



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

NICOLE MAJESKI  
SECRETARY

June 16, 2022

Mr. Ted Williams, PE  
Landmark Science and Engineering  
200 Continental Drive, Suite 400  
Newark, DE 19713

Dear Mr. Williams:

The enclosed Traffic Impact Study (TIS) review letter for the proposed **Hockessin Station** (Tax Parcels: 08-012.00-033, 034, 035, 036, 037, 038, 039, 040, 073, 074, and 075) residential 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 (302) 760-2124.

Sincerely,

Claudy Joinville  
Project Engineer

CJ:sf  
Enclosures  
cc with enclosures:

Mr. Shane Miner, Blenheim Homes  
Mr. Colm DeAscanis, CDA Engineering, Inc.  
Mr. David L. Edgell, Office of State Planning Coordination  
Mr. George Haggerty, New Castle County Department of Land Use  
Mr. Bradford Shockley, New Castle County Department of Land Use  
Mr. Owen C. Robatino, New Castle County Department of Land Use  
Mr. Mir Wahed, Johnson, Mirmiran & Thompson, Inc  
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc  
DelDOT Distribution

## DelDOT Distribution

Brad Eaby, Deputy Attorney General  
Shanté Hastings, Director, Deputy Secretary, Transportation Solutions (DOTS)  
Pamela Steinebach, Director, Planning  
Mark Luszcz, Deputy Director, DOTS  
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Brian Schilling, Canal District Engineer, Canal District  
Matthew Vincent, Chief of Project Development North, DOTS  
Todd Sammons, Assistant Director, Development Coordination  
T. William Brockenbrough, Jr., County Coordinator, Development Coordination  
Jared Kauffmann, Service Development Planner, Delaware Transit Corporation  
Anthony Aglio, Planning Supervisor, Statewide & Regional Planning  
Wendy Polasko, Subdivision Engineer, Development Coordination  
Sireen Muhtaseb, New Castle Review Coordinator, Development Coordination  
Thomas Gagnon, Subdivision Manager, Development Coordination  
Mark Galipo, Traffic Engineer, Traffic, DOTS  
Annamaria Fumato, Project Engineer, Development Coordination



June 16, 2022

Mr. Claudy Joinville  
Project Engineer  
Delaware Department of Transportation  
Development Coordination, Division of Planning  
800 Bay Road  
Dover, DE 19901

RE: Agreement No. 1945F  
Project Number T202069012  
Traffic Impact Study Services  
Task 5-10A –Hockessin Station TIS

Dear Mr. Joinville:

Johnson, Mirmiran, and Thompson (JMT) has completed a review of the Traffic Impact Study (TIS) for the Hockessin Station development, which was prepared by Landmark Science & Engineering, dated April 2022. This review was assigned as Task Number 5-10A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed residential development in New Castle County, Delaware. The proposed development would consist of 113 units of low-rise multi-family housing, 18 single-family detached houses, and 22 twin homes. The site is located on the southeast side of Valley Road (New Castle Road 294), approximately 1,950 feet northeast of the intersection of Valley Road and Delaware Route 7. The subject property is on an approximately 58.05-acre assemblage of parcels. The land is currently split-zoned as CN (Commercial Neighborhood) and I (Industrial). The developer plans to rezone the land to ST (Suburban Transition). Construction for the development is anticipated to be completed in 2024.

Two access points are proposed along Valley Road. One full access is proposed to the southwest end of the development which would serve 113 units of low-rise multi-family housing and 22 twin homes. Another full access is proposed to the northeast end of the development which would serve 18 single-family detached houses.

The DelDOT *BR 1-180 on Grant Avenue over Mill Creek Project* (DelDOT Contract No. T201707102) is within the study area and involves the replacement of a bridge on Grant Avenue over Mill Creek. The existing bridge consists of four corrugated metal pipe arches that show significant corrosion and are beyond their expected 30-year life span. DelDOT is proposing to replace the existing structure with a precast concrete rigid frame and the proposed structure will be lengthened to allow the roadway to be clear-zoned. The roadway approaches will also be reconstructed. Construction is scheduled to begin in July 2022 and complete in early Fall 2022. More information regarding the project can be found on the project website:  
<https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201707102>



At the Valley Road and Evanson Road intersection, DelDOT Traffic Section is conducting a study to address a RRFB (Rectangular Rapid Flashing Beacon) request. Recommendations and results from the study have not been finalized at this time.

The Mill Creek Road from Old Lancaster Pike to Brackenville Road pavement and rehabilitation project (DelDOT Contract No. T202106101) is also within the study area. Final plans have been completed. A timeframe to when construction will begin has not been established.

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

The New Castle County Level of Service (LOS) Standards as stated in Section 40.11.210 of the Unified Development Code (UDC) apply to all signalized, all-way-stop, and roundabout intersections. Based on an evaluation of the signalized intersections, none will require the implementation of physical roadway and/or traffic control improvements.

Additionally, separate from the UDC but based on the LOS evaluation criteria as stated in DelDOT’s *Development Coordination Manual*, one of the stop-controlled study intersections exhibit LOS deficiencies:

Intersection	LOS Deficiencies Occur		Case
	AM	PM	
Valley Road / Old Lancaster Pike (New Castle Road 300)		X	Case 1 – 2022 Existing
		X	Case 2 – 2024 without Development
		X	Case 3 – 2024 with Development

The unsignalized Valley Road intersection with Old Lancaster Pike exhibits LOS deficiencies during the PM peak hour under existing and future conditions, with or without the development. Specifically, the northbound Old Lancaster Pike approach would operate at LOS F with a delay of 90.2 seconds per vehicle and a calculated 95<sup>th</sup> percentile queue length of approximately 195 feet during the PM peak hour under future conditions with the development (Case 3).

The conversion of the Valley Road intersection with Old Lancaster Pike to be all way stop-controlled, the installation of a traffic signal, or the installation of a roundabout would mitigate the capacity constraints at the intersection. However, the intersection is located approximately 150 feet west of the signalized Valley Road intersection with Lancaster Pike. As such, the conversion of the intersection to be all way stop-controlled or the installation of a roundabout may not be feasible due to the impacts to the signalized intersection. Additionally, the installation of a traffic signal would require the two adjacent intersections to operate under one controller. As the Valley Road and Lancaster Pike intersection is not a study intersection included in this TIS, a larger study outside the scope of this TIS should be conducted to evaluate the improvements at the Valley Road and Old Lancaster Pike intersection. As such, we do not recommend the developer implement any improvements at this intersection.



