



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

October 5, 2009

CAROLANN WICKS, P.E.
SECRETARY

Mr. David Culver
General Manager
New Castle County Department of Land Use
87 Reads Way
New Castle, DE 19720

Dear Mr. Culver:

The enclosed Traffic Impact Study (TIS) review letter for the **WSFS Bank - Limestone Road** 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 Rules and Regulations for Subdivision Streets and other accepted practices and procedures for such studies. DelDOT accepts this TIS review and concurs with the recommendations. We are providing it to you in fulfillment of our joint agreement regarding the review of TIS.

The enclosed letter replaces McCormick Taylor's letter of August 27, 2009. Subsequent to our sending you that letter, Secretary Wicks determined that it would be appropriate to install a signal, serving the subject development and the Lantana Square shopping center, on a trial basis, to be monitored for three years. Because this change will significantly affect traffic operations in the study area, McCormick Taylor has prepared this new letter.

If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2134.

Sincerely,

Todd Sammons
Project Engineer

TS:km
Enclosures
cc with enclosures:

Ms. Constance C. Holland, Office of State Planning Coordination
Mr. Tigist Zegeye, WILMAPCO
Mr. Vincent Iavarone, VMI-Maris Traffic Consultants (VMI)
Mr. Larry Tarabicos, Young, Conaway, Stargatt & Taylor, LLP
Mr. Jeffrey Bross, Duffield Associates, Inc.
Mr. George Haggerty, New Castle County Department of Land Use
Mr. John Janowski, New Castle County Department of Land Use
Mr. Andrew Parker, McCormick Taylor
Mr. Mir Wahed, Johnson, Mirmiran, and Thompson

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Theodore G. Bishop, Assistant Director, Development Coordination
Mark Tudor, Group Engineer, Project Development North, DOTS
Mark Alexander, Canal District Engineer, Canal District
Ivan Mitchell, Service Development Planner, Delaware Transit Corporation
Marc Cote, Subdivision Engineer, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Anthony Aglio, Bicycle and Pedestrian Coordinator, Statewide & Regional Planning
Pao Lin, Subdivision Manager, Development Coordination
Richard Woodhall, Subdivision Manager, Development Coordination
Troy Brestel, Project Engineer, Development Coordination

October 5, 2009

Mr. Todd J. Sammons
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1404
Traffic Impact Study Services
Task No. 40A – WSFS Bank – Limestone Road

Dear Mr. Sammons,

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the WSFS Bank development prepared by VMI-Maris Traffic Consultants (VMI), dated February 2009. This review was assigned as Task Number 40A. VMI prepared the report in a manner generally consistent with DelDOT's *Standards and Regulations for Subdivision Streets and State Highway Access*.

The TIS evaluates the impacts of the WSFS Bank development, proposed to be located on the west side of Delaware Route 7 (Limestone Road / New Castle Road 31), south of Valley Road (New Castle Road 294) in New Castle County, Delaware. The proposed development would consist of a 2,600 square-foot bank and 3,000 square feet of office space on approximately 3.3 acres of land. One access point is proposed on Delaware Route 7 directly opposite Lantana Drive (Lantana Square shopping center). The land is currently zoned NC 21 (Neighborhood Conservation) in New Castle County, and the developer has proposed rezoning to ON (Office Neighborhood). Construction is anticipated to be complete by 2010.

On September 3, 2009, DelDOT Secretary Carolann Wicks met with State Representative Joseph E. Miro, along with representatives of the developer and the Lantana Square shopping center, to discuss the potential for signalization of the intersection of Delaware Route 7 and WSFS Site Entrance / Lantana Drive. While DelDOT had previously been unwilling to install a traffic signal at this location due to safety and noise concerns, numerous issues relating to this intersection were discussed, with the outcome being that DelDOT now plans to install a signal at this intersection and monitor conditions there for a three-year period.

