



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

NICOLE MAJESKI  
SECRETARY

July 3, 2023

Mr. Alex Meitzler  
Traffic Planning & Design, Inc.  
111 E. Main Street, Suite A  
Elkton, MD 21921

Dear Mr. Meitzler:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **First State Crossing** (Tax Parcels: 06-048-00-001, 06-059.00-162, 06-072.00-198, 06-073.00-001) mixed-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](mailto:Annamaria.Furmato@delaware.gov).

Sincerely,

Annamaria Furmato  
TIS Group Project Engineer

AF:km

Enclosures

cc with enclosures: Russ Becker, Claymont Properties LLC  
Abigail Meyer, Traffic, Planning, and Design, Inc.  
Eric Kramer, Traffic, Planning, and Design, Inc.  
Douglas Eitelman, VanDemark and Lynch, Inc.  
David L. Edgell, Office of State Planning Coordination  
Antoni Sekowski, New Castle County Department of Land Use  
Bradford Shockley, New Castle County Department of Land Use  
Owen C. Robatino, New Castle County Department of Land Use  
Andrew J. Parker, McCormick Taylor, Inc.  
Tucker Smith, McCormick Taylor, Inc.  
DelDOT Distribution

## DelDOT Distribution

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Philip Lindsey, TIS Group Project Engineer, Development Coordination, Planning  
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning



June 20, 2023

Ms. Annamaria Furmato  
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 05 – Addendum #2 to First State Crossing TIS**

Dear Ms. Furmato:

McCormick Taylor has completed its review of Addendum #2 of the Traffic Impact Study (TIS) for the First State Crossing mixed-use development, prepared by Traffic Planning & Design, Inc. (TPD). The original TIS was dated June 2019 and was updated in August 2019, Addendum #1 was submitted in February 2020, and Addendum #2 is dated September 2022. TPD prepared the Addendum #2 report in a manner generally consistent with DelDOT's Development Coordination Manual.

Addendum #2 evaluates the impacts of the updated plan for the proposed First State Crossing mixed-use development on four intersections (including three site accesses) along Philadelphia Pike (US Route 13 / New Castle Road 24). The site is located on the east side of Interstate 495, both sides of Philadelphia Pike, and the southwest side of Naamans Road (Delaware Route 92 / New Castle Road 17) in New Castle County.

Addendum #2, covering four intersections and nine analysis cases, is much smaller in scope than the original TIS and Addendum #1, which both covered more than 20 intersections and evaluated more than 10 analysis cases. Much of the background information covered in those reports and detailed in their TIS review letters is either omitted or simply condensed (and updated as needed) for this Addendum #2 review letter. For reference, the draft review letter for the original TIS was last revised in November 2019 but a final review letter was not issued prior to the submission of TIS Addendum #1. The final review letter for Addendum #1 was dated September 9, 2021, and a copy of that letter is enclosed here at the end of this Addendum #2 review letter.

The original TIS analyzed three phases of development. Addendum #1 reflected revised land use assumptions associated with updated plans as of early 2020. Addendum #2 (current submission) was further revised to consider updated 2022 land use assumptions for the Site Parcels, a reduction in the number of phases from three to two, and updated planned site access (as described at the top of page 4). Below is a summary of the up-to-date anticipated land use for each Phase and Site Parcel considered in Addendum #2 at the time of submission in September 2022:

Phase 1 (expected completion in or before 2025): Site Parcel 4 only

- 340 multi-family mid-rise dwelling units
- 430,330 SF general office
- 5,585 SF convenience store with gas pumps
- 25,656 SF supermarket
- 28,565 SF retail

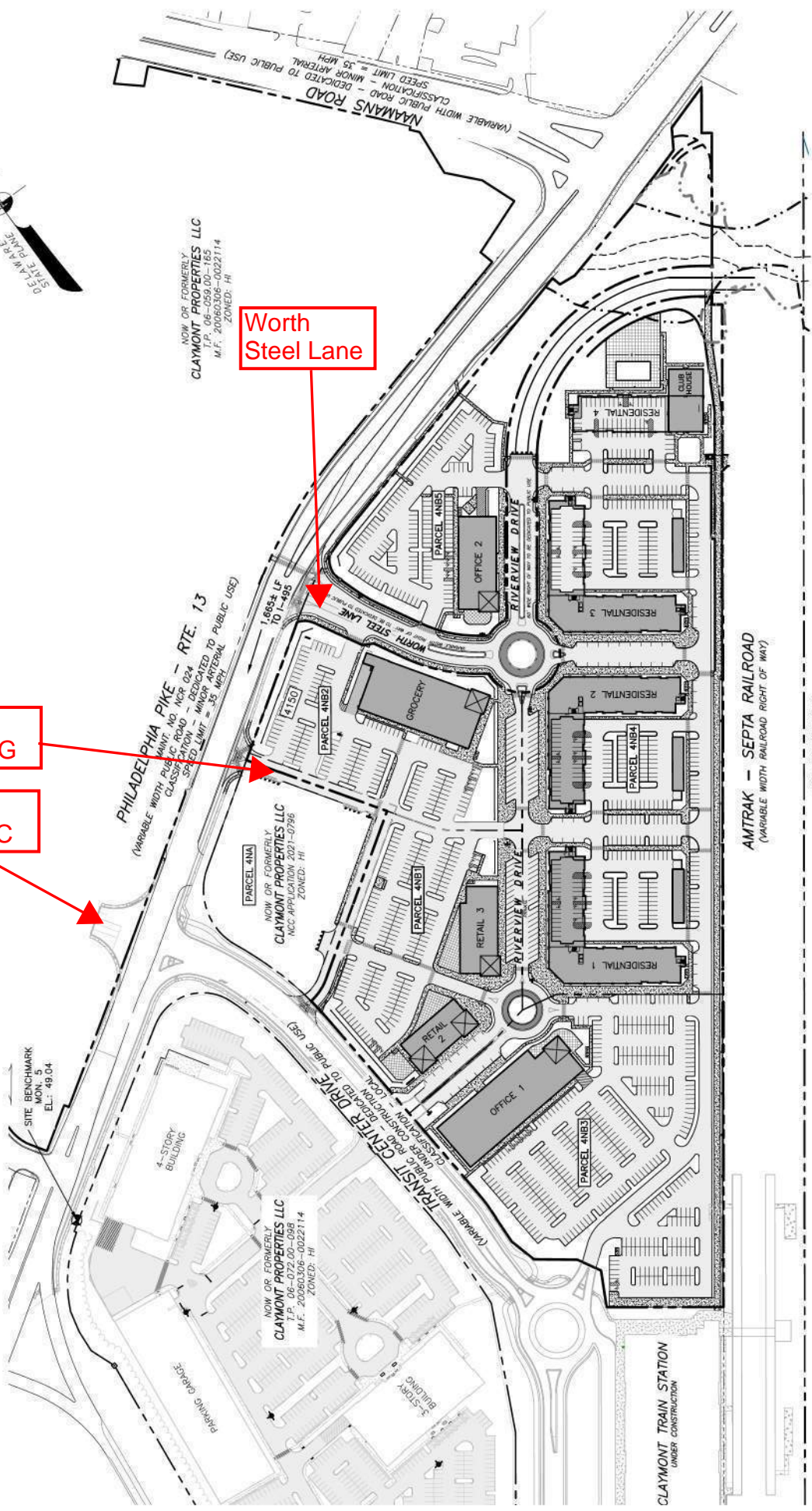
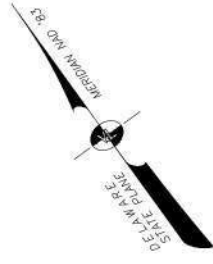
Full Buildout (expected completion in or before 2030): Site Parcel 4 plus Site Parcels 1, 3, and 6

