



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

NICOLE MAJESKI  
SECRETARY

March 22, 2022

Mr. Joseph Caloggero  
The Traffic Group, Inc.  
9900 Franklin Square Drive  
Baltimore, Maryland 21236

Dear Mr. Caloggero,

The enclosed Traffic Impact Study (TIS) review letter for the **TidalHealth – Millsboro Medical Campus TIS** (Tax Parcel: 133-11.00-5.01) 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:km

Enclosures

cc with enclosures: Mr. Steven Leonard, TidalHealth Peninsula Regional, Inc.  
Mr. Kenneth Usab, Morris & Ritchie Assoc., Inc. (MRA)  
Mr. David Edgell, Office of State Planning Coordination  
Ms. Carrie Kruger, Town of Millsboro  
Mr. Mir Wahed, Johnson, Mirmiran & Thompson, Inc.  
Ms. Joanne Arellano, Johnson, Mirmiran & Thompson, Inc.  
DelDOT Distribution

## DelDOT Distribution

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Anthony Aglio, Planning Supervisor, Statewide & Regional Planning  
Wendy Polasko, Subdivision Engineer, Development Coordination  
Susanne Laws, Expedited Review Team Lead / TIIF Coordinator, Development Coordination  
Steve McCabe, Sussex Review Coordinator, Development Coordination  
Jun Xie, Expedited Review Team Engineer / Subdivision Manager, Development Coordination  
John Andrescavage, Subdivision Manager, Development Coordination  
Mark Galipo, Traffic Engineer, Traffic, DOTS  
Annamaria Furfato, Project Engineer, Development Coordination



March 21, 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 3-9A – TidalHealth- Millsboro Medical Campus TIS

Dear Mr. Joinville:

Johnson, Mirmiran, and Thompson (JMT) has completed a review of the Traffic Impact Study (TIS) for the TidalHealth- Millsboro Medical Campus development, which was prepared by The Traffic Group, Inc., dated July 16, 2021. This review was assigned as Task Number 3-9A. The report is prepared in a manner generally consistent with DelDOT's *Development Coordination Manual*.

The TIS evaluates the impacts of a proposed 160,000 square-foot hospital in the Town of Millsboro, Sussex County, Delaware. The development would be constructed in two phases with Phase I consisting of a 105,000 square-foot building. The site is located on the west side of US Route 113, approximately 2,100 feet south of the intersection of US Route 113 and the Avenue of Honor (Sussex Road 86). The subject property is on a 30.00-acre portion of an approximately 39.28-acre parcel. The land is currently zoned as HC (Highway Commercial) and the developer does not plan to rezone the land. Two rights-in/rights-out only access points are proposed on US Route 113 and construction is anticipated to be complete in 2026.

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

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

US Route 113 is one of the highways included in the CCPP. More information regarding the CCPP can be found at: [https://deldot.gov/Publications/manuals/corr\\_cap/index.shtml](https://deldot.gov/Publications/manuals/corr_cap/index.shtml).



The *North Millsboro Bypass, US 113 to SR 24* project (DelDOT Contract No. T201912701) aims to improve safety and reduce congestion through the Town of Millsboro. The project will consist of a grade-separated interchange at the intersection of US Route 113 and Delaware Route 20 and a two-lane connector road between US Route 113 and Delaware Route 24 north of Millsboro. The latest project updates indicate that design and right-of-way acquisition are currently underway. Construction is anticipated to begin in 2023 and end in 2025. More details, including concept plans for this project, are available at the following link:

<https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T201912701>.

The *US 113 Widening, Dagsboro Road to Hardscrabble Road* project will widen US Route 113 to provide three lanes in each direction from the intersection with Delaware Route 20 to the intersection with Dagsboro Road. The project is funded to begin engineering design in FY 23; however, construction funding has not yet been allocated and a construction start date has not been determined. A DelDOT contract number has not yet been assigned to this project.

Per the Sussex County Traffic Signal Summary dated June 3, 2021, there are currently two traffic signals in design at the study intersections. The US Route 113/Avenue of Honor and the US Route 113/Governor Stockley Road intersections are planned to be converted to signalized intersections in Spring 2023. The traffic signals are currently in design.