Should New Castle County approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e. letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

1. The developer shall improve Valley 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 maintain the unsignalized full access for the proposed Hockessin Station development along Valley Road, approximately 1,000 feet east of the intersection with Brook Run, opposite the existing Valley Grove entrance. The intersection should be consistent with the lane configurations shown in the table below.

<b>Approach</b>	<b>Current Configuration</b>	<b>Proposed Configuration</b>
Eastbound Valley Road	One shared left turn/through lane and one right turn lane	No change
Westbound Valley Road	One left turn lane, one through lane, and one right turn lane	No change
Northbound Site Entrance A	One shared left turn/through/right turn lane	No change
Southbound Valley Grove Entrance	One shared left turn/through/right turn lane	No change

Based on DelDOT’s *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the eastbound Valley Road right turn lane is 190 feet and the recommended minimum storage length (excluding taper) of the westbound Valley Road left turn lane is 120 feet. The existing eastbound right turn lane is approximately 200 feet and the westbound left turn lane is approximately 120 feet. As such, the existing storage lengths should be maintained. The projected queues from the HCS analysis can be accommodated within the existing storage lengths. The striping at the entrance should be improved to meet MUTCD standards. The developer should submit a plan to Development Coordination Section depicting the proposed striping.



- 3. The developer should construct an unsignalized full access for the proposed Hockessin Station development along Valley Road, approximately 2,600 feet east of the intersection with Brook Run. The intersection should be consistent with the lane configurations shown in the table below.

<b>Approach</b>	<b>Current Configuration</b>	<b>Proposed Configuration</b>
Eastbound Valley Road	One through lane	One through lane and one right turn lane
Westbound Valley Road	One through lane	One shared left turn/through lane
Northbound Site Entrance B	Approach does not exist	One shared left turn/right turn lane

Based on DelDOT’s *Development Coordination Manual*, the recommended minimum storage length (excluding taper) of the eastbound Valley Road right turn lane is 110 feet. The projected queues from the HCS analysis can be accommodated within the recommended storage lengths.

- 4. The following bicycle, pedestrian, and transit improvements should be included:
  - a. A minimum of fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along the Valley Road site frontage. Within the easement, the developer should improve the existing shared-use path (SUP) to meet current AASHTO and ADA standards. Additionally, the developer should verify if the existing SUP is a minimum 10-foot wide and if the pavement needs to be replaced. A minimum five-foot setback should be maintained from the edge of the pavement to the SUP. If feasible, the SUP should be placed behind utility poles and street trees should be provided within the buffer area. The developer should coordinate with DelDOT’s Development Coordination Section during the plan review process to identify the design of the SUP.
  - b. At least one internal connection of a sidewalk or SUP in the vicinity of Site Entrance A and Site Entrance B from the SUP along Valley Road should be provided.
  - c. ADA compliant curb ramps and marked crosswalks should be provided along the site entrances.
  - d. Minimum five-foot wide bicycle lanes should be incorporated in the right turn lane and shoulder along the Valley Road approaches to Site Entrance A and Site Entrance B.



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

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 Plan Review process.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at [https://www.deldot.gov//Publications/manuals/de\\_mutcd/index.shtml](https://www.deldot.gov//Publications/manuals/de_mutcd/index.shtml). For any additional information regarding the work zone impact and mitigation procedures during construction, please contact Mr. Jeff VanHorn, Assistant Director for Traffic Operations and Management. Mr. VanHorn can be reached at (302) 659-4606 or by email at [Jeffrey.VanHorn@delaware.gov](mailto:Jeffrey.VanHorn@delaware.gov).

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

Sincerely,  
Johnson, Mirmiran, and Thompson, Inc.

A handwritten signature in black ink, appearing to read 'Joanne M. Arellano', is written above the printed name.

Joanne M. Arellano, P.E., PTOE

cc: Mir Wahed, P.E., PTOE  
Janna Brown, E.I.T.

Enclosure

## **General Information**

**Report date:** April 2022

**Prepared by:** Landmark Science & Engineering

**Prepared for:** VRH2, LLC

**Tax Parcels:** 08-012.00-033, 034, 035, 036, 037, 038, 039, 040, 073, 074, and 075

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

## **Project Description and Background**

**Description:** The proposed development consists of 113 unit of low-rise multi-family housing, 18 single-family detached houses, and 22 twin homes.

**Location:** The land is located on the southeast side of Valley Road (New Castle Road 294), approximately 1,950 feet northeast of the intersection of Valley Road and Delaware Route 7, in New Castle County, Delaware.

**Amount of Land to be developed:** An approximately 58.05-acre assemblage of parcels.

**Land Use approval(s) needed:** Rezoning and Entrance Plan.

**Proposed completion date:** 2024.

**Proposed access locations:** Two access points are proposed along Valley Road: one full access to the southwest end of the development which would serve 113 units of low-rise multi-family housing and 22 twin homes and one full access on the northeast end which would serve 18 single-family detached houses.