- All Phase 1 (Site Parcel 4) developments, plus the following:
- Site Parcel 1:
  - 432,000 SF general office
  - 25,600 SF retail
  - 6,000 SF quality restaurant
  - 15,000 SF pharmacy
- Site Parcel 3:
  - 400,000 SF industrial park
  - 94,000 SF general office
- Site Parcel 6:
  - 990 multi-family mid-rise dwelling units

An updated site plan for Site Parcel 4 (Phase 1) was provided in Addendum #2 and is included on page 3 of this review letter. Site Parcel 4 lies east of Philadelphia Pike but west of the AMTRAK/SEPTA rail lines. Based on plans in the original TIS, Site Parcels 1 and 3 (not shown on the updated Addendum #2 site plan) are located west of Philadelphia Pike and south of Naamans Road, while Site Parcel 6 (also not shown on the updated site plan) is located east of the AMTRAK/SEPTA rail lines with a roadway connection through Site Parcel 4 to access Philadelphia Pike. The site plan from Addendum #1, which showed all the site parcels, is provided on page 16 of this Addendum #2 letter for reference to the locations of all site parcels. It is important to note the Addendum #1 site plan shows the possibility of a Spine Road across Naamans Creek (connecting Site Parcels 1 and 3) but that is no longer being considered.

Addendum #2 also accounts for the following:

- Assumes completion of recent improvements at the intersection of Naamans Road and Philadelphia Pike for 2022 existing conditions and all future conditions
- Assumes completion of the recently constructed signalized intersection at Philadelphia Pike and Transit Center Drive / Site Access C for all future conditions (not analyzed under existing conditions due to no traffic on side streets in existing conditions)
- Assumes completion of relocated Claymont Train Station (now known as Claymont Regional Transportation Center (CRTC)) for all future conditions. Construction began in 2019 and is anticipated to be complete in 2023.



Site Access G

Site Access C

Worth Steel Lane

NOW OR FORMERLY  
CLAYMONT PROPERTIES LLC  
M.F. 20060306-0022114  
ZONED: HI

NOW OR FORMERLY  
CLAYMONT PROPERTIES LLC  
M.F. 20060306-0022114  
ZONED: HI

NOW OR FORMERLY  
CLAYMONT PROPERTIES LLC  
M.F. 20060306-0022114  
ZONED: HI



TRAFFIC PLANNING AND DESIGN, INC.  
www.TrafficPD.com | 1.877.873.9739 | TPD@TrafficPD.com

FIGURE 2

SITE PLAN

KEY:  
SCHEMATIC DRAWING: NOT TO SCALE

Access locations evaluated in Addendum #2 are the following three proposed intersections on Philadelphia Pike:

- Transit Center Drive / Site Access C: full access driveways to both sides of Philadelphia Pike – signalized
- Site Access G: unsignalized right-in/right-out driveway on the east side of Philadelphia Pike approximately 375 feet north of Transit Center Drive
- Worth Steel Lane (a.k.a. Site Access F): driveway on the east side of Philadelphia Pike approximately 375 feet north of Site Access G. Three alternatives of access configurations were evaluated in Addendum #2 for Worth Steel Lane at Philadelphia Pike:
  - Full-movement access
  - Right-in/right-out/left-in access (no lefts out)
  - Right-in/right-out only access

According to Addendum #2, there are also three access points proposed on Naamans Road, which will serve Site Parcels 1 and 6 of First State Crossing, but the proposed accesses on Naamans Road (summarized below) were not evaluated in Addendum #2.

- Full-access driveway at the existing Tri-State Mall western access – serves Site Parcel 1
- Right-in/right-out driveway across from the Tri-State Mall eastern access – serves Site Parcel 1
- Exit only driveway across from Ridge Road (New Castle Road 17A) – serves Site Parcel 6 as a one-way exit to Naamans Road

We note that planned land use and access of Site Parcel 1 and Site Parcel 3 changed after the Addendum #2 submission in September 2022. The changes, which were not reflected in Addendum #2 or in the summary information above, are described below on page 6. DelDOT will not require Addendum #2 to be updated at this time, but an updated Traffic Signal Justification Study (TSJS) was required for the intersection of Philadelphia Pike and Worth Steel Lane and was submitted by TPD in April 2023. Upon DelDOT review of that April 2023 TSJS for Philadelphia Pike and Worth Steel Lane, TPD submitted a revised TSJS in May 2023.

We also note that TPD submitted a Traffic Operational Analysis (TOA) in January 2023 associated with the aforementioned changes in proposed land use and site access for Site Parcel 1 (now proposed as a cold storage warehouse as described below on page 6). We reviewed that TOA and developed recommendations for their site accesses on Naamans Road along with related improvements. As requested by TPD, the recommendations pertaining to our review of the TOA for updated Site Parcel 1 are included in this review letter as Item No. 7.

DelDOT has a number of projects and other initiatives within the Addendum #2 study area. First, recently completed in early 2022 as a road diet project on Philadelphia Pike from Naamans Road to the Pennsylvania state line. It reduced Philadelphia Pike north of Naamans Road from two lanes to one lane in each direction and changed eastbound Naamans Road at Philadelphia Pike from two left-turn lanes to one left-turn lane.



