Policies and Spending

Location with respect to the Strategies for State Policies and Spending Map of Delaware: The Bridgeville Town Center development is located within Investment Level 2, as described below.

Investment Level 2

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

In Investment Level 2, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity.

Investments should encourage departure from the typical single-family-dwelling developments and promote a broader mix of housing types and commercial sites encouraging compact, mixed-use development where applicable. Overall, the State's intent is to use spending and management tools to promote well-designed development in these areas. Such development provides for a variety of housing types, user-friendly transportation systems, and provides essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community. Investment Level 2 areas are prime locations for designating "pre-permitted areas."

Proposed Development's Compatibility with Strategies for State Policies and Spending:

The proposed Bridgeville Town Center development would consist of 192 units of mid-rise multi-family houses (apartments), 150 age-restricted attached houses (apartments), a 100-room hotel, 9,580 square-feet of fast-food restaurant space, a 3,590 square-foot convenience store with gas pumps, and 71,840 square-feet of retail space in an Investment Level 2 area. Investment Level 2 supports the development of residential growth with infrastructure, essential neighborhood services, and encourages a broad mix of housing options. As such, the proposed development generally appears to comply with the guidelines for Investment Levels as described in the 2020 "Strategies for State Policies and Spending."

Comprehensive Plan

Sussex County Comprehensive Plan:

(Source: Sussex County Comprehensive Plan, March 2019)

The Sussex County Comprehensive Plan Future Land Use Map indicates that the proposed development is in the Town of Bridgeville, a municipality. Sussex County strongly favors directing development to municipalities that desire it. The specific permitted uses and densities governing

new construction within an incorporated municipality will continue to be governed by the zoning ordinance for that municipality, its public water and sewer capacities, and its comprehensive planning policies.

Town of Bridgeville Comprehensive Plan:

(Source: Bridgeville Comprehensive Plan, August 2018)

The Town of Bridgeville’s comprehensive plan, Future Land Use Map indicates that the land included in the Bridgeville Town Center development is within the Town Limits and classified as “Park, Open Space, Agricultural Field.”

Proposed Development’s Compatibility with Comprehensive Plan:

The proposed Bridgeville Town Center development is planned to be developed as of 192 units of mid-rise multi-family houses (apartments), 150 age-restricted attached houses (apartments), a 100-room hotel, 9,580 square-feet of fast-food restaurant space, a 3,590 square-foot convenience store with gas pumps, and 71,840 square-feet of retail space. Given the classification in the Future Land Use Map, it does not appear that this development complies with the Town of Bridgeville Comprehensive Plan. Further discussion is needed.

Relevant Projects in the DelDOT Capital Transportation Program

Currently, there are two DelDOT projects within the area of study.

The first initiative is DelDOT’s Corridor Capacity Preservation Program (CCPP), a statewide program intended to sustain the through capacity of adopted highway corridors by various means such as limiting access points and using service roads for local vehicle trips. The general purpose of the program is to ensure that existing principal arterial roadways, including this section of US Route 13, are able to efficiently carry regional traffic without impedance from the effects of local development. The Bridgeville Town Center development proposes direct (rights-in/rights-out) access to US Route 13 and full access to Delaware Route 404, in an area identified as Investment Level 2 in the Strategies for State Policies and Spending. Direct access to US Route 13 may be permitted if limiting the direct access onto an existing secondary road only, such as Delaware Route 404, would degrade the operation or safety of an adjacent intersection. Based on additional analysis with access only on Delaware Route 404, the signalized intersection of Delaware Route 404 and Tatman Farm Road, would exhibit increased delay.

Additionally, DelDOT’s Coastal Corridors Study aims to study the east-west travel patterns in Sussex County including, but not limited to, Delaware Route 16 and Delaware Route 404, including the section nearest the proposed development. Initial efforts will identify the east-west routes/corridors in northwestern Sussex County that are currently congested or are at risk for congestion based on anticipated growth in the area. The study will focus on a number of factors including longer trips from the Chesapeake Bay Bridge to the Delaware beaches and Ocean City, Maryland, regional traffic between Maryland’s Eastern Shore and Sussex County, and local east-west traffic within the northwestern part of Sussex County. The latest updates indicate that the study is in the data collection / public outreach phase.