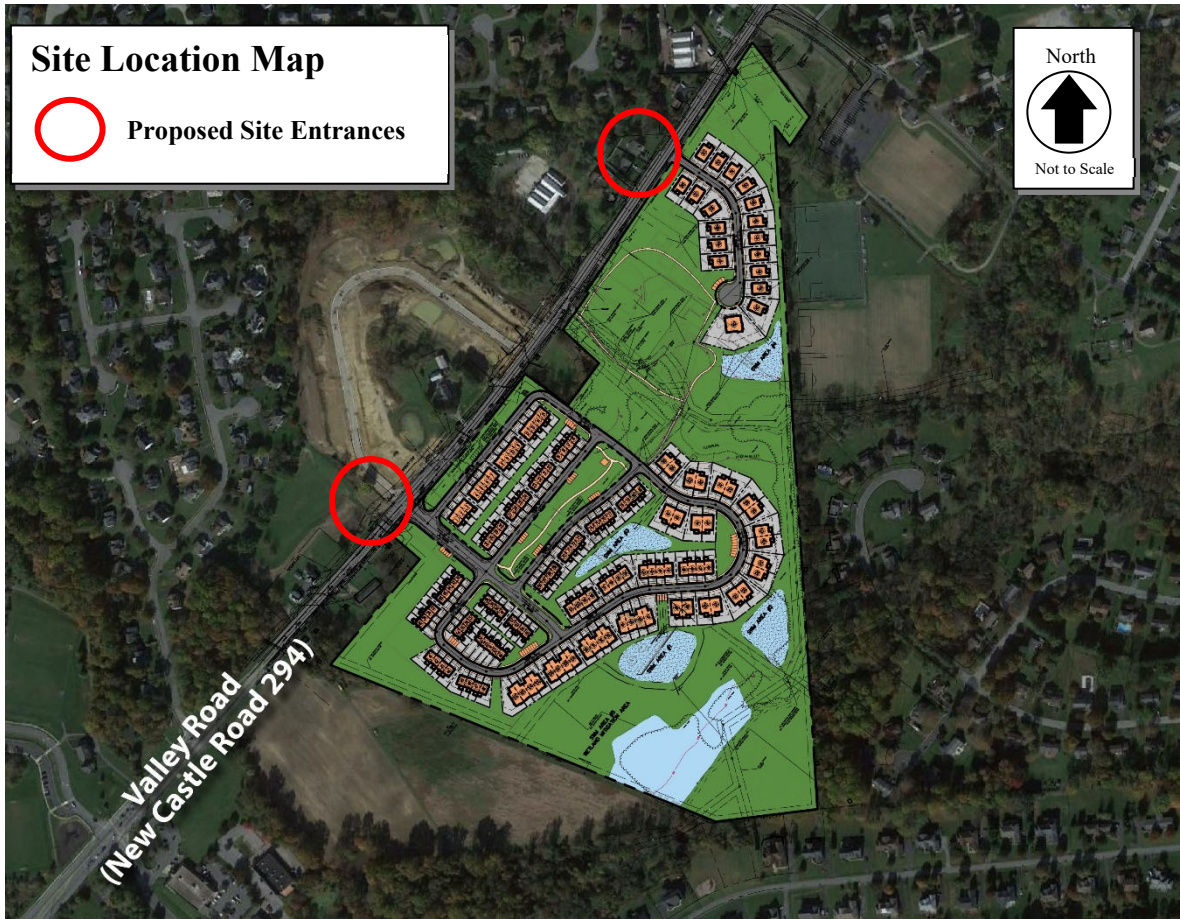
### **Daily Traffic Volumes:**

- 2021 Average Annual Daily Traffic on Valley Road: 9,073

\*AADT is sourced from ATR data provided by the TIS Report. Data taken is from four full days starting Wednesday, January 12, 2022.



## Site Map



*\*Graphic is an approximation based on the Record Major Subdivision Plan prepared by CDA Engineering Inc. dated October 1, 2021.*

## Relevant and On-going Projects

The DelDOT *BR 1-180 on Grant Avenue over Mill Creek Project* (DelDOT Contract No. T201707102) is within the study area and involves the replacement of a bridge on Grant Avenue over Mill Creek. The existing bridge consists of four corrugated metal pipe arches that show significant corrosion and are beyond their expected 30-year life span. DelDOT is proposing to replace the existing structure with a precast concrete rigid frame and the proposed structure will be lengthened to allow the roadway to be clear-zoned. The roadway approaches will also be reconstructed. Construction is scheduled to begin July 2022 and complete in early Fall 2022. More information regarding the project can be found on the project website:

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### **Livable Delaware**

*(Source: Delaware Strategies for State Policies and Spending, 2020)*

#### **Location with respect to the Strategies for State Policies and Spending Map of Delaware:**

The proposed development is located within Investment Level 2, Level 3 and Out of Play areas.

#### *Investment Level 2*

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

In Investment Level 2 Areas, like Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Investments should encourage departure from the typical single-family-dwelling developments and promote a broader mix of housing types and commercial sites encouraging compact, mixed-use development where applicable. Overall, the State's intent is to use its spending and management tools to promote well-designed development in these areas. Such development provides for a variety of housing types, user-friendly transportation systems, essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community.

Level 2 Areas share similar priorities as with the Level 1 Areas where the aim remains to: make context sensitive transportation system capacity enhancements, preserve existing facilities, make safety enhancements, make transportation system capacity improvements, create transit system enhancements, ensure ADA accessibility, and close gaps in the pedestrian system, including the Safe Routes to School projects. Investment Level 2 Areas are ideal locations for Transportation Improvement Districts and Complete Community Enterprise Districts. Other priorities for Level 2 Areas include: Corridor Capacity Preservation, off-alignment multi-use paths, interconnectivity of neighborhoods and public facilities, and signal-system enhancements.

#### *Investment Level 3*

Investment Level 3 Areas generally fall into two categories. The first category covers lands that are in the long-term growth plans of counties or municipalities where development is not necessary to accommodate expected population growth during a five-year planning period (or longer). In these instances, development in Investment Level 3 may be least appropriate for new growth and

development in the near term. The second category includes lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are otherwise categorized as Investment Levels 1 or 2. Environmentally sensitive features, agricultural-preservation issues, or other infrastructure issues most often impact these lands. In these instances, development and growth may be appropriate in the near term, but the resources on the site and in the surrounding area should be carefully considered and accommodated by state agencies and local government with land-use authority. Investment Level 3 is further characterized by areas with new development separated from existing development by a substantial amount of vacant land that is not contiguous with existing infrastructure, areas that are experiencing some development pressure, areas with existing but disconnected development, and possible lack of adequate infrastructure.

The state will consider investing in infrastructure within Investment Level 3 Areas once the Investment Level 1 and 2 Areas are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems and deemed appropriate to serve a particular area. The priorities in the Level 3 Areas are for DelDOT to focus on regional movements between towns and other population centers. DelDOT also supports the development and implementation of Transportation Improvement Districts in Investment Level 3 areas. Local roadway improvements will be made by developers and property owners as development occurs. Lower priority is given to transportation system–capacity improvements and transit-system enhancements.