The Claymont train station is being relocated and will be called the Claymont Regional Transportation Center (CRTC). This project will relocate the former Claymont train station approximately one-half mile to the north. The CRTC will provide approximately 870 parking spaces, improved access to the station by all modes of transportation, and direct transit access to the proposed First State Crossing development. The CRTC will connect to the existing roadway network via Transit Center Drive with a recently constructed traffic signal at Philadelphia Pike approximately 1,700 feet south of Naamans Road. Construction began in 2019 and is anticipated to be complete in 2023.

DelDOT’s Traffic Section completed a Philadelphia Pike Pedestrian Safety Audit Study in 2018. This study identified several dozen recommendations for pedestrian safety enhancements along Philadelphia Pike from Lea Boulevard to the Pennsylvania state line. The recommendations were grouped into short-term, mid-term and long-term implementation timeframes. For the Claymont Regional Transportation Center project and the First State Crossing project, improvements being developed and designed for intersections along Philadelphia Pike should incorporate the recommendations of this pedestrian safety audit whenever appropriate.

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

The proposed First State Crossing development would meet the New Castle County Level of Service (LOS) Standards as stated in Section 40.11.210 of the Unified Development Code (UDC), for all intersections in the Addendum #2 scope of study.

However, as shown in the table below, based on the criteria listed in Chapter 2 of DelDOT’s Development Coordination Manual, one intersection identified by DelDOT as being required for study would exhibit LOS deficiencies without the implementation of physical roadway and/or traffic control improvements. The potential LOS deficiency is on the stop-controlled minor-street approach at one proposed site driveway, if it were to be full access and unsignalized. The deficiency pertains to that approach only and, if stop-controlled, the intersection is not subject to New Castle County’s concurrency requirements.

<i>Intersection</i>	<i>Traffic Control</i>	<i>Situations for which deficiencies occur</i>
Philadelphia Pike and Worth Steel Lane (a.k.a. Site Access F)	Unsignalized (Does not yet exist)	2025 Phase 1 full access with development PM; 2030 Buildout full access with development AM and PM

Philadelphia Pike and Worth Steel Lane

This future intersection, if full access and one-way stop-controlled, would experience LOS deficiencies on the westbound Worth Steel Lane approach. This LOS deficiency occurs in the PM peak hour for both the 2025 Phase 1 and 2030 Buildout condition, and in the AM peak hour for the 2030 Buildout condition. In order to mitigate this situation, the developer could restrict the left-out movement, or construct either a traffic signal or a multi-lane roundabout at this site access intersection on Philadelphia Pike. However, there are many physical challenges to installing a

multi-lane roundabout at this location. Further, as shown in the provided Traffic Signal Justification Study (TSJS), a signal would be warranted at full buildout. This was also confirmed in the revised TSJS dated May 2023 that accounted for recent changes to the planned land use and access for Site Parcel 1 and Site Parcel 3 resulting in a reduction of future trips attributed to Site Parcel 1 (300,012 SF cold storage warehouse changed from 432,000 SF general office, 6,000 SF restaurant, 25,600 SF retail, and 15,000 SF pharmacy) and Site Parcel 3 (358,000 SF warehouse changed from 400,000 SF industrial park and 94,000 SF office). To provide for all movements at this intersection in a manner that achieves acceptable operations, is appropriate for driver expectations in this area of New Castle County, and is constructable, we recommend that the developer design and construct a traffic signal at this intersection for the full buildout condition. Prior to full buildout (i.e. during Phase 1 of the overall First State Crossing project which entails development of Site Parcel 4 only), the intersection should operate as an unsignalized one-way stop-controlled intersection with rights-in, rights-out and lefts-in allowed. No lefts out should be allowed during Phase 1, but lefts out should be allowed when the intersection is signalized at full buildout.

#### Philadelphia Pike and Transit Center Drive / Site Access C

While there are no LOS deficiencies under future conditions at this signalized intersection as evaluated in Addendum #2, it is noted the final design of this recently-constructed intersection differs from what had been recommended in the Addendum #1 final review letter. Specifically, the westbound approach was built with two left-turns and one shared through/right-turn lane instead of one left-turn lane, one shared through/left-turn lane, and one right-turn lane, and the southbound approach as constructed did not include a dedicated right-turn lane. No changes from the now-constructed design are recommended.

Should the County 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 (e.g. 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 (Philadelphia Pike and Naamans Road), 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. The developer should enter into a traffic signal agreement with DelDOT for design and construction of a traffic signal at the intersection of Philadelphia Pike and Worth Steel Lane (a.k.a. Site Access F). The signal should be installed and become operational at full buildout of the overall First State Crossing project. When signalized, all movements will be allowed at this intersection. The signal should not be installed prior to full buildout (i.e. during Phase 1 of the overall First State Crossing project which entails development of Site Parcel 4 only).

For Phase 1 of the project, the developer should initially construct Worth Steel Lane on Philadelphia Pike (approximately 950 feet south of Naamans Road) as an unsignalized intersection with lefts out restricted. The proposed configuration is shown in the table below.

<b>Approach</b>	<b>Existing Configuration</b>	<b>Proposed Configuration</b>
Westbound Worth Steel Lane	Approach does not exist	One right-turn-only lane
Northbound Philadelphia Pike	Two through lanes	Two through lanes and one right-turn lane
Southbound Philadelphia Pike	Two through lanes	One left-turn lane and two through lanes

Initial recommended minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below.

<b>Approach</b>	<b>Left-Turn Lane</b>	<b>Right-Turn Lane</b>
Westbound Worth Steel Lane	N/A	N/A
Northbound Philadelphia Pike	N/A	190 feet *
Southbound Philadelphia Pike	220 feet *	N/A

\* Initial turn-lane length based on DelDOT's *Auxiliary Lane Worksheet*

The developer should coordinate with DelDOT's Development Coordination Section to determine final turn-lane lengths and other design details of the Phase 1 unsignalized intersection during the site plan review. Given the need for a future westbound left-turn lane when the left-out movement restriction is removed upon signalization at full buildout, a westbound left-turn lane should be incorporated into the Phase 1 design but temporarily gored out with pavement markings or physically restricted with delineators or other means. The developer should also coordinate with DelDOT's Development Coordination and Traffic Sections regarding design details of the signal design to be implemented at full buildout.

- The developer should construct Site Access G on the east side of Philadelphia Pike, approximately 375 feet north of Transit Center Drive. This site driveway is proposed as unsignalized right-in/right-out. The proposed configuration is shown in the table below.