There is significant support in the community for a signal at this location. As traffic volumes have increased in recent years that support has increased, especially now that the WSFS Bank development is to be constructed opposite the Lantana Square entrance. All parties desire convenient access for customers to the shopping center and the WSFS Bank, and both the community and DelDOT have determined that the best way to achieve this goal is through a full-access signalized intersection. DelDOT recognizes that the safety and noise concerns can likely be addressed through appropriate signage and warning devices.

The study area has also been evaluated by DelDOT’s Hazard Elimination Program (HEP) (formerly Highway Safety Improvement Program or HSIP). Site E of the 2005 HEP consists of a 0.89-mile section of Delaware Route 7 from just north of Massafieri Way through Valley Road (including the proposed WSFS site entrance location). The HEP committee focused on the Delaware Route 7 intersections with Lantana Drive and Valley Road, for which they developed and considered several potential alternatives to improve safety and reduce conflicts without significantly impacting travel through the area. The committee’s recommendation at that time was to prohibit all left turns at the intersection of Delaware Route 7 and Lantana Drive, diverting Lantana Square motorists to the intersection of Valley Road and Lantana Drive.

Also based on the HEP committee's original recommendations, DelDOT initiated planning of a proposed improvement project for the intersection of Delaware Route 7 and Valley Road. Improvements to that intersection were to include the addition of a second left-turn lane on the westbound Valley Road approach, along with a second receiving lane along southbound Delaware Route 7. However, based on the fact that DelDOT now supports a full-access signal at the intersection of Delaware Route 7 and WSFS Site Entrance / Lantana Drive, DelDOT is re-evaluating the HEP project. It will likely now consist of extending the existing left-turn lanes at the intersection of Delaware Route 7 and Valley Road, and upgrading pedestrian facilities at the intersection.

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

The proposed development meets the New Castle County Level of Service (LOS) Standards as stated in Section 40.11.210 of the Unified Development Code (UDC). The stop-controlled minor street approaches at the following intersections do not meet the DelDOT level of service criteria without the implementation of physical roadway and/or traffic control improvements.

<i>Intersection</i>	<i>Existing Traffic Control</i>	<i>Situations for which deficiencies occur</i>
Delaware Route 7 and WSFS Site Entrance / Lantana Drive	Unsignalized	2008 Existing PM and Saturday; 2010 PM and Saturday without WSFS Bank; 2010 AM, PM, and Saturday with WSFS Bank
Delaware Route 7 and Sheringham Drive	Unsignalized	2008 Existing AM, PM, and Saturday; 2010 AM, PM, and Saturday without and with WSFS Bank
Delaware Route 7 and Massafieri Way	Unsignalized	2008 Existing PM; 2010 PM without and with WSFS Bank

The unsignalized T-intersections of Delaware Route 7 and Sheringham Drive, and Delaware Route 7 and Massafieri Way each exhibit LOS deficiencies under existing and future conditions. However, we do not recommend any improvements be implemented by the developer at either of these intersections. The LOS deficiencies would exist only on the low-volume minor street approaches, and the 95th percentile queue lengths on those approaches during the typical peak hours are expected to be 75 feet or less.

Should the County choose to approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. 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 should improve the intersection of Delaware Route 7 and WSFS Site Entrance / Lantana Drive. The proposed configuration is shown in the table below.

Approach	Current Configuration	Proposed Configuration
Northbound Delaware Route 7	One through lane and one right-turn lane	One left-turn lane, one through lane, and one right-turn lane
Southbound Delaware Route 7	One left-turn lane and one through lane	One left-turn lane, one through lane, and one right-turn lane
Eastbound WSFS Site Entrance	Approach does not exist	One left-turn lane, one through lane, and one flared right-turn lane
Westbound Lantana Drive	One left-turn lane and one right-turn lane	One left-turn lane, one through lane, and one flared right-turn lane

The improvements at this intersection should also include concrete islands to channelize the eastbound and westbound right-turn movements, separating the flared right-turn lane from the through lane on those two approaches.