The planned signalization of the US Route 113 and Avenue of Honor intersection aims to improve safety at the intersection and improve overall network operations by converting the existing two-way stop control intersection to a signalized intersection. Per a Traffic Safety Study conducted by WRA dated January 2021, 25 crashes occurred at the intersection from January 2015 to December 2020, including nine angle crashes. Additionally, the intersection meets multiple volume warrants for a traffic signal. The study recommended the installation of a traffic signal at the intersection with flashing red arrow (FRA) phasing as well as "red signal ahead when flashing" beacons along the northbound and southbound US Route 113 approaches.

To provide long term mitigation at the Avenue of Honor/US Route 113 intersection, the *Avenue of Honor/E. Piney Grove Road GSI* project will aim to improve safety and reduce congestion by converting the at-grade intersection to be grade-separated. The project is funded to begin engineering design in FY 27. A DelDOT contract number has not yet been assigned to this project.

The planned signalization of the US Route 113 and Governor Stockley Road intersection aims to improve safety at the intersection and improve overall network operations by converting the existing two-way stop control intersection to a signalized intersection. Per a Traffic Safety Study conducted by WRA dated January 2021, 38 angle crashes occurred at the intersection from January 2015 to December 2020. Additionally, the intersection meets multiple volume and crash warrants for a traffic signal. The study recommended the installation of a traffic signal at the intersections with flashing red arrow (FRA) phasing as well as "red signal ahead when flashing" beacons along the northbound and southbound US Route 113 approaches. The signal was recommended to



operate as protected-only during the AM peak hours due to crash history and the eastbound and westbound approaches were recommended to operate as split phase due to potential right-of-way concerns.

Based on the traffic impact study, we have the following comments and recommendations:

None of the study intersections exhibit level of service (LOS) deficiencies when incorporating the improvements from the *North Millsboro Bypass, US 113 to SR 24* project (DelDOT Contract No. T201912701), and the signalization of the US Route 113 intersections with Avenue of Honor and Governor Stockley Road. As such, it is recommended that the developer coordinate with DelDOT on the implementation and equitable cost sharing of those projects. Note, contributions from the developer are not recommended to the *US 113 Widening, Dagsboro Road to Hardscrabble Road* project and the *Avenue of Honor/E. Piney Grove Road GSI* project as those two projects are not in the current CTP.

The TIS included an evaluation of the US Route 113 intersection with Delaware Route 20/Betts Pond Road without the improvements from the *North Millsboro Bypass, US 113 to SR 24* project (DelDOT Contract No. T201912701). Without these improvements, the intersection exhibits LOS deficiencies during the AM and PM peak hours under future conditions, with or without the proposed development. Under Case 3a conditions, the intersection would operate at LOS F (172.1 seconds of delay per vehicle) during the PM peak hour. Extensive roadway widening would be required along US Route 113 to mitigate these deficiencies. Therefore, we do not recommend the developer implement any interim improvements at this intersection prior to construction of the grade separated interchange.

Should the Town of Millsboro 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 US Route 113 within the limits of their frontage to meet DelDOT's standards for 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 construct a rights-in/rights-out site entrance on US Route 113, approximately 2,700 feet south of the southeast point of tangency at the Avenue of Honor intersection. The intersection should be consistent with the lane configurations shown in the table below.



Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance	Approach does not exist	One right turn lane
Southbound US Route 113	Two through lanes	Two through lanes and one right turn lane

Based on DelDOT’s *Development Coordination Manual*, the recommended minimum storage length is 410 feet (excluding taper) for the southbound US Route 113 right turn lane. The calculated queue lengths from the HCS analysis can be accommodated within the recommended storage lengths. In addition, the developer should provide an acceleration lane that would transition to a lane drop into the southerly Site Entrance. The developer should submit a plan to DelDOT’s Developer Coordination section depicting the design. The final design of the site entrance should be determined during the Entrance Plan review process.

- The developer should construct a rights-in/rights-out site entrance on US Route 113, approximately 4,000 feet south of the southeast point of tangency at the Avenue of Honor intersection. The intersection should be consistent with the lane configurations shown in the table below.