Approach	Existing Configuration	Proposed Configuration
Westbound Site Access G	Does not exist	One right-turn-only lane
Northbound Philadelphia Pike	Two through lanes	Two through lanes and one right-turn lane
Southbound Philadelphia Pike	Two through lanes	Two through lanes

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 during the site plan review.

Approach	Left-Turn Lane	Right-Turn Lane
Northbound Philadelphia Pike	N/A	190 feet *

\* Initial turn-lane length based on DelDOT’s *Auxiliary Lane Worksheet*.

A concrete channelization island should be added at Site Access G where it intersects Philadelphia Pike to physically restrict westbound and southbound left turns. The developer should also install “No Left Turn” signs (MUTCD R3-2) on the westbound and southbound approaches. The developer should coordinate with DelDOT’s Development Coordination Section to determine all design details during the site plan review.

- The developer should continue to coordinate with DelDOT’s Development Coordination Section regarding improvements associated with DelDOT’s Claymont Regional Transportation Center (CRTC) project. The design also features numerous bicycle and pedestrian improvements, and provides access to First State Crossing parcels between the CRTC and Philadelphia Pike. This project is currently under construction.
- All not-yet-constructed recommendation items listed in the Addendum #1 final review letter dated September 9, 2021 remain the responsibility of the developer unless otherwise coordinated with DelDOT. Many of those items are outside the scope/study area of Addendum #2 and as such are not individually listed here. For reference, the Addendum #1 final review letter is attached following this Addendum #2 review letter.

As a point of emphasis, please note that this only pertains to recommendation items that are not-yet-constructed. All changes relating to Addendum #1 including those involving planned land use and access of the various First State Crossing site parcels will be reflected in a forthcoming revised Addendum #1 letter to be issued by DelDOT.

6. The following bicycle, pedestrian and transit improvements should be included:
  - a. As previously noted in the Addendum #1 review letter, the developer should coordinate with DelDOT, WILMAPCO, New Castle County, and the East Coast Greenway Alliance regarding bicycle and pedestrian improvements to be implemented along and near Philadelphia Pike within the study area. Many and various bicycle and pedestrian improvements have been proposed in association with the CRTC project, the North Claymont Area Master Plan and East Coast Greenway efforts, and DelDOT's 2018 Philadelphia Pike Pedestrian Safety Audit. A coordinated effort is needed to determine details of improvements to be implemented, along with the implementation schedule and responsible party for each improvement. Several bicycle, pedestrian and transit related improvements specific to First State Crossing are listed below. The following improvements may also be part of other efforts/initiatives listed above, but bear listing here to ensure they are not missed.
  - b. Adjacent to the proposed right-turn lanes at all the site accesses on both Philadelphia Pike and Naamans Road, a minimum of a five-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lane in order to facilitate safe and unimpeded bicycle travel.
  - c. Appropriate bicycle symbols, directional arrows, pavement markings, and signing should be included along bicycle facilities and turn lanes within the project limits.
  - d. Utility covers should be made flush with the pavement.
  - e. If clubhouses or other community facilities are constructed as shown on the site plan, bicycle parking should be provided near building entrances. Where building architecture provides for an awning, other overhang, or indoor parking, the bicycle parking should be covered.
  - f. A minimum 15-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT within the site frontages on Philadelphia Pike and Naamans Road.
  - g. Within the easement along the south side of Naamans Road, a minimum of a five-foot wide sidewalk that meets current AASHTO and ADA standards should be constructed along the site frontage, from the I-95 northbound off-ramp to Philadelphia Pike. Crosswalks will be required across the proposed site accesses. The sidewalk should have a minimum of a five-foot buffer from the roadway wherever feasible. At the eastern end, the sidewalk should connect to the existing sidewalk on the southwest corner of Naamans Road and Philadelphia Pike. As for the western end, the developer should coordinate with DelDOT to determine an acceptable termini or connection. It may be required to construct the sidewalk all the way to the existing sidewalk on the

- south side of the Naamans Road bridge over I-95. If so, crosswalks and pedestrian signals would need to be added for crossing the northbound I-95 off-ramp approach to Naamans Road, and a traffic signal agreement may be necessary. The developer should coordinate with DelDOT's Development Coordination Section to determine design details of the sidewalk and connections to adjacent sidewalks/properties.
- h. Within the easement along the east side of Philadelphia Pike, a minimum of a five-foot wide sidewalk that meets current AASHTO and ADA standards should be constructed along the site frontage. The sidewalk should meet AASHTO and ADA standards and should have a minimum of a five-foot buffer from the roadway. At the property boundaries, the sidewalk 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 sidewalk design and connections/terminations at or before both boundaries of the property.
  - i. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances. Type 3 curb ramps are discouraged.
  - j. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should each be a minimum of five-feet wide (with a minimum of a five-foot buffer from the roadway) and should meet current AASHTO and ADA standards. These internal sidewalks should connect to the sidewalks (existing or proposed) along the Philadelphia Pike and Naamans Road frontages, as well as to other surrounding residential developments via internal connections.
  - k. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to prevent vehicular overhang onto the sidewalk.
  - l. As coordinated with the Delaware Transit Corporation (DTC) the developer should install a 5' x 8' Type 2 bus stop pad along southbound Philadelphia Pike at least 600 feet north of Transit Center Drive / Site Access C.
  - m. The developer should continue to coordinate with DTC and SEPTA regarding any responsibilities for planned transit facilities directly associated with the CRTIC project.

7. The following items pertain to site accesses on Naamans Road and other improvements needed in conjunction with development of the proposed cold storage warehouse on Site Parcel 1:

a. The developer should construct the limited-movement Site Access A on Naamans Road opposite Tri-State Mall East Entrance. Site Access A will be a fourth leg added to the existing three-leg intersection. Site Access A is proposed as unsignalized left-in/right-in/right-out (no lefts in). The proposed configuration is shown in the table below.

<b>Approach</b>	<b>Existing Configuration</b>	<b>Proposed Configuration</b>
Eastbound Naamans Road	One left-turn lane and two through lanes	One left-turn lane, two through lanes and one right-turn lane
Westbound Naamans Road	One u-turn lane, two through lanes and one right-turn lane	One u-turn/left-turn lane, two through lanes and one right-turn lane
Northbound Site Access A	Does not exist	One right-turn-only lane
Southbound Tri-State Mall East Entrance	One shared left/right-turn lane	One shared left/through/right-turn lane

At Site Access A, a concrete channelization island should be added to physically restrict the northbound left-turn and through movements. The length of the new eastbound right-turn lane on Naamans Road at Site Access A should be 125 feet plus a 50-foot taper. 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.

b. The developer should construct the full-movement Site Access E on Naamans Road opposite Ridge Road. Site Access E will be a fourth leg added to the existing three-leg signalized intersection. The proposed configuration is shown in the table below.