Trip Generation

Trip generation for the proposed development was computed using comparable land uses and equations contained in Trip Generation, Tenth Edition, published by the Institute of Transportation Engineers (ITE). The following land use was utilized to estimate the amount of new traffic generated for this development:

- 9,580 SF Fast-Food Restaurant with Drive-Through (Land Use Code 934)
- 100 Room Hotel (ITE Land Use Code 310)
- 3,590 SF Convenience Store/Gas Station (ITE Land Use Code 945)
- 71,840 SF Shopping Plaza (40-150k) (ITE Land Use Code 821)
- 192 Multi-Family Housing (Mid-Rise) Units (ITE Land Use Code 221)
- 150 Senior Adult Housing-Multifamily Units (ITE Land Use Code 252)

**Table 1
Bridgeville Town Center Peak Hour Trip Generation**

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Fast-Food Restaurant with Drive-Through	218	209	427	164	152	316	270	259	529
Hotel	24	19	43	23	23	46	42	33	75
Convenience Store/Gas Station	164	164	328	141	142	283	126	126	252
Shopping Plaza (40-150k)	77	47	124	183	190	373	238	220	458
Multifamily Housing, Mid-Rise (192 units)	17	56	73	46	29	75	39	38	77
Senior Adult Housing – Multifamily (150 units)	10	19	29	21	17	38	25	22	47

Overview of TIS

Intersections examined:

- 1) Site Entrance A & Seashore Highway (DE 404)
- 2) Site Entrance B & US Route 13
- 3) Seashore Highway (DE 404) & Cannon Road (DE 18)
- 4) Seashore Highway (DE 404) & Sanfilippo Road
- 5) Seashore Highway (DE 404) & Oak Road
- 6) Seashore Highway (DE 404) & Tatman Farm Road
- 7) US Route 13 & Seashore Highway (DE 404) / S. Main Street
- 8) S Main Street & Passwaters Farm Road
- 9) S Main Street & Rifle Range Road
- 10) S Main Street & Antique Alley
- 11) US Route 13 & Rifle Range Road
- 12) US Route 13 & Antique Alley/Joggers Lane
- 13) US Route 13 & Camp Road (North)

- 14) US Route 13 & Heritage Shores Drive
- 15) US Route 13 & Cannon Road (DE 18)
- 16) US Route 13 & Camp Road (South)

Conditions examined:

- 1) 2021 Existing (Case 1)
- 2) 2027 without development (Case 2)
- 3) 2027 with development (Case 3)

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

Committed developments considered:

- 1) Villas at Bridgeville (210 low-rise multifamily housing units located along S. Main Street, opposite Antique Alley)
- 2) Heritage Shores North (852 senior adult single-family houses remaining to be constructed within the Heritage Shores community)
- 3) 7-Eleven Bridgeville (5,000 square foot convenience store with gas pumps located on the northwest corner of the intersection of US 13 and DE 18)
- 4) US 13 Self Storage of Bridgeville (88,000 square foot self-storage facility located on the northwest corner of the intersection of US 13 and Passwaters Farms Road)

Intersection Descriptions

1) Site Entrance A & Seashore Highway (DE 404)

Type of Control: proposed minor stop-controlled T-intersection

Eastbound Approach: (DE 404) existing through lane and proposed right-turn lane

Westbound Approach: (DE 404) existing through lane and proposed left-turn lane

Northbound Approach: (Site Entrance A) proposed left-turn lane and proposed right-turn lane, stop controlled

2) Site Entrance B & US Route 13

Type of Control: proposed one-way stop controlled, rights-in/rights-out intersection

Westbound Approach: (Site Entrance B) proposed right-turn lane, stop controlled

Northbound Approach: (US Route 13) two existing through lanes and one proposed right-turn lane

Southbound Approach: (US Route 13) two existing through lanes

3) Seashore Highway (DE 404) & Cannon Road (DE 18)

Type of Control: minor stop-controlled T-intersection

Eastbound Approach: (DE 404) through lane and right-turn lane

Westbound Approach: (DE 404) through lane and left-turn lane

Northbound Approach: (Cannon Road) stop controlled left-turn lane, right-turn lane continuing into auxiliary lane on eastbound Delaware Route 404