#### *Out of Play*

These lands which are not available for development include publicly owned lands, private conservation lands, lands for which serious legal and/or environmental constraints on development are identified, and lands in some form of permanent open-space protection. These areas are generally not expected to be the location of private development activities such as residential subdivisions or commercial shopping centers. However, government entities, private property owners, and conservation organizations are still expected to invest in these areas for the purposes in which they were acquired and preserved. There may also be times when private property owners could be able to build or redevelop on these lands in accordance with State and local environmental and land use regulations.

#### **Proposed Development’s Compatibility with Livable Delaware:**

The proposed site would be located predominately in Investment Level 2, with portions of the site being in Investment Level 3 and Out of Play areas. Investment Level 2 areas should promote a broader mix of housing types. As the site proposes single-family homes, multi-family homes, and twin homes, it is generally consistent with the 2020 update of the Livable Delaware “Strategies for State Policies and Spending.”

**Comprehensive Plan**

(Source: New Castle County 2012 Comprehensive Plan)

**New Castle County Comprehensive Plan:**

Per the *New Castle County Comprehensive Plan Zoning Map*, the proposed development is currently zoned as Suburban and NC21 – 21,000 square feet. Per the *New Castle County Comprehensive Plan Future Land Use Map*, the proposed development is in an area designated as a Low Residential Density.

**Proposed Development’s Compatibility with the Sussex County Comprehensive Plan:**

The *New Castle County Comprehensive Plan* states that Low Residential Density is considered no more than three dwelling units per acre. The developer is planning to implement 153 homes on approximately 58 acres of land, which is approximately 2.6 houses per acre. Therefore, the development is generally consistent with the *New Castle County Comprehensive Plan*.

**Trip Generation**

The trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 10<sup>th</sup> Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 210 (Single-Family Detached Housing) and ITE Land Use Code 220 (Low-Rise Multi-Family Housing). Trip generation was reviewed by DelDOT as part of the Preliminary TIS (PTIS) submission.

**Table 1**  
Hockessin Station Trip Generation

Entrance*	Land Use	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Site Entrance A	113 low-rise multi-family housing (ITE Code 220)	813	12	42	54	42	24	66
	22 twin homes (ITE Code 210)**	258	5	15	20	15	9	24
Site Entrance B	18 single-family detached houses (ITE Code 210)	215	4	14	18	13	7	20
Total			21	71	92	70	40	110

\*The proposed Hockessin Station development consists of two entrances without an internal connection. Therefore, trip generation and traffic distributions were determined separately.

\*\*The 22 twin homes accessed were treated as single-family detached houses per the December 20, 2021, DelDOT Scoping Meeting Memorandum.

## **Overview of TIS**

### **Intersections examined:**

1. Site Entrance A / Valley Road (New Castle Road 294) (*southwest end*)
2. Site Entrance B / Valley Road (*northeast end*)
3. Valley Road / Evanson Road (New Castle Road 285)
4. Valley Road / Southwood Road (New Castle Road 286)
5. Valley Road / Old Lancaster Pike (New Castle Road 300)
6. Southwood Road / Sassafras Drive / Ridon Drive
7. Evanson Road / Grant Avenue
8. Grant Avenue / Millcreek Road (New Castle Road 282)
9. Evanson Road / Millcreek Road
10. Valley Road / Brook Run
11. Valley Road / Fitness Way / Lantana Drive
12. Delaware Route 7 / Valley Road

### **Conditions examined:**

1. Case 1 – 2022 Existing
2. Case 2 – 2024 without Development
3. Case 3 – 2024 with Development

### **Committed Developments considered:**

1. Hockessin Commons (Unbuilt 11,759 SF retail building)
2. Valley Grove (Unbuilt 3 single family houses, 14 semi-detached houses, and 39 townhouses)
3. Goddard School (Unbuilt 10,000 SF school)
4. Hockessin United Methodist Church (Unbuilt 21,050 SF/15 classroom addition to the existing church)
5. Sycamore Hill Church (Unbuilt 21,975 SF addition to the existing building)

\*Note: Committed development information provided in the Final TIS supersedes the information provided in the December 20, 2021, DelDOT Scoping Meeting Memorandum.