<b>Approach</b>	<b>Existing Configuration</b>	<b>Proposed Configuration</b>
Eastbound Naamans Road	One left-turn lane and two through lanes	One left-turn lane, two through lanes and one right-turn lane
Westbound Naamans Road	One u-turn lane, two through lanes and one right-turn lane	One u-turn/left-turn lane, two through lanes and one right-turn lane
Northbound Site Access E	Does not exist	One left-turn lane and one shared through/right-turn lane
Southbound Ridge Road	One left turn lane and one right-turn lane	One left turn lane and one shared through/right-turn lane



The length of the new eastbound right-turn lane on Naamans Road at Site Access E should be 200 feet plus a 50-foot taper. 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.

- c. The developer should enter into a traffic signal agreement with DelDOT for the intersection of Naamans Road and Ridge Road/Site Access E.
- d. Note that a full-movement access (formerly known as Site Access B) was previously planned to be located on Naamans Road across from Tri-State Mall West Entrance at the signalized intersection, but Site Access B is no longer proposed.
- e. Bicycle and pedestrian facilities pertaining to Site Parcel 1 development must be coordinated with DelDOT. Initial recommendations include a sidewalk should be constructed along the site frontage on the south side of Naamans Road, and the developer must coordinate with DelDOT regarding one or more pedestrian crossings across on Naamans Road. Additionally, adjacent to the proposed right-turn lanes at the site accesses on Naamans Road, a minimum of a five-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lane in order to facilitate safe and unimpeded bicycle travel.

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](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](mailto: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

### **General Information**

**Report date:** Original TIS dated June 2019, updated August 2019. Addendum #1 submitted February 2020. Addendum #2 (current submission and the subject of this review) submitted September 2022.

**Prepared by:** Traffic Planning and Design, Inc. (TPD)

**Tax parcels:** Addendum #2: 06-072.00-198, 06-048.00-001, 06-059.00-162, and 06-073.00-001

**Generally consistent with DelDOT's Development Coordination Manual:** Yes

### **Project Description and Background**

**Description:** Per Addendum #2, the proposed First State Crossing development consists of the following land uses:

#### **Phase 1** (Site Parcel 4 only)

- 340 multi-family mid-rise dwelling units
- 430,330 SF general office
- 5,585 SF convenience store with gas pumps
- 25,656 SF supermarket
- 28,565 SF retail

#### **Full Buildout** (Site Parcel 4 plus Site Parcels 1, 3, and 6)

- All Phase 1 (Site Parcel 4) developments, plus the following:
- Site Parcel 1:
  - 432,000 SF general office
  - 25,600 SF retail
  - 6,000 SF quality restaurant
  - 15,000 SF pharmacy
- Site Parcel 3:
  - 400,000 SF industrial park
  - 94,000 SF general office
- Site Parcel 6:
  - 990 multi-family mid-rise dwelling units

**Location:** The site is located on the east side of Interstate 495, both sides of Philadelphia Pike (US Route 13 / New Castle Road 24), and the southwest side of Naamans Road (Delaware Route 92 / New Castle Road 17) in New Castle County. A site location map is included on page 15.

**Proposed completion year:** Per Addendum #2, Phase 1 (Site Parcel 4) is anticipated to be complete by 2025 while Full Buildout (adding Site Parcels 1, 3 and 6) is anticipated to be complete by 2030.

#### **Proposed access locations:**

On Philadelphia Pike:

- Transit Center Drive / Site Access C: full access driveways to both sides of Philadelphia Pike – signalized
- Site Access G: unsignalized right-in/right-out driveway on the east side of Philadelphia Pike approximately 375 feet north of Transit Center Drive
- Worth Steel Lane (a.k.a. Site Access F): driveway on the east side of Philadelphia Pike approximately 375 feet north of Site Access G. Three alternatives of access configurations were evaluated in Addendum #2 for Worth Steel Lane at Philadelphia Pike:

- Full-movement access
- Right-in/right-out/left-in access (no lefts out)
- Right-in/right-out only access

On Naamans Road (as part of the overall First State Crossing development but not evaluated in Addendum #2):

- Full-access driveway at the existing Tri-State Mall western access – signalized
- Right-in/right-out driveway across from the Tri-State Mall eastern access – unsignalized
- Exit only driveway across from Ridge Road (New Castle Road 17A) – signalized





Spine Road connection is no longer being considered



**KEY:**  
 SCHEMATIC DRAWING: NOT TO SCALE

## **Relevant DelDOT Projects**

DelDOT has a number of projects and other initiatives within the Addendum #2 study area. First, recently completed in early 2022 was a road diet project on Philadelphia Pike from Naamans Road to the Pennsylvania state line. It reduced Philadelphia Pike north of Naamans Road from two lanes to one lane in each direction and changed eastbound Naamans Road at Philadelphia Pike from two left-turn lanes to one left-turn lane.

The Claymont train station is being relocated and will be called the Claymont Regional Transportation Center (CRTC). This project will relocate the former Claymont train station approximately one-half mile to the north. The CRTC will provide approximately 870 parking spaces, improved access to the station by all modes of transportation, and direct transit access to the proposed First State Crossing development. The CRTC will connect to the existing roadway network via Transit Center Drive with a recently constructed traffic signal at Philadelphia Pike approximately 1,700 feet south of Naamans Road. Construction began in 2019 and is anticipated to be complete in 2023.

DelDOT's Traffic Section completed a Philadelphia Pike Pedestrian Safety Audit Study in 2018. This study identified several dozen recommendations for pedestrian safety enhancements along Philadelphia Pike from Lea Boulevard to the Pennsylvania state line. The recommendations were grouped into short-term, mid-term and long-term implementation timeframes. For the Claymont Regional Transportation Center project and the First State Crossing project, improvements being developed and designed for intersections along Philadelphia Pike should incorporate the recommendations of this pedestrian safety audit whenever appropriate.