Approach	Current Configuration	Proposed Configuration
Eastbound Site Entrance	Approach does not exist	One right turn lane
Southbound US Route 113	Two through lanes	Two through lanes and one right turn lane*

The southbound US Route 113 right turn lane would be a lane drop from the northerly Site Entrance acceleration lane. In addition, the developer should provide a minimum 1,140 foot acceleration lane with a 300 foot parallel taper per Chapter 10 of AASHTO, *A Policy on Geometric Design of Highways & Streets* (Green Book). The developer should submit a plan to DelDOT’s Developer Coordination section depicting the design. The final design of the site entrance should be determined during the Entrance Plan review process.

- To minimize weaving movements from vehicles exiting the site entrances and seeking to U-turn along US Route 113, the developer should close the existing median located along the US Route 113 site frontage as well as the existing median located approximately 1,800 feet south of the proposed southerly Site Entrance. The closure of the existing median 1,800 feet south of the proposed southerly Site Entrance may impact vehicles leaving the proposed Patriots Landing site and seeking to travel south along US Route 113. As such, the developer should coordinate with DelDOT’s Development Coordination Section during the Entrance Plan review to identify the needed median closures.



5. The developer should enter into an agreement with DelDOT to fund an equitable portion of the improvements planned as part of the *North Millsboro Bypass, US 113 to SR 24* project (DelDOT Contract No. T201912701). This project will convert the US Route 113 intersection with Delaware Route 20 to a grade-separated interchange. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements.
6. The developer should enter into an agreement with DelDOT to fund an equitable portion of the improvements planned with the signalization of the US Route 113 and Avenue of Honor intersection, the agreement should include signal heads, pedestrian signals, crosswalks, interconnection, etc. at DelDOT's discretion. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements. At DelDOT's discretion, the developer may contribute to the Traffic Signal Revolving Fund in lieu of a traffic signal agreement.
7. The developer should enter into an agreement with DelDOT to fund an equitable portion of the improvements planned with the signalization of the US Route 113 and Governor Stockley Road intersection, the agreement should include signal heads, pedestrian signals, crosswalks, interconnection, etc. at DelDOT's discretion. The developer should coordinate with DelDOT on the implementation and equitable cost sharing of the improvements. At DelDOT's discretion, the developer may contribute to the Traffic Signal Revolving Fund in lieu of a traffic signal agreement.
8. 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 US Route 113 site frontage. Within the easement, the developer should construct a ten-foot wide shared-use path (SUP). The SUP should be designed to meet current AASHTO and ADA standards. A minimum five-foot setback should be maintained from the edge of the pavement to the SUP. 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 exact location of the SUP.
  - b. ADA compliant curb ramps and marked crosswalks should be provided along the Site Entrance A and Site Entrance B approaches to US Route 113. The use of diagonal curb ramps is discouraged. The curb ramps should be designed to accommodate the SUP.
  - c. Utility covers should be moved outside of any designated bicycle lanes and any proposed sidewalks/SUP or should be flush with the pavement.
  - d. A Type 2 bus stop should be installed at the Site Entrance A intersection. A pedestrian pathway should be constructed to connect the bus stop to the internal



pedestrian sidewalk. The developer should coordinate with DART and DeIDOT on the location, design, and amenities to provide.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DeIDOT's Plan Review process.

Improvements in this TIS may be considered "significant" under DeIDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DeIDOT's website at [https://www.deldot.gov/Publications/manuals/de\\_muted/index.shtml](https://www.deldot.gov/Publications/manuals/de_muted/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'.

Joanne M. Arellano, P.E., PTOE

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

Enclosure



## **General Information**

**Report date:** July 16, 2021

**Prepared by:** The Traffic Group, Inc.

**Prepared for:** TidalHealth

**Tax Parcel:** 133-11.00-5.01

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

## **Project Description and Background**

**Description:** The TIS evaluates the impacts of a medical development consisting of a 160,000 square-foot hospital. The proposed development will be completed in two phases, with Phase I consisting of a 105,000 square foot building.

**Location:** The subject site is located on the west side of US Route 113, approximately 2,100 feet south of Avenue of Honor (Sussex Road 86), in the Town of Millsboro, Sussex County, Delaware.

**Amount of Land to be developed:** A 30.00-acre portion of an approximately 39.28-acre parcel.

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

**Proposed completion date:** 2026.

**Proposed access locations:** Two rights-in/rights-out access points are proposed on US Route 113.

### **Daily Traffic Volumes:**

- 2019 Average Annual Daily Traffic on US Route 13: 24,950

## Site Map



\*Graphic is an approximation based on the Conceptual Site Plan prepared by Morris & Ritchie Associates, Inc. dated March 19, 2021.