- 4) Seashore Highway (DE 404) & Sanfilippo Road**
Type of Control: minor stop-controlled T-intersection
Eastbound Approach: (DE 404) through lane and right-turn lane (auxiliary lane continuing from Cannon Road)
Westbound Approach: (DE 404) shared left-turn/through lane
Northbound Approach: (Sanfilippo Road) shared left-turn/right-turn lane, stop controlled
- 5) Seashore Highway (DE 404) & Oak Road**
Type of Control: minor stop-controlled T-intersection
Eastbound Approach: (DE 404) shared left-turn/through and bypass lane
Westbound Approach: (DE 404) shared through/right-turn lane
Southbound Approach: (Oak Road) shared left-turn/right-turn lane, stop controlled
- 6) Seashore Highway (DE 404) & Tatman Farm Road / Bridgeville Park Center**
Type of Control: signalized intersection
Eastbound Approach: (DE 404) left-turn lane, two through lanes, and right-turn lane
Westbound Approach: (DE 404) left-turn lane, two through lanes, and right-turn lane
Northbound Approach: (Bridgeville Park Center) left-turn lane, through lane, and right-turn lane
Southbound Approach: (Tatman Farm Road) left-turn lane, through lane, and right-turn lane
- 7) US Route 13 & Seashore Highway (DE 404) / S. Main Street**
Type of Control: signalized intersection
Eastbound Approach: (S. Main St) left-turn lane, two through lanes, and right-turn lane
Westbound Approach: (DE 404) left-turn lane, through lane, and right-turn lane
Northbound Approach: (US 13) two left-turn lanes, two through lanes, and right-turn lane
Southbound Approach: (US 13) two left-turn lanes, two through lanes, and right-turn lane
- 8) S Main Street & Passwaters Farm Road**
Type of Control: two-way stop controlled
Eastbound Approach: (Passwaters Farm Rd) left-turn lane, through/right-turn lane, stop controlled
Westbound Approach: (Passwaters Farm Rd) left-turn lane, through/right-turn lane, stop controlled
Northbound Approach: (S. Main St) left-turn lane, through lane, and right-turn lane
Southbound Approach: (S. Main St) left-turn lane, through lane, and right-turn lane
Note: A traffic signal has been constructed at this intersection and is in flash operation. Stop signs are present on the Passwaters Farm Road approaches.
- 9) S Main Street & Rifle Range Road**
Type of Control: minor stop-controlled T-intersection
Westbound Approach: (Rifle Range Rd) shared left-turn/right turn lane, stop controlled
Northbound Approach: (S. Main St) shared through/right-turn lane
Southbound Approach: (S. Main St) shared left-turn/through lane

10) S Main Street & Antique Alley

Type of Control: minor stop-controlled T-intersection

Westbound Approach: (Antique Alley) shared left-turn/right-turn lane, stop controlled

Northbound Approach: (S. Main St) shared through/right-turn lane

Southbound Approach: (S. Main St) shared left-turn/through lane

11) US Route 13 & Rifle Range Road

Type of Control: two way stop-controlled

Eastbound Approach: (Rifle Range Rd) right-turn lane, stop controlled

Westbound Approach: (Rifle Range Rd) right-turn lane, stop controlled

Northbound Approach: (US 13) left-turn lane, two through lanes, and right-turn lane

Southbound Approach: (US 13) left-turn lane, two through lanes, and right-turn lane

12) US Route 13 & Antique Alley / Joggers Lane

Type of Control: two way stop-controlled

Eastbound Approach: (Antique Alley) shared left-turn/through/right-turn lane, stop controlled

Westbound Approach: (Joggers Lane) shared left-turn/through/right-turn lane, stop controlled

Northbound Approach: (US 13) left-turn lane, through lane, and one through/right-turn lane

Southbound Approach: (US 13) left-turn lane, through lane, and one through/right-turn lane

13) US Route 13 & Camp Road (North)

Type of Control: minor stop-controlled T-intersection

Westbound Approach: (Camp Rd) shared left-turn/right-turn lane, stop controlled

Northbound Approach: (US 13) U-turn Lane, two through lanes, and right-turn lane

Southbound Approach: (US 13) one left-turn lane and two through lanes

14) US Route 13 & Heritage Shores Drive

Type of Control: minor stop-controlled T-intersection

Eastbound Approach: (Heritage Shores Dr) right turn lane, stop controlled

Northbound Approach: (US 13) left-turn lane and two through lanes

Southbound Approach: (US 13) U-turn Lane, two through lanes, and right-turn lane

15) US Route 13 & Cannon Road (DE 18)

Type of Control: signalized intersection

Eastbound Approach: (Cannon Rd) shared left-turn/through/right-turn lane

Westbound Approach: (Cannon Rd) left-turn/through lane and right-turn lane

Northbound Approach: (US 13) left-turn lane, two through lanes, and right-turn lane

Southbound Approach: (US 13) left-turn lane, two through lanes, and right-turn lane

16) US Route 13 & Camp Road (South)

Type of Control: minor stop-controlled T-intersection

Westbound Approach: (Camp Rd) right-turn lane, stop controlled

Northbound Approach: (US 13) two through lanes and one right-turn lane

Southbound Approach: (US 13) two through lanes

Safety Evaluation

Crash Data: Delaware Crash Analysis Reporting System (CARS) data was provided in the TIS for the three-year period from September 29, 2019, to September 29, 2022. A total of 176 crashes occurred within the study area during the three-year period. Of those 176 collisions, 55 resulted in personal injury. The highest frequency of crashes occurred at the signalized intersections of US Route 13 and Seashore Highway (DE 404)/S. Main Street and the intersection of US Route 13 and Cannon Road (DE 18), each experiencing 37 crashes in three years. The most common type of collision was front to rear, which primarily occurred at these signalized intersections. There was one fatal crash that occurred at the intersection of US Route 13 and Seashore Highway (DE 404)/S. Main Street which involved alcohol.