## **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 uses were utilized to estimate the amount of new traffic generated for this development at full buildout:

### Site Parcel 1:

- 432,000 SF general office
- 25,600 SF retail
- 6,000 SF quality restaurant
- 15,000 SF pharmacy

### Site Parcel 3:

- 400,000 SF industrial park
- 94,000 SF general office

### Site Parcel 4

- 340 multi-family mid-rise dwelling units
- 430,330 SF general office
- 5,585 SF convenience store with gas pumps
- 25,656 SF supermarket

- 28,565 SF retail
- Site Parcel 6:
- 990 multi-family mid-rise dwelling units

Table 1A  
AM PEAK HOUR TRIP GENERATION – FIRST STATE CROSSING ADDENDUM #2

Land Use	External Trips			Pass-By Trips			New Trips		
	In	Out	Total	In	Out	Total	In	Out	Total
25.6 ksf retail (LUC 820)	92	56	148	0	0	0	92	56	148
15 ksf pharmacy (LUC 881)	28	24	52	0	0	0	28	24	52
400 ksf industrial park (LUC 130)	130	30	160	0	0	0	130	30	160
94 ksf general office (LUC 710)	99	16	115	0	0	0	99	16	115
5.585 ksf conven. market / gas station (LUC 960)	232	232	464	177	177	354	55	55	110
1,330 multi-family mid-rise homes (LUC 221)	109	312	421	0	0	0	109	312	421
25.656 ksf supermarket (LUC 850)	56	28	84	0	0	0	56	28	84
430.330 ksf general office (LUC 710)	338	55	393	0	0	0	338	55	393
6 ksf quality restaurant (LUC 931)	1	1	2	0	0	0	1	1	2
28.565 ksf retail (LUC 820)	88	54	142	0	0	0	88	54	142
432 ksf general office (LUC 710)	344	56	400	0	0	0	344	56	400
<b>TOTAL</b>	<b>1517</b>	<b>864</b>	<b>2381</b>	<b>177</b>	<b>177</b>	<b>354</b>	<b>1340</b>	<b>687</b>	<b>2027</b>

Table 1B  
PM PEAK HOUR TRIP GENERATION – FIRST STATE CROSSING ADDENDUM #2

Land Use	External Trips			Pass-By Trips			New Trips		
	In	Out	Total	In	Out	Total	In	Out	Total
25.6 ksf retail (LUC 820)	86	93	179	31	31	62	55	62	117
15 ksf pharmacy (LUC 881)	70	69	139	35	35	70	35	34	69
400 ksf industrial park (LUC 130)	17	90	107	0	0	0	17	90	107
94 ksf general office (LUC 710)	265	169	434	0	0	0	265	169	434
5.585 ksf conven. market / gas station (LUC 960)	34	126	160	0	0	0	34	126	160
1,330 multi-family mid-rise homes (LUC 221)	194	193	387	148	148	296	46	45	91
25.656 ksf supermarket (LUC 850)	95	85	180	33	33	66	62	52	114
430.330 ksf general office (LUC 710)	67	349	416	0	0	0	67	349	416
6 ksf quality restaurant (LUC 931)	20	10	30	0	0	0	20	10	30
28.565 ksf retail (LUC 820)	78	84	162	28	28	56	50	56	106
432 ksf general office (LUC 710)	70	368	438	0	0	0	70	368	438
<b>TOTAL</b>	<b>996</b>	<b>1636</b>	<b>2632</b>	<b>275</b>	<b>275</b>	<b>550</b>	<b>721</b>	<b>1361</b>	<b>2082</b>

### Overview of TIS

#### **Intersections examined:**

- 1) Philadelphia Pike & Transit Center Drive / Site Access C
- 2) Philadelphia Pike & Site Access G
- 3) Philadelphia Pike & Worth Steel Lane (a.k.a. Site Access F)
- 4) Naamans Road & Philadelphia Pike

#### **Cases examined:**

- 1) 2022 existing (Case 1)
- 2) 2025 without First State Crossing (Case 2)
- 3a) 2025 with First State Crossing Phase 1, with full access Worth Steel Lane (Case 3a)
- 3b) 2025 with First State Crossing Phase 1, with RIROLI Worth Steel Lane (Case 3b)
- 3c) 2025 with First State Crossing Phase 1, with RIRO Worth Steel Lane (Case 3c)
- 4) 2030 without First State Crossing (Case 4)
- 5a) 2030 with First State Crossing Buildout, with full access Worth Steel Lane (Case 5a)
- 5b) 2030 with First State Crossing Buildout, with RIROLI Worth Steel Lane (Case 5b)
- 5c) 2030 with First State Crossing Buildout, with RIRO Worth Steel Lane (Case 5c)

**Peak hours evaluated:** Weekday morning and evening peak hours

**Committed developments considered:**

- Darley Green (Philadelphia Pike & Darley Road): unbuilt 3 single-family detached homes, 38 duplexes, 138 townhomes, 60 stacked townhomes, 38 manor homes, 8 apartments, 8,000 SF retail
- Presidential Towers (Society Drive): unbuilt 115 apartments
- Society Office Complex (Society Drive): unbuilt 6,200 SF general office
- Brandywine Pavilion (Naamans Road & Marsh Road): unbuilt 36,682 SF office, 18,068 SF retail, 13 apartments
- Relocation of Claymont Train Station (relocation from Myrtle Avenue to proposed Transit Center Drive)

**Intersection Descriptions**

**1) Philadelphia Pike & Transit Center Drive / Site Access C**

**Type of Control:** Signalized

**Eastbound Approach:** (Site Access C) one left-turn lane, one through lane and one right-turn lane

**Westbound Approach:** (Transit Center Drive) two left-turn lanes and one shared through/right-turn lane

**Northbound Approach:** (Philadelphia Pike) one left-turn lane, two through lanes, and one right-turn lane

**Southbound Approach:** (Philadelphia Pike) one left-turn lane, one through lane, and one shared through/right-turn lane

**2) Philadelphia Pike & Site Access G**

**Type of Control:** Two-way stop control (right-in/right-out site entrance)

**Westbound Approach:** (Site Access G) proposed one right-turn lane, stop control

**Northbound Approach:** (Philadelphia Pike) proposed two through lanes and one right-turn lane

**Southbound Approach:** (Philadelphia Pike) proposed two through lanes

**3) Philadelphia Pike & Worth Steel Lane**

**Type of Control:** to be determined but proposed at three-leg signalized intersection

**Westbound Approach:** (Worth Steel Lane) proposed one left-turn lane and one right-turn lane

**Northbound Approach:** (Philadelphia Pike) proposed two through lanes and one right-turn lane

**Southbound Approach:** (Philadelphia Pike) proposed one left-turn lane and two through lanes

#### **4) Naamans Road & Philadelphia Pike**

**Type of Control:** Signalized

**Eastbound Approach:** (Naamans Road) one left-turn lane, one bicycle lane, and one channelized right-turn lane

**Northbound Approach:** (Philadelphia Pike) two left-turn lanes and one through lane

**Southbound Approach:** (Philadelphia Pike) one through lane, one bicycle lane, and one channelized right-turn lane

#### **Safety Evaluation**

**Crash Data:** Within the Addendum #2 study area, only the intersection of Naamans Road and Philadelphia Pike had a discernible number of crashes for the May 2019 to May 2022 (per data included in the TIS). The intersection had no more than 5 correctable crashes in any given year during that timeframe. Note that a road diet project was completed in early 2022 on Philadelphia Pike from Naamans Road to the Pennsylvania state line.