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

## **Intersection Descriptions**

### **1. Site Entrance A / Valley Road (New Castle Road 294) (*southwest end*)**

**Type of Control:** Existing two-way stop-controlled intersection (four-legged intersection)

**Eastbound Approach:** (Valley Road) Existing one shared left turn/through lane and one right turn lane.

**Westbound Approach:** (Valley Road) Existing one left turn lane, one through lane, and one right turn lane.

**Northbound Approach:** (Site Entrance A) Existing one shared left turn/through/right turn lane, stop controlled.

**Southbound Approach:** (Valley Grove Entrance) Existing one shared left turn/through/right turn lane, stop controlled.

## 2. Site Entrance B / Valley Road (*northeast end*)

**Type of Control:** Proposed two-way stop-controlled intersection (T-intersection).

**Eastbound Approach:** (Valley Road) Existing one through lane. Proposed one shared through/right turn lane.

**Westbound Approach:** (Valley Road) Existing one through lane. Proposed one shared left turn/through lane.

**Northbound Approach:** (Site Entrance) Proposed one shared left turn/right turn lane, stop controlled.

## 3. Valley Road / Evanson Road (New Castle Road 285)

**Type of Control:** Existing two-way stop-controlled intersection (T-intersection).

**Eastbound Approach:** (Valley Road) Existing one through lane and one right turn lane.

**Westbound Approach:** (Valley Road) Existing one bypass lane and one through/left turn lane.

**Northbound Approach:** (Evanson Road) Existing one shared left turn/right turn lane, stop controlled.

## 4. Valley Road / Southwood Road (New Castle Road 286)

**Type of Control:** Existing two-way stop-controlled intersection (T-intersection).

**Eastbound Approach:** (Valley Road) Existing one left turn and one through lane.

**Westbound Approach:** (Valley Road Road) Existing one through lane and one right turn lane.

**Southbound Approach:** (Southwood Road) Existing one left turn and one right turn lane, stop controlled.

## 5. Valley Road / Old Lancaster Pike (New Castle Road 300)

**Type of Control:** Existing two-way stop-controlled intersection (four-legged intersection)

**Eastbound Approach:** (Valley Road) Existing one shared left turn/through lane and one channelized right turn lane.

**Westbound Approach:** (Valley Road) Existing one shared left turn/through/right turn lane.

**Northbound Approach:** (Old Lancaster Pike) Existing one shared left turn/through/right turn lane, stop controlled.

**Southbound Approach:** (Old Lancaster Pike) Existing one shared left turn/through/right turn lane, stop controlled.

#### 6. Southwood Road / Sassafras Drive / Ridon Drive

**Type of Control:** Existing two-way stop-controlled intersection (four-legged intersection).

**Eastbound Approach:** (Southwood Road) Existing one shared left turn/through lane and one right turn lane.

**Westbound Approach:** (Southwood Road) Existing one shared left turn/through/right turn lane.

**Northbound Approach:** (Sassafras Drive) Existing one shared left turn/through/right turn lane, stop-controlled.

**Southbound Approach:** (Ridon Drive) Existing one shared left turn/through/right turn lane, stop-controlled.

#### 7. Evanson Road / Grant Avenue

**Type of Control:** Existing all-way stop-controlled intersection (T-intersection).

**Eastbound Approach:** (Evanson Road) Existing one shared left turn/through lane, stop-controlled.

**Westbound Approach:** (Evanson Road) Existing one shared through/right turn lane, stop-controlled.

**Southbound Approach:** (Grant Avenue) Existing one shared left turn/right turn lane, stop-controlled.

#### 8. Grant Avenue / Millcreek Road (New Castle Road 282)

**Type of Control:** Existing two-way stop-controlled intersection (T-intersection).

**Eastbound Approach:** (Grant Avenue) Existing one shared left turn/right turn lane, stop-controlled.

**Northbound Approach:** (Millcreek Road) Existing one shared left turn/through lane.

**Southbound Approach:** (Millcreek Road) Existing one shared through/right turn lane.

#### 9. Evanson Road / Millcreek Road

**Type of Control:** Existing two-way stop-controlled intersection (T-intersection).

**Eastbound Approach:** (Evanson Road) Existing one shared left turn/right turn lane, stop-controlled.

**Northbound Approach:** (Millcreek Road) Existing one shared left turn/through lane.

**Southbound Approach:** (Millcreek Road) Existing one shared through/right turn lane.

## 10. Valley Road / Brook Run

**Type of Control:** Existing two-way stop-controlled intersection (T-intersection).

**Eastbound Approach:** (Valley Road) Existing one left turn lane and one through lane.

**Westbound Approach:** (Valley Road) Existing one through lane and one right turn lane.

**Southbound Approach:** (Brook Run) Existing one shared left turn/right turn lane, stop-controlled.

## 11. Valley Road / Fitness Way / Lantana Drive

**Type of Control:** Existing signalized intersection.

**Eastbound Approach:** (Valley Road) Existing one left turn lane, one through lane, and one right turn lane.

**Westbound Approach:** (Valley Road) Existing one left turn lane, one through lane, and one right turn lane.

**Northbound Approach:** (Lantana Drive) Existing one shared left turn/through lane and one channelized right turn lane.

**Southbound Approach:** (Fitness Way) Existing one shared left turn/through/right turn lane.

## 12. Delaware Route 7 / Valley Road

**Type of Control:** Existing signalized intersection.

**Eastbound Approach:** (Valley Road) Existing one left turn lane, one through lane, and one channelized right turn lane.

**Westbound Approach:** (Valley Road) Existing one left turn lane, one through lane, and one channelized right turn lane.

**Northbound Approach:** (Delaware Route 7) Existing one left turn lane, one through lane, and one channelized right turn lane.

**Southbound Approach:** (Delaware Route 7) Existing one left turn lane, one through lane, and one channelized right turn lane.

## Transit, Pedestrian, and Bicycle Facilities

**Existing transit service:** Per DelDOT Gateway, DART Route 20 runs through the project area. DART Route 20 traverses the study area along Millcreek Road through two study intersections (Grant Avenue and Evanson Road). A bus stop exists at the Millcreek Road and Grant Avenue intersection. Route 20 provides 11 round trips from 6:05 AM to 7:01 PM on weekdays.

**Planned transit service:** Per email correspondence on May 6, 2022, with Mr. Jared Kauffman, Planner for DART, the Delaware Transit Corporation does not have any transit specific comments for the project.

**Existing bicycle and pedestrian facilities:** According to DelDOT's New Castle County Bicycle Map, several study roadways are considered bicycle routes. Delaware Route 7 is considered a



regional bicycle route, Valley Road is considered a connector bicycle route, and Mill Creek Road is considered a statewide bicycle route. A shared use path (SUP) exists along the Valley Road site frontage. Pedestrian crossings exist at four study intersections (the Valley Road intersections with Delaware Route 7, Fitness Way/Lantana Drive, Site Entrance A, and Evanson Road.

**Planned bicycle and pedestrian facilities:** Per email correspondence dated May 23, 2022, from Mr. John Fiori, DelDOT's Bicycle Coordinator and Ms. Linda Osiecky, DelDOT's Pedestrian Coordination, the following improvements were recommended:

- Referring to the State Strategies and Spending Map this site is within Level 2. Per the DelDOT shared-use path (SUP)/Sidewalk Policy a non-motorized facility is required unless a physical impossibility exist. However, there appears to be an existing SUP along the southeast side of Valley Road. Therefore, it will need to be verified if the SUP is a minimum 10-foot wide and the pavement condition of the SUP will need to be inspected to determine if the SUP pavement needs to be replaced.
- An internal connection from the SUP at the entrances will be required.
- Add pedestrian crossings and signals to all signalized intersections.
- Check with DART for additional bus stops along their frontage.
- Per the Development Coordination Manual (DCM) the site shall dedicate right-of-way per the roadway classification and establish a 15' wide permanent easement along all property roadway frontages.
- All entrance, roadway and/or intersection improvements required shall incorporate bicycle and pedestrian facilities. Per the DCM, if the right turn lane is warranted, then a separate 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 functional classification or existing conditions (minimum 5-feet).