Initial recommended minimum turn-lane lengths (excluding tapers) of the separate turn lanes are listed below. The developer should coordinate with DelDOT's Subdivision Section to determine final turn-lane lengths.

Approach	Left-Turn Lane	Right-Turn Lane
Northbound Delaware Route 7	295 feet*	415 feet*
Southbound Delaware Route 7	330 feet*	295 feet*
Eastbound WSFS Site Entrance	60 feet**	50 feet***
Westbound Lantana Drive	225 feet**	50 feet***

* turn-lane length based on deceleration length per DelDOT's *Road Design Manual* + storage length per queuing analysis

** turn-lane length based on storage length per queuing analysis

*** the eastbound and westbound flared right-turn lanes should be long enough to allow right-turning vehicles to bypass two queued through vehicles (50 feet is sufficient)

Because the proposed configuration and turn-lane length requirements for this intersection include changes to the existing Lantana Drive ingress and egress movements,

the developer should coordinate with DelDOT and the owner of the Lantana Square shopping center regarding these improvements.

2. The developer should enter into a traffic signal agreement with DelDOT for the intersection of Delaware Route 7 and WSFS Site Entrance / Lantana Drive. The agreement should include pedestrian signals, crosswalks, interconnection, ITS equipment such as CCTV cameras, and warning devices such as “Red Signal Ahead” signs and/or flashing yellow beacons at DelDOT’s discretion. The developer should coordinate with DelDOT and the owner of the Lantana Square shopping center on the implementation, schedule, and equitable cost sharing of the traffic signal.
3. In anticipation of a potential future DelDOT project to widen Delaware Route 7 to two through lanes in both directions, the developer should dedicate to DelDOT sufficient right-of-way along the Delaware Route 7 site frontage. The developer should coordinate with DelDOT’s Subdivision Section and Division of Transportation Solutions – Project Development North Section to determine the specific right-of-way dedication needed and the timing of the dedication.
4. The following bicycle, pedestrian, and transit improvements should be included:
 - a. A right-turn yield to bikes sign (MUTCD R4-4) should be added at the start of each right-turn lane added to Delaware Route 7.
 - b. Where right-turn lanes are added to Delaware Route 7, a minimum of a four-foot bicycle lane should be dedicated and striped with appropriate markings for bicyclists through the turn lane in order to facilitate safe and unimpeded bicycle travel.
 - c. Utility covers should be moved outside of the designated bicycle lane or be flush with the pavement.
 - d. Bike parking should be included near the entrances of all commercial establishments and office buildings to be included within this development.
 - e. A 15-foot wide easement from the edge of the right-of-way shall be dedicated to DelDOT within the site frontage along Delaware Route 7. Within this easement, a minimum of a five-foot wide sidewalk (with a minimum of a five-foot buffer from the roadway) that meets current AASHTO and ADA standards should be constructed. The sidewalk should connect to the existing sidewalk (on the property to the north of the site) that connects to Valley Road.
 - f. ADA compliant curb ramps and crosswalks should be provided at all pedestrian crossings, including all site entrances.
 - g. Internal sidewalks for pedestrian safety and to promote walking as a viable transportation alternative should be constructed within the development. These sidewalks should each be a minimum of five feet wide (with a minimum of a five-foot buffer from the roadway) or six feet wide from the back of the concrete curb (with no buffer), and should meet current AASHTO and ADA standards. These sidewalks should connect to the commercial buildings, to the proposed frontage sidewalk, and to adjacent developments including Hockessin Hunt where applicable.

- h. Where internal sidewalks are located alongside of parking spaces, a buffer should be added to eliminate vehicular overhang onto the sidewalk.
- i. The developer should install an ADA accessible bus stop along Delaware Route 7 in the vicinity of the site frontage. The stop should have a level concrete waiting pad. It should be connected to the proposed frontage sidewalk and internal sidewalks. The developer should coordinate with the Delaware Transit Corporation regarding the details and implementation of the transit-related improvements.