Sight Distance: The study area generally consists of relatively flat roadways and there are few visual obstructions. Sight distance appears adequate throughout the study area. No problematic sight distance issues have been reported or indicated by crash data. As always, adequacy of available sight distance should be confirmed during the site plan review process for all proposed movements at the site accesses.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Based on the DART Bus Stop Map (accessed November 2022), the Delaware Transit Corporation (DTC) currently operates Bus Route 212 travels along US Route 13 and Delaware Route 404. There are bus stops located on both side of Delaware Route 404 east of the intersection of Delaware Route 404 and Tatman Farm Road / Bridgeville Park Center (approximately 900 feet west of proposed Site Entrance A).

Planned transit service: DTC supports the proposed bus stop pad and pull-off location on northbound US Route 13, near proposed Site Entrance B. DTC also requests that a Type 2 (17' x 8') shelter pad with bus pull-off be constructed on eastbound Delaware Route 404, east of the proposed Site Entrance A. In addition to these transit facilities, DTC recommends that the developer work with the property owner of the parcel north of the proposed Bridgeville Town Center development (Parcel ID: 131-15.00-24.04) to provide a pedestrian connection to Food Lion and other retail.

Existing bicycle and pedestrian facilities: According to DelDOT's Sussex County Bicycle Map, Seashore Highway (DE 404) and S. Main Street are both classified as a Regional Bicycle Route with Bikeway. US 13 and Cannon Road are both classified as a Connector Bicycle Route Suggestions with Bikeway. There are currently no existing bicycle lanes along the existing site frontages; however, there are 10' shoulders along both US 13 and Seashore Highway (DE 404). Additionally, there are bike lanes on throughout the study area: namely, along eastbound S. Main Street that continues to Seashore Highway (DE 404) and transitions to an extended shoulder just south of Tatman Farm Road, just north of the proposed site access.

Planned bicycle and pedestrian facilities: A multi-use path is requested along the property frontage with a bicycle lane to be included between the through lane and right-turn lane into the site on both US 13 and Seashore Highway (DE 404).

Previous Comments

In a review letter dated November 15, 2021, DelDOT indicated that the traffic counts were acceptable and provided the developer with growth factors to develop future volumes and directed the developer to proceed with the Preliminary TIS. Site distribution was to be sent to the developer in a separate letter.

In a second review dated September 7, 2022, DelDOT requested revisions to background development trip generation, trip distributions, and volume diagrams. DelDOT also clarified that trip generation using Land Use code 821 was developed assuming that a supermarket would not be included in the proposed shopping plaza.

In a third review letter dated September 28, 2022, DelDOT provided review comments of the Preliminary TIS that requested revisions to Saturday midday peak hour volumes and tables that present seasonal adjustment factors and growth factors. DelDOT requested that the developer address these comments and resubmit the Preliminary TIS.

In a fourth review letter dated September 29, 2022, DelDOT found the Preliminary TIS to be acceptable and directed the developer to proceed with the Final TIS.

It appears that all substantive comments from DelDOT's TIS Scoping Memorandum, Traffic Count Review, Preliminary TIS Review, and other correspondence were addressed in the Final TIS submission.

General HCS Analysis Comments

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

- 1) The TIS used Highway Capacity Software (HCS) version 7.6 to complete the traffic analyses. McCormick Taylor used HCS 2022.
- 2) Per DelDOT's Development Coordination Manual, section 2.2.8.11.6.F, the TIS and McCormick Taylor utilized the existing peak hour factors (PHF) for all scenarios at existing intersections. At the proposed site entrances, the TIS used 0.80 for intersections with less than 500 vph, 0.88 for intersections between 500 and 1,000 vph and 0.92 for intersections with more than 1,000 vph.
- 3) Per DelDOT's Development Coordination Manual, section 2.2.8.11.6.H, McCormick Taylor and the TIS used existing heavy vehicle percentages (HV%) in Case 1, 2, and 3 models. At the proposed site entrances, a HV% of 3% was used in Case 3 models.
- 4) For analyses of all intersections, McCormick Taylor and the TIS assumed 0% grade for all movements.

Table 2
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ¹ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
1 - Site Entrance A & Seashore Highway (DE 404)						
2027 Build Condition (Case 3)						
Westbound DE 404 - Left	A (8.3)	A (8.7)	A (9.5)	A (8.3)	A (8.7)	A (9.5)
Northbound Site Entrance A	B (12.9)	C (15.3)	C (24.0)	B (12.9)	C (15.3)	C (24.0)

¹ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 3
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ² One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
2 - Site Entrance B & US Route 13						
2027 Build Condition (Case 3)						
Westbound Site Entrance B - Right	C (20.6)	C (20.8)	F (52.1)	C (20.6)	C (20.8)	F (52.1)