**Sight Distance:** Based on a field visit conducted in June 2019, there were no notable sight distance concerns at the study intersections. As always, sight distances should be confirmed during the site plan review process for all proposed movements at the site accesses. The designer must verify that adequate sight distance will be provided for both ingress and egress movements at the proposed site driveways.

#### **Transit, Pedestrian, and Bicycle Facilities**

**Existing transit service:** Based on the DART Bus Stop Map, the Delaware Transit Corporation (DTC) currently operates several fixed-route transit bus routes near the proposed First State Crossing development.

DART routes 13 and 61 both stop on-site at the Tri-State Mall and near the intersection of Philadelphia Pike & Darley Road. Routes 31 and 61 have stops near the intersection of Philadelphia Pike & Myrtle Avenue and at the existing Claymont train station.

SEPTA bus route 113 stops on-site at the Tri-State Mall and provides service to Chester, Darby, and 69<sup>th</sup> Street Transportation Centers in Pennsylvania.

The existing Claymont train station (located at Myrtle Avenue & Marion Avenue) is served by SEPTA's Wilmington/Newark regional rail line. This rail line connects Claymont to Center City Philadelphia, Wilmington, Newark, and intermediate points in Pennsylvania and Delaware. Claymont station is served by approximately 20 round trips on weekdays, and eight round trips on weekends.

**Planned transit service:** As coordinated with Mr. Jared Kauffman with the Delaware Transit Corporation (DTC), the developer should install a 5' x 8' Type 2 bus stop pad along southbound Philadelphia Pike at least 600 feet north of Transit Center Drive / Site Access C.

Completion of the Claymont Regional Transportation Center (CRTC) is expected in 2023. This project will relocate the existing Claymont train station approximately one-half mile to the north of its current location. The CRTC will provide approximately 870 parking spaces, improved access to the station by all modes of transportation, and direct transit access to the proposed First State Crossing development. DART and/or SEPTA will likely modify fixed-route transit bus schedules and routes to service the CRTC.

**Existing bicycle and pedestrian facilities:** Several study area roadways are identified as “Bicycling Routes” on the *New Castle County Bicycle Map* published by DelDOT.

- Naamans Road
  - Regional bicycle route with bikeway
  - Over 10,000 vehicles daily
- Philadelphia Pike
  - Regional bicycle route without bikeway
    - Bicycle lanes have been added to portions of Philadelphia Pike
  - Over 10,000 vehicles daily south of Darley Road
- Darley Road
  - Unclassified roadway with bikeway
- Governor Printz Boulevard
  - Connector bicycle route with bikeway

The East Coast Greenway (ECG) is a walking and biking route stretching 3,000 miles from Maine to Florida. Heading north from Bellevue State Park, the ECG runs along Governor Printz Boulevard to Philadelphia Pike. The ECG continues along Philadelphia Pike to the Pennsylvania State Line. While much of the ECG is currently comprised of on-road segments, the ECG designation is moved to protected trails as they are constructed.

Existing sidewalks along the site frontages on Philadelphia Pike are present but substandard in many places. New sidewalk was constructed in 2021 along the east side of Philadelphia Pike north and south of Transit Center Drive as well as along Transit Center Drive itself. There are existing sidewalks on the north side of Naamans Road, but none along the south side along the site frontage. There is a pedestrian overpass over I-495, connecting Philadelphia Pike near Darley Road west of I-495 to the Knollwood community east of I-495. There is second pedestrian overpass over I-495 further to the south, connecting Governor Printz Boulevard Extension to the existing Claymont train station. Based on the North Claymont Area Master Plan, the area generally lacks comfortable routes for pedestrians.

**Planned bicycle and pedestrian facilities:** Construction and/or upgrades of sidewalk along the site frontages will be required. Extensive pedestrian accommodations and connections are also proposed within the site.

As per the Development Coordination Manual section 3.5.4.2, shared-use path/sidewalk construction shall be required for all projects requesting Entrance Plan Approval or Entrance Permit in all Investment Level 1 and Investment Level 2 Areas. Therefore, shared-use path/sidewalk construction shall be required along all site frontages.



All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the Development Coordination Manual, if a right turn lane is warranted, then a bike lane shall be incorporated along the right turn lane; if a left turn lane is required, any roadway improvements shall include a shoulder matching the roadway classification or existing conditions.

### **Previous Comments**

In a review letter dated July 22, 2022, DelDOT indicated that the Preliminary TIS was acceptable with four minor changes.

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 Analysis Comments**

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

- 1) As per HCM methodologies, TPD and McCormick Taylor applied percent heavy vehicles (HV) by movement at two-way stop control and roundabout intersections, HV by lane at all-way stop control intersections, and HV by lane group at signalized intersections. In general, existing HV were applied to future conditions as well. For new intersections, 3% was assumed as per the DelDOT Development Coordination Manual section 2.2.8.11.6.H.
- 2) For existing conditions, TPD and McCormick Taylor determined overall intersection peak hour factors (PHF) for each intersection based on the turning movement counts. Future PHFs were determined as per the DelDOT Development Coordination Manual section 2.2.8.11.6.F.
- 3) For analyses of signalized intersections, TPD and McCormick Taylor used a base saturation flow rate of 1,900 pc/hr/ln per DelDOT's Development Coordination Manual section 2.2.8.11.6.I.
- 4) The TIS and McCormick Taylor used different signal timings when analyzing the signalized intersections in some cases. For many signalized intersections, analyses of future scenarios reflect optimized signal timings.
- 5) McCormick Taylor used field-measured roadway grades in all analyses. It appears that TPD may have assumed 0% roadway grades throughout the study area.