## Relevant and On-going Projects

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

- Prevent the need to build an entirely new road
- Minimize the transportation impacts of increased economic growth
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US Route 113 is one of the highways included in the CCPP. More information regarding the CCPP can be found at: [https://deldot.gov/Publications/manuals/corr\\_cap/index.shtml](https://deldot.gov/Publications/manuals/corr_cap/index.shtml).

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of a grade-separated interchange at the intersection of US Route 113 and Delaware Route 20 and a two-lane connector road between US Route 113 and Delaware Route 24 north of Millsboro. The latest project updates indicate that design and right-of-way acquisition are currently underway. Construction is anticipated to begin in 2023 and end in 2025. More details, including concept plans for this project, are available at the following link:

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To provide long term mitigation at the Avenue of Honor/US Route 113 intersection, the *Avenue of Honor/E. Piney Grove Road GSI* project will aim to improve safety and reduce congestion by converting the at-grade intersection to be grade-separated. The project is funded to begin engineering design in FY 27. A DelDOT contract number has not yet been assigned to this project.

The planned signalization of the US Route 113 and Governor Stockley Road intersection aims to improve safety at the intersection and improve overall network operations by converting the existing two-way stop control intersection to a signalized intersection. Per a Traffic Safety Study conducted by WRA dated January 2021, 38 angle crashes occurred at the intersection from January 2015 to December 2020. Additionally, the intersection meets multiple volume and crash warrants for a traffic signal. The study recommended the installation of a traffic signal at the intersections with flashing red arrow (FRA) phasing as well as "red signal ahead when flashing" beacons along the northbound and southbound US Route 113 approaches. The signal was recommended to operate as protected-only during the AM peak hours due to crash history and the eastbound and westbound approaches were recommended to operate as split phase due to potential right-of-way concerns.

## **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 the Investment Level 2.

#### *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.

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

The proposed site would be located in Investment Level 2. The 2020 *Delaware Strategies for State Policies and Spending* states that in Investment Level 2, the priority is to promote a wide range land uses and enhance community character in areas adjacent to rapid growth. The proposed development is a medical facility, which will provide essential healthcare resources to the community, enhancing the community character. Therefore, the proposed development is generally consistent with the 2020 update of the Livable Delaware "Strategies for State Policies and Spending."

**Comprehensive Plan**

(Source: Town of Millsboro 2021 Comprehensive Plan)

**Town of Millsboro Comprehensive Plan:**

Per the *Town of Millsboro Comprehensive Plan*, the proposed development is in an area designated as Agricultural and the developer does not plan to rezone the land.

**Proposed Development’s Compatibility with the Town of Millsboro Comprehensive Plan:**

Per the *Town of Millsboro Comprehensive Plan*, the proposed development is in an area proposed to be Highway Commercial (HC) per the Future Land Use Map. Per the Millsboro Town Code, hospitals are permitted developments within Highway Commercial zones. Therefore, the proposed development is generally consistent with the *Town of Millsboro 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, 10th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 610 (Hospital). The trip generation was approved by DelDOT during the Preliminary Traffic Impact Study (PTIS) review.

**Table 1**  
TidalHealth - Millsboro Medical Campus Trip Generation

Land Use	ADT	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
160,000 SF Hospital (ITE Code 610)	1,715	167	78	245	75	160	235

**Overview of TIS**

**Intersections examined:**

1. Site Entrance A / US Route 113 (north access)
2. Site Entrance B / US Route 113 (south access)
3. US Route 113 / Avenue of Honor (Sussex Road 86)
4. US Route 113 / E. Piney Grove Road (Sussex Road 329)
5. US Route 113 / Governor Stockley Road (Sussex Road 432)
6. US Route 113 / Delaware Route 20 / Betts Pond Road (Sussex Road 20) (Case 3a)
7. US Route 113 / Delaware Route 20 (Case 3b)
  - a. Delaware Route 20 / US Route 113 Southbound Ramps
  - b. Delaware Route 20 / US Route 113 Northbound Ramps

**Conditions examined:**

- 1) Existing (2021)
- 2) 2026 without development
- 3) 2026 with development
  - a. Without Millsboro Bypass and with cross-over south of the south site entrance
  - b. With Millsboro Bypass