² For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 4
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ³ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
3 - Seashore Highway (DE 404) & Cannon Road (DE 18)						
2021 Existing Condition (Case 1)						
Westbound DE 404 - Left	A (8.3)	A (9.0)	A (9.3)	A (8.3)	A (9.1)	A (9.3)
Northbound DE 18	B (11.1)	B (13.5)	C (16.5)	B (11.1)	B (13.5)	C (16.5)
2027 No Build Condition (Case 2)						
Westbound DE 404 - Left	A (8.5)	A (9.3)	A (9.8)	A (8.5)	A (9.5)	A (9.8)
Northbound DE 18	B (11.8)	B (14.8)	C (19.8)	B (11.8)	B (14.8)	C (19.8)
2027 Build Condition (Case 3)						
Westbound DE 404 - Left	A (8.7)	A (9.5)	B (10.0)	A (8.7)	A (9.7)	B (10.1)
Northbound DE 18	B (12.6)	C (15.7)	C (22.0)	B (12.6)	C (15.7)	C (22.0)

³ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 5
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ⁴ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
4 - Seashore Highway (DE 404) & Sanfilippo Road						
2021 Existing Condition (Case 1)						
Westbound DE 404 - Left	A (8.3)	A (8.9)	A (9.2)	A (8.3)	A (8.9)	A (9.3)
Northbound Sanfilippo Road	B (12.8)	C (15.1)	C (19.8)	B (12.8)	C (15.1)	C (19.8)
2027 No Build Condition (Case 2)						
Westbound DE 404 - Left	A (8.5)	A (9.1)	A (9.6)	A (8.6)	A (9.2)	A (9.7)
Northbound Sanfilippo Road	B (14.1)	C (17.8)	D (25.8)	B (14.1)	C (17.9)	D (25.8)
2027 Build Condition (Case 3)						
Westbound DE 404 - Left	A (8.7)	A (9.3)	A (9.8)	A (8.7)	A (9.4)	A (9.9)
Northbound Sanfilippo Road	B (16.0)	C (20.8)	D (32.9)	B (16.0)	C (20.8)	D (32.9)

⁴ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 6
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ⁵ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
5 - Seashore Highway (DE 404) & Oak Road						
2021 Existing Condition (Case 1)						
Eastbound DE 404 - Left	A (7.9)	A (9.0)	A (8.8)	A (7.9)	A (9.0)	A (8.8)
Southbound Oak Road	C (15.6)	C (24.0)	D (26.0)	C (15.6)	C (24.0)	D (26.0)
2027 No Build Condition (Case 2)						
Eastbound DE 404 - Left	A (8.0)	A (9.4)	A (9.2)	A (8.0)	A (9.4)	A (9.2)
Southbound Oak Road	C (18.4)	D (32.7)	E (37.8)	C (18.4)	D (32.8)	E (37.8)
2027 Build Condition (Case 3)						
Eastbound DE 404 - Left	A (8.2)	A (9.6)	A (9.4)	A (8.2)	A (9.6)	A (9.4)
Southbound Oak Road	C (21.7)	E (39.6)	E (49.4)	C (21.7)	E (39.7)	E (49.4)
2027 Build Condition (Case 3) – w/Improvements (Right-turn Lane)						
Eastbound DE 404 - Left	-	-	-	A (8.2)	A (9.6)	A (9.4)
Southbound Oak Road	-	-	-	C (16.6)	D (25.9)	D (30.4)

⁵ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 7
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Signalized Intersection ⁶	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
6 - Seashore Highway (DE 404) & Tatman Farm Road						
2021 Existing Condition (Case 1)	B (11.8)	B (12.9)	B (13.0)	B (15.8)	B (17.7)	B (16.8)
2027 No Build Condition (Case 2)	B (11.7)	B (12.9)	B (13.0)	B (15.5)	B (17.3)	B (16.8)
2027 Build Condition (Case 3)	B (11.8)	B (13.0)	B (13.0)	B (15.4)	B (17.2)	B (16.9)

⁶ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 8
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Signalized Intersection ⁷	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
7 - US Route 13 & Seashore Highway/S. Main Street						
2021 Existing Condition (Case 1)	B (18.3)	C (20.2)	C (32.9)	C (22.8)	C (22.2)	C (28.8)
2027 No Build Condition (Case 2)	C (20.2)	C (22.6)	D (39.0)	C (24.6)	C (24.5)	C (33.5)
2027 Build Condition (Case 3)	C (23.1)	C (25.0)	D (42.0)	C (26.3)	C (27.0)	D (40.0)

⁷ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 9
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahan Associates, Inc.