**Bicycle Level of Traffic Stress in Delaware:** Researchers with the Mineta Transportation Institute developed a framework to measure low-stress connectivity, which can be used to evaluate and guide bicycle network planning. Bicycle LTS analysis uses factors such as the speed of traffic, volume of traffic, and the number of lanes to rate each roadway segment on a scale of 1 to 4, where 1 is a low-stress place to ride and 4 is a high-stress place to ride. It analyzes the total connectivity of a network to evaluate how many destinations can be accessed using low-stress routes. Developed by planners at the Delaware Department of Transportation (DelDOT), the bicycle Level of Traffic Stress (LTS) model will be applied to bicycle system planning and evaluation throughout the state. The Bicycle LTS for the roadways under existing conditions along the site frontage are summarized below. The Bicycle LTS was determined utilizing the Bicycle On-Road Network Level of Traffic Stress map from the April 2018 Blueprint for a Bicycle-Friendly Delaware document which can be found on the following website:

<https://deldot.gov/Publications/plans/bikeandped/pdfs/DelDOTBikePlan043018FINAL.pdf>

- Valley Road: 3

### **Crash Evaluation**

Per the crash data included in the TIS from February 1, 2019, to February 1, 2022, and provided by the Delaware Department of Transportation (DelDOT), 56 crashes were reported along Valley Road within the study area. Of the 56 crashes reported, 13 involved injury and there were no fatalities. The crashes reported were classified as follows: 18 angle, 16 rear-end, nine single vehicle crashes, five sideswipe, four front to front, and four other/unknown.

### **Previous Comments**

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

### **Sight Distance Evaluation**

No sight distance constraints were noted at the site entrances per a field visit conducted on April 28, 2022.

**General HCS Analysis Comments**

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

- 1) The TIS used version 7.5 of HCS7, whereas JMT used version 7.9.6 of HCS7 to complete the analysis.
- 2) Per DelDOT's *Development Coordination Manual*, JMT used a heavy vehicle percentage of 3% for each movement greater than 100 vph in the Case 2 and Case 3 future scenario analysis, unless the existing heavy vehicle percentage was greater than 3% and there was no significant increase of vehicles along that movement, in which case the existing heavy vehicle percentage was used for the analysis of future scenarios, whereas the TIS did not. JMT utilized the existing heavy vehicle percentage for each movement greater than 100 vph in the Case 3 Existing scenario.
- 3) Per DelDOT's *Development Coordination Manual* and coordination with DelDOT Planning, JMT used a heavy vehicle percentage of 5% for each movement less than 100 vph along roadways in the analyses, whereas the TIS did not.
- 4) Per DelDOT's *Development Coordination Manual*, JMT utilized the existing PHF for the Existing 2022 scenario and a future PHF for Case 2 and 3 scenarios of 0.80 for roadways with less than 500 vph, 0.88 for roadways between 500 and 1,000 vph, and 0.92 for roadways with more than 1,000 vph or the existing PHF, whichever was higher. The TIS utilized the higher of either the existing PHF or 0.92 for all cases.
- 5) JMT included bicycles and pedestrians counted during the traffic data collection in the analysis.

Table 2  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control <sup>1</sup>	LOS per TIS <sup>2</sup>		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Site Entrance A / Valley Road (New Castle Road 294) southwest end</b>				
2024 without Development (Case 2)				
Eastbound Valley Road Left Turn	-	-	A (8.1)	A (8.9)
Westbound Valley Road Left Turn	-	-	A (8.4)	A (8.6)
Northbound Site Entrance A Approach	-	-	B (11.2)	B (12.0)
Southbound Valley Grove Approach	-	-	C (15.3)	C (21.1)
2024 with Development (Case 3) <sup>3</sup>				
Eastbound Valley Road Left Turn	-	-	A (8.1)	A (8.9)
Westbound Valley Road Left Turn	A (8.4)	A (8.9)	A (8.5)	A (8.9)
Northbound Site Entrance A Approach	B (14.7)	C (20.3)	C (17.2)	D (25.0)
Southbound Valley Grove Approach	-	-	C (16.7)	C (24.5)

<sup>1</sup> For signalized and unsignalized analysis, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

<sup>2</sup> Due to the existing driveway for the Valley Grove development opposite the proposed Site Entrance A, JMT performed a Case 2 analysis, whereas the TIS did not.

<sup>3</sup> Due to the existing driveway for the Valley Grove development opposite the proposed Site Entrance A, JMT analyzed the intersection as a four-legged intersection.

Table 3  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control (T intersection) <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Site Entrance B / Valley Road ( <i>northeast end</i> )				
2024 with Development (Case 3)				
Westbound Valley Road Left Turn	A (8.4)	A (8.7)	A (8.5)	A (8.8)
Northbound Site Entrance B Approach	B (14.0)	C (18.3)	B (14.5)	C (18.4)

Table 4  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control (T-Intersection) <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Evanson Road (New Castle Road 285)</b>				
2021 Existing (Case 1)				
Westbound Valley Road Left Turn	A (8.4)	A (8.4)	A (8.5)	A (8.5)
Northbound Evanson Road Approach	C (16.4)	C (16.1)	C (16.3)	C (16.5)
2024 without Development (Case 2)				
Westbound Valley Road Left Turn	A (8.3)	A (8.5)	A (8.5)	A (8.7)
Northbound Evanson Road Approach	C (16.1)	C (19.5)	C (16.6)	C (19.9)
2024 with Development (Case 3)				
Westbound Valley Road Left Turn	A (8.4)	A (8.6)	A (8.6)	A (8.7)
Northbound Evanson Road Approach	C (17.1)	C (21.8)	C (17.5)	C (22.2)

Table 5  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control (T-Intersection) <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Southwood Road (New Castle Road 286)</b>				
2021 Existing (Case 1)				
Eastbound Valley Road Left Turn	A (8.3)	A (8.9)	A (8.3)	A (9.0)
Southbound Southwood Road Approach	C (20.6)	C (22.1)	C (20.7)	C (22.2)
2024 without Development (Case 2)				
Eastbound Valley Road Left Turn	A (8.3)	A (9.1)	A (8.3)	A (9.2)
Southbound Southwood Road Approach	C (19.8)	D (25.1)	C (21.5)	D (25.2)
2024 with Development (Case 3)				
Eastbound Valley Road Left Turn	A (8.4)	A (9.3)	A (8.4)	A (9.4)
Southbound Southwood Road Approach	C (21.4)	D (27.6)	C (23.5)	D (27.7)