**Committed Developments considered:**

1. Howard T. Ennis School (157,000 square-foot special-needs school)
2. Sussex Central Schools (2,200-student high school, 850-student middle school proposed to use the existing high school building)
3. Plantations Lakes (676 single-family detached houses, 926 townhouses/condominiums, 478,000 square feet of retail space, and an 18-hole golf course with 9 holes existing)
4. Alderleaf Meadows (f.k.a. Homestead Phase 2) (163 single-family detached houses)
5. Oaks at Georgetown (58 single-family detached houses, 138 units of multi-family mid-rise housing, and 337 units of multi-family low-rise housing)
6. Foster Commons (60 units of multi-family low-rise housing)
7. Millwood Phase 2 (92 single-family detached houses)

Note: Committed development information provided in the TIS supersedes the information provided in the May 19, 2021 DelDOT Scoping Meeting Memorandum.

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

**Intersection Descriptions**

**1. Site Entrance A / US Route 113**

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

**Eastbound Approach:** (Site Entrance A) Proposed one right turn lane, stop-controlled.

**Southbound Approach:** (US Route 113) Existing two through lanes, proposed two through lanes and one right turn lane.

**2. Site Entrance B / US Route 113**

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

**Eastbound Approach:** (Site Entrance B) Proposed one right turn lane, stop-controlled.

**Southbound Approach:** (US Route 113) Existing two through lanes, proposed two through lanes, and one right turn lane.

**3. US Route 113 / Avenue of Honor (Sussex Road 86)**

**Type of Control:** Two-way stop-controlled intersection (T-intersection)

**Westbound Approach:** (Avenue of Honor) Existing one left turn lane, stop-controlled, and one channelized right turn lane, yield controlled.

**Northbound Approach:** (US Route 113) Existing one U-turn lane, two through lanes, and one channelized right turn lane.

**Southbound Approach:** (US Route 113) Existing one left turn lane and two through lanes.

**4. US Route 113 / E. Piney Grove Road (Sussex Road 329)**

**Type of Control:** Two-way stop-controlled intersection

**Eastbound Approach:** (E. Piney Grove Road) Existing one shared left turn/right turn lane, stop controlled.

**Northbound Approach:** (US Route 113) Existing one left turn lane and two through lanes.

**Southbound Approach:** (US Route 113) Existing one U-turn lane, two through lanes, and one channelized right turn lane.

**5. US Route 113 / Governor Stockley Road (Sussex Road 432)**

**Type of Control:** Two-way stop-controlled intersection

**Eastbound Approach:** (Governor Stockley Road) Existing one shared left turn/through lane, stop-controlled, and one channelized right turn lane, yield controlled.

**Westbound Approach:** (Governor Stockley Road) Existing one shared left turn/through lane, stop-controlled, and one channelized right turn lane, yield controlled.

**Northbound Approach:** (US Route 113) Existing one left turn lane, two through lanes, and one channelized right turn lane.

**Southbound Approach:** (US Route 113) Existing one left turn lane, two through lanes, and one channelized right turn lane.

**6. US Route 113 / Delaware Route 20 / Betts Pond Road (Sussex Road 20)**

**Type of Control:** Signal

**Eastbound Approach:** (Delaware Route 20) Existing one shared left turn/through lane and one channelized right turn lane.

**Westbound Approach:** (Betts Pond Road) Existing one shared left turn/through lane and one channelized right turn lane.

**Northbound Approach:** (US Route 113) Existing one left turn lane, two through lanes, and one channelized right turn lane.

**Southbound Approach:** (US Route 113) Existing one left turn lane, two through lanes, and one channelized right turn lane.

**7A. Delaware Route 20 / US Route 113 Southbound Ramps\***

**Type of Control:** Proposed Signal

**Eastbound Approach:** (Delaware Route 20) Proposed one through lane and one channelized right turn lane.

**Westbound Approach:** (Delaware Route 20) Proposed one left turn lane and one through lane.

**Northbound Approach:** (US Route 113 Southbound Ramp) Proposed one left turn lane and one channelized right turn lane.

\*Proposed lane configurations are per the October 2020 Preliminary Design Plan for the *North Millsboro Bypass, US 113 to SR 24* project (DelDOT Contract No. T201912701).