Unsignalized Intersection ⁸ Two-Way Stop	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
8 - S. Main Street & Passwaters Farm Road						
2021 Existing Condition (Case 1)						
Eastbound Passwaters Road	A (14.1)	B (13.3)	C (17.5)	A (14.1)	B (13.3)	C (17.5)
Westbound Passwaters Road	B (13.4)	B (12.8)	C (16.5)	B (13.4)	B (12.8)	C (16.5)
Northbound S. Main Street - Left	A (7.7)	A (7.7)	A (8.0)	A (7.7)	A (7.7)	A (8.0)
Southbound S. Main Street - Left	A (7.7)	A (7.6)	A (7.8)	A (7.7)	A (7.6)	A (7.8)
2027 No Build Condition (Case 2)						
Eastbound Passwaters Road	C (17.3)	C (16.0)	C (23.9)	C (17.3)	C (16.0)	C (23.9)
Westbound Passwaters Road	C (17.5)	C (16.2)	C (23.2)	C (17.5)	C (16.2)	C (23.2)
Northbound S. Main Street - Left	A (7.9)	A (7.9)	A (8.2)	A (7.9)	A (7.9)	A (8.2)
Southbound S. Main Street - Left	A (7.7)	A (7.7)	A (8.0)	A (7.7)	A (7.7)	A (8.0)
2027 Build Condition (Case 3)						
Eastbound Passwaters Road	C (21.9)	C (18.1)	D (29.9)	C (21.9)	C (18.1)	D (29.9)
Westbound Passwaters Road	C (22.2)	C (18.4)	D (28.6)	C (22.2)	C (18.4)	D (28.6)
Northbound S. Main Street - Left	A (8.1)	A (8.1)	A (8.4)	A (8.1)	A (8.1)	A (8.4)
Southbound S. Main Street - Left	A (7.9)	A (7.8)	A (8.2)	A (7.9)	A (7.8)	A (8.2)

⁸ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 10
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ⁹ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
9 - S. Main Street & Rifle Range Road						
2021 Existing Condition (Case 1)						
Westbound Rifle Range Road	A (9.3)	A (9.8)	B (10.1)	A (9.3)	A (9.8)	B (10.3)
Southbound S. Main Street - Left	A (7.8)	A (7.8)	A (7.8)	A (7.8)	A (7.8)	A (7.9)
2027 No Build Condition (Case 2)						
Westbound Rifle Range Road	B (9.6)	B (10.2)	B (10.8)	B (9.6)	B (10.2)	B (10.8)
Southbound S. Main Street - Left	A (7.9)	A (7.9)	A (8.0)	A (7.9)	A (7.9)	A (8.0)
2027 Build Condition (Case 3)						
Westbound Rifle Range Road	B (10.2)	B (10.6)	B (11.4)	B (10.2)	B (10.6)	B (11.4)
Southbound S. Main Street - Left	A (8.1)	A (8.1)	A (8.2)	A (8.1)	A (8.1)	A (8.2)

⁹ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 11
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ¹⁰ Two-Way Stop	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
10 - S. Main Street & Antique Alley						
2021 Existing Condition (Case 1)						
Eastbound Antique Alley - Through	-	-	-	-	-	-
Westbound Antique Alley - Through	A (9.8)	B (10.3)	B (10.3)	A (9.8)	B (10.3)	B (10.3)
Northbound S. Main Street - Left	-	-	-	-	-	-
Southbound S. Main Street - Left	A (7.8)	A (7.8)	A (7.9)	A (7.8)	A (7.8)	A (7.9)
2027 No Build Condition (Case 2) ¹¹						
Eastbound Antique Alley - Through	B (14.3)	B (13.9)	C (20.0)	B (14.3)	B (13.9)	C (20.2)
Westbound Antique Alley - Through	B (10.9)	B (12.9)	C (17.2)	B (10.9)	B (12.9)	C (17.2)
Northbound S. Main Street - Left	A (7.9)	A (7.9)	A (8.4)	A (7.9)	A (7.9)	A (8.4)
Southbound S. Main Street - Left	A (7.9)	A (7.9)	A (8.0)	A (7.9)	A (7.9)	A (8.0)
2027 Build Condition (Case 3) ¹²						
Eastbound Antique Alley - Through	C (16.6)	C (15.2)	C (24.0)	C (16.7)	C (15.3)	C (24.4)
Westbound Antique Alley - Through	B (11.9)	B (13.9)	C (20.1)	B (11.9)	B (13.9)	C (20.2)
Northbound S. Main Street - Left	A (8.1)	A (8.1)	A (8.6)	A (8.1)	A (8.1)	A (8.6)
Southbound S. Main Street - Left	A (8.1)	A (8.0)	A (8.1)	A (8.1)	A (8.0)	A (8.1)

¹⁰ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

¹¹ An eastbound approach is constructed at this intersection in future conditions

¹² An eastbound approach is constructed at this intersection in future conditions