Table 6  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Old Lancaster Pike (New Castle Road 300)</b>				
2021 Existing (Case 1)				
Eastbound Valley Road Left Turn	A (7.8)	A (8.3)	A (7.9)	A (8.4)
Westbound Valley Road Left Turn	A (8.3)	A (8.4)	A (8.1)	A (8.2)
Northbound Old Lancaster Pike Approach	C (19.6)	F (58.5)	C (19.7)	F (57.7)
Southbound Old Lancaster Pike Approach	B (13.5)	C (15.7)	B (13.3)	C (15.3)
2024 without Development (Case 2)				
Eastbound Valley Road Left Turn	A (7.8)	A (8.4)	A (7.9)	A (8.4)
Westbound Valley Road Left Turn	A (8.3)	A (8.4)	A (8.2)	A (8.2)
Northbound Old Lancaster Pike Approach	C (18.6)	F (65.1)	C (20.1)	F (64.2)
Southbound Old Lancaster Pike Approach	B (13.3)	C (16.1)	B (13.5)	C (15.7)
2024 with Development (Case 3)				
Eastbound Valley Road Left Turn	A (7.8)	A (8.4)	A (7.9)	A (8.5)
Westbound Valley Road Left Turn	A (8.4)	A (8.5)	A (8.2)	A (8.3)
Northbound Old Lancaster Pike Approach	C (20.1)	F (92.1)	C (20.2)	F (90.2)
Southbound Old Lancaster Pike Approach	B (13.5)	C (16.6)	B (13.4)	C (16.2)



Table 6 (continued)  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Old Lancaster Pike (New Castle Road 300)</b>				
2024 with Development (Case 3) with northbound left-turn lane <sup>4</sup>				
Eastbound Valley Road Left Turn	-	-	A (7.9)	A (8.5)
Westbound Valley Road Left Turn	-	-	A (8.2)	A (8.3)
Northbound Old Lancaster Pike Approach	-	-	C (17.9)	F (67.5)
Southbound Old Lancaster Pike Approach	-	-	B (13.4)	C (16.2)

<sup>4</sup> JMT analyzed the intersection with the provision of a separate left turn lane along the northbound Old Lancaster Pike approach.

Table 6 (continued)  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection All-Way Stop Control <sup>1,5</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Old Lancaster Pike (New Castle Road 300)</b>				
2024 with Development (Case 3)				
Eastbound Valley Road Approach	-	-	B (14.5)	C (23.1)
Westbound Valley Road Approach	-	-	B (12.7)	E (40.5)
Northbound Old Lancaster Pike Approach	-	-	B (10.7)	B (14.7)
Southbound Old Lancaster Pike Approach	-	-	A (9.6)	B (11.8)
Overall	-	-	B (13.3)	D (27.8)

Unsignalized Intersection Roundabout Control <sup>1,6</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Old Lancaster Pike (New Castle Road 300)</b>				
2024 with Development (Case 3)				
Eastbound Valley Road Approach	-	-	A (4.9)	A (5.1)
Westbound Valley Road Approach	-	-	A (5.3)	A (8.1)
Northbound Old Lancaster Pike Approach	-	-	A (5.8)	A (6.7)
Southbound Old Lancaster Pike Approach	-	-	A (4.7)	A (7.1)
Overall	-	-	A (5.1)	A (6.5)

<sup>5</sup> JMT conducted an additional analysis of the intersection as an all-way stop-controlled intersection with existing lane configurations.

<sup>6</sup> JMT conducted an additional analysis of the intersection as a single lane roundabout.

Table 6 (continued)  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

<b>Signalized Intersection <sup>1</sup></b>	<b>LOS per TIS</b>		<b>LOS per JMT</b>	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Old Lancaster Pike (New Castle Road 300)<sup>7</sup></b>				
2024 without Development (Case 2)	-	-	B (10.8)	B (13.0)
2024 with Development (Case 3)	-	-	B (10.7)	B (13.4)

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<sup>7</sup> JMT conducted an additional analysis of the intersection as a signalized intersection. For this analysis, the northbound approach (Old Lancaster Pike) was modeled with one shared left turn/through lane and one right-turn lane. Other approaches were modeled with existing lane configurations. The intersection was modeled with utilizing a 60 second cycle length and split phasing along the northbound and southbound Old Lancaster Pike approaches. The eastbound and westbound approaches were modeled with concurrent phasing and permitted left turns.

Table 7  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

<b>Unsignalized Intersection Two-Way Stop Control <sup>1</sup></b>	<b>LOS per TIS</b>		<b>LOS per JMT</b>	
	<b>Weekday AM</b>	<b>Weekday PM</b>	<b>Weekday AM</b>	<b>Weekday PM</b>
<b>Southwood Road / Sassafras Drive / Ridon Drive</b>				
2021 Existing (Case 1)				
Eastbound Southwood Road Left Turn	A (7.6)	A (7.5)	A (7.4)	A (7.5)
Westbound Southwood Road Left Turn	A (7.5)	A (7.5)	A (7.5)	A (7.5)
Northbound Sassafras Drive Approach	A (9.1)	A (8.8)	A (9.1)	A (8.8)
Southbound Ridon Drive Approach	A (9.8)	B (10.6)	A (9.8)	B (10.6)
2024 without Development (Case 2)				
Eastbound Southwood Road Left Turn	A (7.6)	A (7.4)	A (7.4)	A (7.5)
Westbound Southwood Road Left Turn	A (7.5)	A (7.5)	A (7.5)	A (7.5)
Northbound Sassafras Drive Approach	A (9.1)	A (8.8)	A (9.1)	A (8.8)
Southbound Ridon Drive Approach	A (9.9)	B (10.4)	A (9.8)	B (10.8)
2024 with Development (Case 3)				
Eastbound Southwood Road Left Turn	A (7.5)	A (7.4)	A (7.4)	A (7.5)
Westbound Southwood Road Left Turn	A (7.6)	A (7.5)	A (7.5)	A (7.5)
Northbound Sassafras Drive Approach	A (9.1)	A (8.8)	A (9.1)	A (8.8)
Southbound Ridon Drive Approach	A (9.9)	B (10.4)	A (9.8)	B (10.8)