## **7B. Delaware Route 20 / US Route 113 Northbound Ramps\***

**Type of Control:** Proposed Signal

**Eastbound Approach:** (Delaware Route 20) Proposed one left turn lane, two through lanes, and one right turn lane.

**Westbound Approach:** (Delaware Route 20) Proposed one left turn lane, one through lane, and one right turn lane.

**Northbound Approach:** (Access Road) Proposed one left turn lane and one shared through/right turn lane.

**Southbound Approach:** (US Route 113 Northbound Ramp) Proposed one left turn lane, one through lane, and one right turn lane.

\*Proposed lane configurations are per the October 2020 Preliminary Design Plan for the *North Millsboro Bypass, US 113 to SR 24* project (DelDOT Contract No. T201912701).

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

**Existing transit service:** Per the DelDOT Gateway, Delaware Transit Corporation (DTC) currently provides transit service within the study area via DART Flex Route 902. Flex Route 902 exists along US Route 113 and traverses six study intersections (Site Entrance A, Site Entrance B, Avenue of Honor, E. Piney Grove Road, Governor Stockley Road, and Delaware Route 20/Betts Pond Road. Flex Route 902 provides 14 round trips from 5:45 am to 7:43 pm on weekdays.

**Planned transit service:** Per email correspondence on July 26, 2021 with Mr. Jared Kauffman, Planner for DART, a Type 2 bus stop is requested along US Route 113 near Site Entrance A. A pedestrian pathway should be constructed to connect the bus stop to the internal pedestrian sidewalk.

**Existing bicycle and pedestrian facilities:** Per the DelDOT Gateway, a Regional Bicycle Route exists within the study area. The Regional Bicycle Route exists along Delaware Route 20, west of the study intersection of US Route 113/Betts Pond Road and turns south along US Route 113.

**Planned bicycle and pedestrian facilities:** Per email correspondence contained within the TIS dated May 25, 2021, from Mr. Anthony Aglio, DelDOT's Pedestrian and Bicycle Coordinator, the following improvements were recommended:

- A Multi-Use Path as indicated on the concept plan.

**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 map on the DelDOT Gateway.

- US Route 113 – LTS: 4

### **Crash Evaluation**

Per the crash data included in the TIS from June 24, 2018 to June 24, 2021 and provided by the Delaware Crash Analysis Reporting System, a total of 117 crashes were reported at or within the study intersections, including 34 injuries and no reported fatalities. Of These 117 crashes, 66 occurred at the intersection of US Route 113/Delaware Route 20, 31 occurred at the intersection of US Route 113/Governor Stockley Road, and 14 occurred at the US Route 113/Avenue of Honor intersection.

Of the 66 crashes reported at the US Route 113/Delaware Route 20/Betts Pond Road intersection, 46 were rear end crashes, 10 were angle crashes, four were single vehicle crashes, three were sideswipe crashes, two were head-on crashes, and one was other. Of the 31 crashes reported at the US Route 113/Governor Stockley Road intersection, 22 were angle crashes, four were single vehicle crashes, two were rear end crashes, two were head-on crashes, and one was other. Of the 14 crashes reported at the US Route 113/Avenue of Honor intersection six were angle crashes, five were single vehicle crashes, and three were rear end crashes.

### **Previous Comments**

All comments made during the Preliminary TIS (PTIS) were addressed in the Final TIS (FTIS).

**General HCS Analysis Comments**

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

1. JMT and the TIS utilized version 7.9.5 of HCS7.
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 utilized existing heavy vehicle percentages for all scenarios.
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, whereas the TIS utilized existing heavy vehicle percentages. Additionally, JMT utilized a heavy vehicle percentage of 3% for movements entering and exiting the proposed site.
4. Per DelDOT's *Development Coordination Manual*, JMT utilized the existing PHF for the Case 1 scenario and a future PHF for Cases 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 existing PHF for all cases.
5. For signalized analysis, JMT utilized field measured phase time whereas the TIS did not.

Table 2  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

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>Site Entrance A / US Route 113 (North Access)</b>				
2026 with Development (Case 3) <sup>2</sup>				
Eastbound Site Entrance Approach	C (19.7)	D (32.9)	C (19.4)	D (32.9)
2026 with Development (Case 3) <i>with only one entrance along US Route 113</i>				
Eastbound Site Entrance Approach	-	-	C (20.1)	E (46.0)

<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> The TIS utilized a PHF of 0.91 during the AM peak hour, whereas JMT utilized a PHF of 0.92.