Table 12
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc

Unsignalized Intersection ¹³ Two-Way Stop	LOS per TIS ¹⁴			LOS per McCormick Taylor ¹⁵		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
11 - US Route 13 & Rifle Range Road						
2021 Existing Condition (Case 1)						
Eastbound Rifle Range Road	C (23.8)	E (46.0)	F (77.2)	B (11.5)	B (13.7)	C (15.6)
Westbound Rifle Range Road	C (19.9)	D (28.2)	F (51.3)	B (12.4)	B (13.8)	C (18.0)
Northbound US Route 13 - Left	A (9.6)	B (13.1)	C (16.4)	A (9.7)	B (13.6)	C (16.3)
Southbound US Route 13 - Left	B (11.1)	B (12.3)	C (15.3)	B (11.1)	B (12.4)	C (15.4)
2027 No Build Condition (Case 2)						
Eastbound Rifle Range Road	D (26.9)	F (59.3)	F (115.3)	B (11.9)	B (14.5)	C (16.8)
Westbound Rifle Range Road	C (22.6)	D (34.7)	F (70.0)	B (13.0)	B (14.6)	C (19.8)
Northbound US Route 13 - Left	A (10.0)	B (14.2)	C (18.2)	B (10.0)	B (14.9)	C (18.8)
Southbound US Route 13 - Left	B (11.8)	B (13.3)	C (16.9)	B (11.8)	B (13.3)	C (17.0)
2027 Build Condition (Case 3)						
Eastbound Rifle Range Road	D (29.0)	F (64.5)	F (132.5)	B (12.2)	B (14.8)	C (17.4)
Westbound Rifle Range Road	C (24.3)	E (37.2)	F (78.9)	B (13.5)	B (14.9)	C (19.8)
Northbound US Route 13 - Left	B (10.2)	B (14.7)	C (19.2)	B (10.3)	C (15.4)	C (19.3)
Southbound US Route 13 - Left	B (12.2)	B (13.6)	C (17.5)	B (12.2)	B (13.7)	C (17.6)

¹³ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

¹⁴ The TIS modeled this intersection using the geometry that was present at the intersection when the turning movement counts were conducted on 10/21/2021. In this configuration, left-turn and through movements were permitted from the stop controlled eastbound and westbound approaches.

¹⁵ McCormick Taylor modeled this intersection using the geometry that was present at the intersection during a site visit on 11/10/2022. In this configuration, the eastbound and westbound approaches were right-turn only, with stop control. McCormick Taylor redistributed the left-turn and through volume on these approaches to the right-turn movement.

Table 13
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahan Associates, Inc.

Unsignalized Intersection ¹⁶ Two-Way Stop	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday ¹⁷
12 - US Route 13 & Antique Alley/Joggers Lane						
2021 Existing Condition (Case 1)						
Eastbound Antique Alley	C (18.0)	D (26.1)	D (27.3)	C (18.1)	D (26.2)	D (27.6)
Westbound Joggers Lane	E (38.7)	D (30.6)	-	E (39.3)	D (30.9)	-
Northbound US Route 13 - Left	B (10.3)	B (11.9)	B (13.5)	B (10.3)	B (11.9)	B (13.5)
Southbound US Route 13 - Left	B (13.4)	B (10.2)	D (29.6)	B (11.4)	B (10.2)	C (21.6)
2027 No Build Condition (Case 2)						
Eastbound Antique Alley	D (28.9)	E (41.6)	F (97.7)	D (29.2)	E (41.9)	F (100.2)
Westbound Joggers Lane	E (46.0)	E (35.4)	-	E (46.7)	E (36.1)	-
Northbound US Route 13 - Left	B (10.8)	B (13.1)	C (15.2)	B (10.8)	B (13.1)	C (15.2)
Southbound US Route 13 - Left	B (14.6)	B (10.6)	E (35.3)	B (12.3)	B (10.6)	D (25.0)
2027 Build Condition (Case 3)						
Eastbound Antique Alley	D (31.6)	E (44.6)	F (112.4)	D (31.9)	E (44.9)	F (115.3)
Westbound Joggers Lane	F (50.6)	E (37.1)	-	F (51.0)	E (37.9)	-
Northbound US Route 13 - Left	B (11.1)	B (13.4)	C (15.8)	B (11.1)	B (13.4)	C (15.8)
Southbound US Route 13 - Left	C (15.4)	B (10.8)	E (37.6)	C (12.8)	B (10.8)	D (26.4)
2027 Build Condition (Case 3) – w/Improvements (Turn Restrictions)¹⁸						
Eastbound Antique Alley	-	-	-	C (12.7)	C (15.6)	C (20.0)
Westbound Joggers Lane	-	-	-	B (11.9)	B (12.8)	-
Northbound US Route 13 - Left	-	-	-	B (10.7)	B (13.4)	C (16.2)
Southbound US Route 13 - Left	-	-	-	B (13.0)	B (11.0)	D (27.2)

¹⁶ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

¹⁷ LOS and delay are not reported for the westbound approach as there was no traffic volume during the Saturday midday peak hour.

¹⁸ Improvements include turn restrictions with raised concrete islands or painted islands with delineators.