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 http://www.deldot.gov/information/pubs_forms/manuals/de_mutcd/index.shtml. For any additional information regarding the work zone impact and mitigation procedures during construction please contact Mr. Adam Weiser of DeIDOT’s Traffic Section. Mr. Weiser can be reached at (302) 659-4073 or by email at Adam.Weiser@state.de.us.

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 subdivision review process.

Additional details on our review of this TIS are attached. Please contact me at (302) 738-0203 or through e-mail at ajparker@mtmail.biz if you have any questions concerning this review.

Sincerely,

McCormick Taylor, Inc.



Andrew J. Parker, P.E., PTOE
Project Manager

Enclosure

General Information

Report date: February 2009

Prepared by: VMI Maris

Prepared for: Medori Enterprises.

Tax parcel: 08-018.00-031 and 08-018.00-062

Generally consistent with DelDOT's *Standards and Regulations for Subdivision Streets and State Highway Access*: Yes

Project Description and Background

Description: The proposed development would consist of a 2,600 square-foot bank and 3,000 square feet of office space.

Location: The WSFS Bank development is proposed to be located on the west side of Delaware Route 7 (Limestone Road / New Castle Road 31), south of Valley Road (New Castle Road 294) in New Castle County, Delaware. The address of the proposed development is 6274 Limestone Road. A site location map is included on Page 7.

Amount of land to be developed: approximately 3.3 acres of land

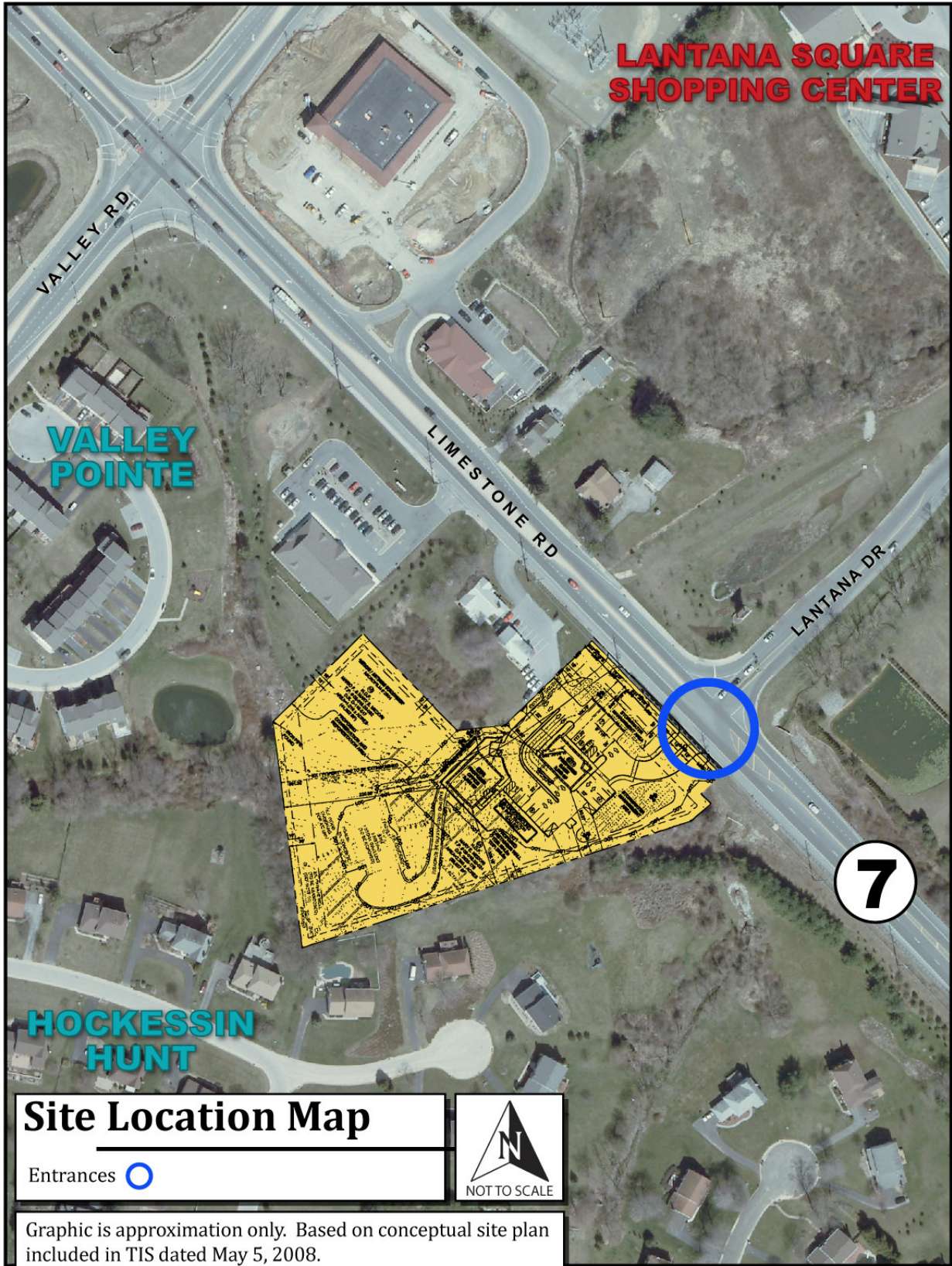
Land use approval(s) needed: rezoning from NC 21 (Neighborhood Conservation) to ON (Office Neighborhood), and Subdivision approval