Table 3  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

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 / US Route 113 (South Access)				
2026 with Development (Case 3) <sup>2</sup>				
Eastbound Site Entrance Approach	C (17.9)	D (25.2)	C (17.7)	D (25.2)

Table 4  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

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>US Route 113 / Avenue of Honor (Sussex Road 86)</b>				
2021 Existing (Case 1)				
Westbound Avenue of Honor Approach	E (41.0)	D (29.4)	E (42.9)	D (30.4)
Northbound US Route 113 U-Turn	C (19.8)	C (23.2)	C (19.8)	C (23.2)
Southbound US Route 113 Left Turn	B (13.5)	B (11.5)	B (14.0)	B (11.4)
2026 without Development (Case 2)				
Westbound Avenue of Honor Approach	F (601.1)	F (296.4)	F (483.1)	E (301.7)
Northbound US Route 113 U-Turn	D (26.1)	E (36.1)	C (24.3)	E (36.1)
Southbound US Route 113 Left Turn	C (17.7)	B (13.8)	C (16.9)	B (13.5)
2026 with Development (Case 3)				
Westbound Avenue of Honor Approach	F (*)	F (770.4)	F (*)	F (793.7)
Northbound US Route 113 U-Turn	F (65.1)	F (57.9)	F (63.8)	F (59.8)
Southbound US Route 113 Left Turn	C (18.3)	B (14.4)	C (18.3)	B (14.1)

Table 4 (continued)  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>US Route 113 / Avenue of Honor (Sussex Road 86) <sup>3,4</sup></b>				
2026 without Development (Case 2)	-	-	C (22.2)	B (19.8)
2026 with Development (Case 3)	C (34.6)	C (28.0)	C (26.5)	C (25.5)

<sup>3</sup> The intersection was modeled as an uncoordinated free signal with existing lane configurations. Flashing Red Arrow (FRA) left turn phasing was assumed along the northbound and southbound approaches, with protected-permissive left turn phasing during both peak hours. The TIS modeled the intersection with protected-only left turn phasing along the northbound and southbound approaches.

<sup>4</sup> JMT modeled the Avenue of Honor approach as a shared left turn/right turn lane, whereas the TIS modeled the approach with a separate left turn lane and a separate right turn lane.

Table 5  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

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>US Route 113 / E. Piney Grove Road (Sussex Road 329) <sup>5</sup></b>				
2021 Existing (Case 1)				
Eastbound Piney Grove Road Approach	C (15.4)	C (16.3)	C (15.4)	C (16.0)
Northbound US Route 113 Left Turn	B (11.6)	B (12.5)	B (11.3)	B (12.6)
Southbound US Route 113 U-Turn	C (16.8)	C (15.4)	C (16.8)	C (15.4)
2026 without Development (Case 2)				
Eastbound Piney Grove Road Approach	C (18.4)	C (21.6)	C (18.5)	C (21.0)
Northbound US Route 113 Left Turn	B (13.3)	C (16.2)	B (12.9)	C (16.3)
Southbound US Route 113 U-Turn	C (23.7)	C (21.3)	C (23.7)	C (21.3)
2026 with Development (Case 3)				
Eastbound Piney Grove Road Approach	C (20.3)	C (22.3)	C (20.4)	C (21.7)
Northbound US Route 113 Left Turn	B (13.9)	C (16.9)	B (13.5)	C (17.0)
Southbound US Route 113 U-Turn	C (24.5)	C (22.8)	D (25.1)	C (22.8)

<sup>5</sup> JMT modeled the southbound US Route 113 right turn lane as channelized per existing conditions, whereas the TIS did not.