Table 14
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahan Associates, Inc.

Unsignalized Intersection ¹⁹ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
13 - US Route 13 & Camp Road (North)						
2021 Existing Condition (Case 1)						
Westbound Camp Road	B (11.8)	B (13.0)	C (16.6)	B (11.8)	B (13.0)	C (16.6)
Northbound US Route 13 - U-Turn	B (13.7)	C (16.1)	C (23.4)	B (13.7)	C (16.1)	C (23.4)
Southbound US Route 13 - Left	B (11.5)	B (14.0)	C (18.8)	B (11.4)	B (13.5)	C (18.2)
2027 No Build Condition (Case 2)						
Westbound Camp Road	B (12.3)	B (13.9)	C (18.4)	B (12.3)	B (13.9)	C (18.4)
Northbound US Route 13 - U-Turn	C (15.2)	C (18.0)	D (28.1)	C (15.2)	C (18.0)	D (28.1)
Southbound US Route 13 - Left	B (12.2)	C (15.6)	C (22.1)	B (12.0)	C (15.0)	C (22.3)
2027 Build Condition (Case 3)						
Westbound Camp Road	B (12.8)	B (14.2)	C (19.3)	B (12.8)	B (14.3)	C (19.3)
Northbound US Route 13 - U-Turn	C (16.2)	C (18.8)	D (30.0)	C (16.2)	C (18.8)	D (30.0)
Southbound US Route 13 - Left	B (12.7)	C (16.3)	C (23.4)	B (12.5)	C (15.7)	C (22.8)

¹⁹ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 15
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ²⁰ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
14 - US Route 13 & Heritage Shores Drive						
2021 Existing Condition (Case 1)						
Eastbound Heritage Shores Dr - Right	B (11.7)	B (13.4)	C (15.7)	B (11.7)	B (15.0)	C (15.7)
Northbound US Route 13 - Left	A (9.9)	B (11.2)	B (13.7)	A (9.9)	B (12.5)	B (13.7)
Southbound US Route 13 - U-Turn	B (13.9)	B (17.2)	D (28.3)	B (13.9)	C (20.2)	D (28.3)
2027 No Build Condition (Case 2)						
Eastbound Heritage Shores Dr - Right	B (12.6)	B (14.6)	C (18.1)	B (12.6)	B (14.6)	C (18.1)
Northbound US Route 13 - Left	B (10.4)	B (12.1)	C (15.2)	B (10.4)	B (12.1)	C (15.2)
Southbound US Route 13 - U-Turn	B (14.9)	C (19.1)	D (33.8)	B (14.9)	C (19.1)	D (33.8)
2027 Build Condition (Case 3)						
Eastbound Heritage Shores Dr - Right	B (13.0)	B (15.0)	C (18.8)	B (13.0)	B (15.0)	C (18.8)
Northbound US Route 13 - Left	B (10.7)	B (12.5)	C (15.9)	B (10.7)	B (12.5)	C (15.9)
Southbound US Route 13 - U-Turn	C (15.9)	C (20.2)	E (37.1)	C (15.9)	C (20.2)	E (37.1)

²⁰ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

Table 16
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Signalized Intersection ²¹	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
15 - US Route 13 & Cannon Road (DE 18)						
2021 Existing Condition (Case 1)	D (38.5)	D (37.9)	D (31.8)	D (41.0)	D (41.0)	C (31.8)
2027 No Build Condition (Case 2) ²²	D (41.3)	D (40.4)	D (43.0)	D (41.6)	D (43.9)	D (38.1)
2027 Build Condition (Case 3)	D (42.2)	D (40.9)	D (46.1)	D (42.6)	D (44.6)	D (38.9)

²¹ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.

²² Future conditions at this intersection include an eastbound left turn lane constructed by the developer of the 7-11 on the northwest corner of the intersection.

Table 17
Peak Hour Levels of Service (LOS)
Based on the Bridgeville Town Center Traffic Impact Study – October 2022
Prepared by McMahon Associates, Inc.

Unsignalized Intersection ²³ One-Way Stop (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Summer Saturday	Weekday AM	Weekday PM	Summer Saturday
16 - US Route 13 & Camp Road (South)						
2021 Existing Condition (Case 1)						
Westbound Camp Road - Right	B (11.9)	B (13.7)	C (17.5)	B (11.9)	B (13.7)	C (17.5)
2027 No Build Condition (Case 2)						
Westbound Camp Road - Right	B (12.4)	B (14.7)	C (19.6)	B (12.4)	B (14.7)	C (19.6)
2027 Build Condition (Case 3)						
Westbound Camp Road - Right	B (12.6)	B (14.9)	C (20.1)	B (12.7)	B (14.9)	C (20.1)

²³ For both unsignalized and signalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, LOS analysis results are given for only the overall intersection delay.