Table 8  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

<b>Unsignalized Intersection All-Way Stop Control (T-Intersection) <sup>1</sup></b>	<b>LOS per TIS</b>		<b>LOS per JMT</b>	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Evanson Road / Grant Avenue<sup>8</sup></b>				
2021 Existing (Case 1)				
Westbound Grant Avenue Approach	A (8.5)	A (8.4)	A (6.5)	A (6.5)
Southbound Evanson Road Approach	A (7.3)	A (7.2)	A (6.7)	A (7.1)
Northbound Evanson Road Approach	-	-	A (7.3)	A (7.3)
Overall	-	-	A (6.9)	A (7.0)
2024 without Development (Case 2)				
Westbound Grant Avenue Approach	A (8.5)	A (8.4)	A (6.6)	A (6.5)
Southbound Evanson Road Approach	A (7.3)	A (7.2)	A (7.0)	A (7.1)
Northbound Evanson Road Approach	-	-	A (7.3)	A (7.3)
Overall	-	-	A (7.0)	A (7.0)
2024 with Development (Case 3)				
Westbound Grant Avenue Approach	A (8.5)	A (8.4)	A (6.6)	A (6.6)
Southbound Evanson Road Approach	A (7.3)	A (7.2)	A (7.0)	A (7.1)
Northbound Evanson Road Approach	-	-	A (7.3)	A (7.3)
Overall	-	-	A (7.0)	A (7.1)

<sup>8</sup> TIS modeled intersection as a two-way stop controlled intersection, whereas JMT modeled intersection as all-way stop control per field observations.

Table 9  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control (T-Intersection) <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Grant Avenue / Millcreek Road (New Castle Road 282)</b>				
2021 Existing (Case 1)				
Eastbound Grant Avenue Approach	A (9.1)	A (9.1)	A (9.2)	A (9.2)
Northbound Millcreek Road Left Turn	A (7.4)	A (7.5)	A (7.4)	A (7.6)
2024 without Development (Case 2)				
Eastbound Grant Avenue Approach	A (9.0)	A (9.0)	A (9.2)	A (9.2)
Northbound Millcreek Road Left Turn	A (7.3)	A (7.5)	A (7.4)	A (7.6)
2024 with Development (Case 3)				
Eastbound Grant Avenue Approach	A (9.0)	A (9.1)	A (9.4)	A (9.8)
Northbound Millcreek Road Left Turn	A (7.3)	A (7.5)	A (7.4)	A (7.7)

Table 10  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control (T-Intersection) <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Evanson Road / Millcreek Road</b>				
2021 Existing (Case 1)				
Eastbound Evanson Road Approach	A (9.5)	A (9.9)	A (9.6)	B (10.0)
Northbound Millcreek Road Left Turn	A (7.4)	A (7.6)	A (7.4)	A (7.6)
2024 without Development (Case 2)				
Eastbound Evanson Road Approach	A (9.2)	A (9.4)	A (9.5)	A (9.7)
Northbound Millcreek Road Left Turn	A (7.4)	A (7.5)	A (7.4)	A (7.6)
2024 with Development (Case 3)				
Eastbound Evanson Road Approach	A (9.2)	A (9.4)	A (9.4)	B (10.1)
Northbound Millcreek Road Left Turn	A (7.4)	A (7.5)	A (7.4)	A (7.6)

Table 11  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Unsignalized Intersection Two-Way Stop Control (T-Intersection) <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Creek / Brook Run</b>				
2021 Existing (Case 1)				
Eastbound Valley Creek Left Turn	A (8.1)	A (8.6)	A (8.1)	A (8.7)
Southbound Brook Run Approach	B (14.6)	C (17.2)	B (14.9)	C (17.4)
2024 without Development (Case 2)				
Eastbound Valley Creek Left Turn	A (8.0)	A (8.8)	A (8.2)	A (8.9)
Southbound Brook Run Approach	B (14.1)	C (19.0)	B (14.8)	C (19.4)
2024 with Development (Case 3)				
Eastbound Valley Creek Left Turn	A (8.1)	A (8.8)	A (8.3)	A (8.9)
Southbound Brook Run Approach	B (14.6)	C (20.0)	C (15.5)	C (20.4)



Table 12  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Valley Road / Fitness Way / Lantana Drive</b> <sup>9</sup>				
2021 Existing (Case 1) with DelDOT timings <sup>10</sup>	-	-	D (38.5)	D (39.4)
2021 Existing (Case 1) with signal optimization <sup>11</sup>	D (35.4)	D (36.1)	C (22.1)	C (23.2)
2024 without Development (Case 2) with signal optimization <sup>11</sup>	D (35.9)	D (39.0)	C (21.8)	C (23.8)
2024 with Development (Case 3) with signal optimization <sup>11</sup>	D (36.8)	D (40.6)	C (22.0)	C (24.0)

<sup>9</sup> JMT modeled the intersection with eastbound and westbound lagging lefts per field observations, whereas the TIS did not.

<sup>10</sup> DelDOT Timing scenario includes utilizing the green split times consistent with DelDOT MAX 1 green times.

<sup>11</sup> The TIS modeled the intersection utilizing a cycle length of 120 seconds, whereas JMT modeled the intersection utilizing a cycle length of 90 seconds.

Table 13  
Peak Hour Levels Of Service (LOS)  
Based on Final Traffic Impact Study for Hockessin Station  
Report Dated: April 2022  
Prepared by: Landmark Science & Engineering

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Delaware Route 7 / Valley Road <sup>12</sup></b>				
2021 Existing (Case 1)	D (39.1)	D (40.6)	D (35.8)	D (40.0)
2024 without Development (Case 2)	D (39.8)	D (43.2)	D (36.4)	D (43.3)
2024 with Development (Case 3)	D (41.0)	D (43.9)	D (37.1)	D (43.9)

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<sup>12</sup> Both the TIS and JMT utilized a cycle length of 120 seconds