Table 2  
Peak Hour Levels of Service (LOS)  
Based on First State Crossing Traffic Impact Study Addendum #2 – September 2022  
Prepared by Traffic Planning and Design, Inc.

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Philadelphia Pike &amp; Transit Center Drive / Site Access C</b>				
2025 without First State Crossing (Case 2)	A (4.0)	B (19.5)	A (4.0)	B (19.5)
2025 with First State Crossing Ph 1 – full access Worth Steel Lane (Case 3a)	A (8.2)	C (24.9)	A (8.3)	C (24.9)
2025 with First State Crossing Ph 1 – right-in/right-out/left-in Worth Steel Lane (Case 3b)	B (11.2)	C (26.5)	B (11.2)	C (26.5)
2025 with First State Crossing Ph 1 – right-in/right-out Worth Steel Lane (Case 3c)	B (11.5)	C (27.2)	B (11.5)	C (27.2)
2030 without First State Crossing (Case 4)	A (4.0)	B (19.2)	A (4.0)	B (19.2)
2030 with First State Crossing buildout – full access Worth Steel Lane (Case 5a)	B (13.7)	D (38.1)	B (13.7)	D (38.1)
2030 with First State Crossing buildout – right-in/right-out/left-in Worth Steel Lane (Case 5b)	B (19.8)	D (43.8)	B (19.8)	D (43.8)
2030 with First State Crossing buildout – right-in/right-out Worth Steel Lane (Case 5c)	C (23.9)	D (54.3)	C (23.9)	D (54.3)

<sup>1</sup> 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 First State Crossing Traffic Impact Study Addendum #2 – September 2022  
Prepared by Traffic Planning and Design, Inc.

Unsignalized Intersection <sup>2</sup>	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Philadelphia Pike &amp; Site Access G</b>				
2025 with First State Crossing Ph 1 – any access configuration of Worth Steel Lane (Case 3a-3c)				
Westbound Site Access G – Right	A (9.6)	B (10.8)	A (9.6)	B (10.8)
2030 with First State Crossing buildout – any access configuration of Worth Steel Lane (Case 5a-5c)				
Westbound Site Access G – Right	B (10.2)	B (12.3)	B (10.2)	B (12.3)

<sup>2</sup> 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 First State Crossing Traffic Impact Study Addendum #2 – September 2022  
Prepared by Traffic Planning and Design, Inc.

Unsignalized Intersection <sup>3</sup>	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Philadelphia Pike &amp; Worth Steel Lane (a.k.a. Site Access F)</b>				
2025 with First State Crossing Ph 1 – full access Worth Steel Lane (Case 3a)				
Westbound Worth Steel Lane	C (19.9)	F (72.0)	C (19.9)	F (72.0)
Southbound Philadelphia Pike – Left	A (7.9)	A (8.6)	A (7.9)	A (8.6)
2025 with First State Crossing Ph 1 – right-in/right-out/left-in Worth Steel Lane (Case 3b)				
Westbound Worth Steel Lane – Right	A (9.8)	B (11.0)	A (9.8)	B (11.0)
Southbound Philadelphia Pike – Left	A (7.9)	A (8.6)	A (7.9)	A (8.6)
2025 with First State Crossing Ph 1 – right-in/right-out Worth Steel Lane (Case 3c)				
Westbound Worth Steel Lane – Right	A (9.8)	B (11.0)	A (9.8)	B (11.0)
2030 with First State Crossing buildout – full access Worth Steel Lane (Case 5a)				
Westbound Worth Steel Lane	F (323.6)	F (892.5)	F (323.6)	F (892.5)
Southbound Philadelphia Pike – Left	A (8.4)	A (9.5)	A (8.4)	A (9.5)
2030 with First State Crossing buildout – right-in/right-out/left-in Worth Steel Lane (Case 5b)				
Westbound Worth Steel Lane – Right	B (10.3)	B (11.9)	B (10.3)	B (11.9)
Southbound Philadelphia Pike – Left	A (8.4)	A (9.5)	A (8.4)	A (9.5)
2030 with First State Crossing buildout – right-in/right-out Worth Steel Lane (Case 5c)				
Westbound Worth Steel Lane – Right	B (10.3)	B (11.9)	B (10.3)	B (11.9)

<sup>3</sup> 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 (continued)  
Peak Hour Levels of Service (LOS)  
Based on First State Crossing Traffic Impact Study Addendum #2 – September 2022  
Prepared by Traffic Planning and Design, Inc.

Signalized Intersection <sup>4</sup>	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Philadelphia Pike &amp; Worth Steel Lane (a.k.a. Site Access F)</b>				
2030 with First State Crossing buildout – with full access Worth Steel Lane (Case 5a) <i>with improvements (signal)</i>	B (13.4)	B (13.0)	B (13.4)	B (13.0)

Unsignalized Intersection <sup>4</sup> Roundabout	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Philadelphia Pike &amp; Worth Steel Lane (a.k.a. Site Access F)</b>				
2030 with First State Crossing buildout – with full access Worth Steel Lane (Case 5a) <i>with improvements (roundabout)</i>				
Westbound Worth Steel Lane	B (13.8)	C (21.6)	B (13.8)	C (21.6)
Northbound Philadelphia Pike	A (6.9)	B (11.5)	A (6.9)	B (11.5)
Southbound Philadelphia Pike	A (7.4)	A (8.5)	A (7.4)	A (8.5)
Overall Intersection	A (8.4)	B (11.5)	A (8.4)	B (11.5)

<sup>4</sup> 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 First State Crossing Traffic Impact Study Addendum #2 – September 2022  
Prepared by Traffic Planning and Design, Inc.

Signalized Intersection <sup>5</sup>	LOS per TIS		LOS per McCormick Taylor	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Naamans Road &amp; Philadelphia Pike</b>				
2022 Existing (Case 1)	C (29.7)	C (22.8)	C (29.7)	C (22.8)
2025 without First State Crossing (Case 2)	C (28.5)	C (22.1)	C (28.5)	C (22.1)
2025 with First State Crossing Ph 1 – any access configuration of Worth Steel Lane (Case 3a-3c)	C (23.7)	C (22.9)	C (23.7)	C (22.9)
2030 without First State Crossing (Case 4)	C (28.3)	C (21.9)	C (28.3)	C (21.9)
2030 with First State Crossing buildout – any access configuration of Worth Steel Lane (Case 5a-5c)	C (23.1)	C (22.7)	C (23.1)	C (22.7)

<sup>5</sup> 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.