Table 6  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

Unsignalized Intersection Two-Way Stop Control <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>US Route 113 / Governor Stockley Road (Sussex Road 432)</b>				
2021 Existing (Case 1)				
Eastbound Governor Stockley Road Approach	F (310.7)	F (*)	F (303.9)	F (*)
Westbound Governor Stockley Road Approach	F (*)	F (366.0)	F (117.1)	F (366.2)
Northbound US Route 113 Left Turn	B (10.8)	B (12.9)	B (11.1)	B (13.0)
Southbound US Route 113 Left Turn	B (12.7)	C (15.6)	B (11.9)	B (11.2)
2026 without Development (Case 2)				
Eastbound Governor Stockley Road Approach	F (690.2)	F (*)	F (662.0)	F (*)
Westbound Governor Stockley Road Approach	F (*)	F (*)	F (*)	F (*)
Northbound US Route 113 Left Turn	B (12.1)	C (16.6)	B (12.5)	C (16.8)
Southbound US Route 113 Left Turn	C (15.6)	B (13.4)	B (14.4)	B (13.4)
2026 with Development (Case 3)				
Eastbound Governor Stockley Road Approach	F (746.5)	F (*)	F (716.8)	F (*)
Westbound Governor Stockley Road Approach	F (*)	F (*)	F (*)	F (*)
Northbound US Route 113 Left Turn	B (12.4)	C (17.0)	B (12.8)	C (17.2)
Southbound US Route 113 Left Turn	C (15.8)	B (13.7)	B (14.6)	B (13.7)



Table 6 (continued)  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>US Route 113 / Governor Stockley Road (Sussex Road 432) <sup>6</sup></b>				
2026 without Development (Case 2)	-	-	D (47.6)	D (47.8)
2026 with Development (Case 3)	-	-	D (51.4)	D (50.0)

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<sup>6</sup> The intersection was modeled as an uncoordinated free signal with existing lane configurations. Flashing Red Arrow (FRA) left turn phasing was assumed along the northbound and southbound approaches, with protected-only left turns during the AM peak hour and protected-permissive left turns during the PM peak hour. The intersection was modeled with split phases along the eastbound and westbound Governor Stockley Road approaches.

Table 7  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>US Route 113 / Delaware Route 20 / Betts Pond Road (Sussex Road 20) <sup>7</sup></b>				
2021 Existing (Case 1)	-	-	F (82.8)	F (82.9)
2021 Existing (Case 1) with Optimization <sup>8</sup>	D (47.5)	D (39.7)	D (42.8)	D (44.6)
2026 without Development (Case 2)	-	-	F (203.4)	F (191.9)
2026 without Development (Case 2) with Optimization <sup>8</sup>	F (190.0)	F (188.5)	F (119.1)	F (166.7)
2026 with Development (Case 3a)	-	-	F (213.7)	F (199.8)
2026 with Development (Case 3a) with Optimization <sup>8</sup>	F (202.9)	F (199.1)	F (124.1)	F (172.1)

<sup>7</sup> JMT modeled the eastbound Delaware Route 20 right turn as a unsignalized per existing conditions, whereas the TIS did not.

<sup>8</sup> Signal optimization scenario includes optimizing splits and cycle length during the AM and PM peak hours.

Table 8  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Delaware Route 20/US Route 113 Southbound Ramps</b> <sup>9, 10</sup>				
2026 with Development (Case 3b)	B (11.7)	B (15.9)	B (12.3)	B (16.8)

<sup>9</sup> This scenario incorporates improvements planned as part of the *North Millsboro Bypass, US 113 to SR 24* project (DelDOT Contract No. T201912701).

<sup>10</sup> JMT did not include the northbound US Route 113 Southbound Ramp right turn movement in the analysis to be consistent with the October 2020 Preliminary Design Plan, whereas the TIS included the right turning movements in the analysis.

Table 9  
Peak Hour Levels Of Service (LOS)  
Based on Traffic Impact Study for TidalHealth- Millsboro Medical Campus  
Report Dated: July 16, 2021  
Prepared by: The Traffic Group, Inc.

Signalized Intersection <sup>1</sup>	LOS per TIS		LOS per JMT	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
<b>Delaware Route 20/US Route 113 Northbound Ramps</b> <sup>9, 11, 12</sup>				
2026 with Development (Case 3b)	B (13.5)	C (20.2)	B (18.4)	C (24.9)

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<sup>11</sup> JMT modeled the westbound Delaware Route 20 approach with one left turn lane and one shared through/right turn lane to be consistent with the October 2020 Preliminary Design Plan, whereas the TIS modeled the approach with one left turn lane, one through lane, and one right turn lane.

<sup>12</sup> Both JMT and the TIS included a right turn overlap phase along the southbound US Route 113 Northbound Ramp approach to model anticipated right turns on red.