Proposed completion date: 2010

Proposed access locations: One access point is proposed on Delaware Route 7 directly opposite Lantana Drive (Lantana Square shopping center).

Daily Traffic Volumes:

- 2007 Average Annual Daily Traffic on Delaware Route 7: 26,548 vpd



Livable Delaware

(Source: Delaware Strategies for State Policies and Spending, July 2004)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:
The proposed WSFS Bank development is located within Investment Level 2.

Investment Level 2

These areas, generally adjacent to Investment Level 1 Areas, include less developed areas within municipalities, rapidly growing areas that have or will have public water and wastewater services, and may include smaller towns, rural villages, and suburban areas. These areas typically include single-family detached housing developments, commercial and office uses serving primarily local residents, and a limited range of entertainment, parks and recreation, cultural and institutional facilities.

In Investment Level 2 Areas, state investments and policies should be based on available infrastructure to accommodate orderly growth, encourage departure from the typical single-family-dwelling developments, promote a broader mix of housing types and commercial sites, and encourage development that is consistent with the character of the area. Transportation projects should expand or provide roadways, public transportation, pedestrian walkways, bicycle paths, and other transportation modes that manage flow, support economic development efforts, and encourage connections between communities and the use of local streets for local trips.

Proposed Development's Compatibility with Livable Delaware:

The proposed WSFS Bank development falls within Investment Level 2 and is to be developed with relatively small commercial and office uses serving local residents, which is consistent with the character of the area. As such, this development appears to be generally consistent with the 2004 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plan

New Castle County Comprehensive Plan: The proposed WSFS Bank development is located in an area with future land use designated as Low Density Residential (1-3 dwelling units per acre). Although the proposed development is not residential, it fits within the character of the surrounding commercial and residential area, and it is adjacent to a Community Redevelopment area, which calls for a mix of housing types, densities, and businesses that fit well into the surrounding community.

Additionally, the parcels are currently zoned NC 21 (Neighborhood Conservation). The developer proposes to change the zoning to ON (Office Neighborhood). According to Section 40.02.223 of the New Castle County Unified Development Code (UDC), characteristics of ON zoning include:

- This district is intended to provide for professional and administrative offices in a park-like setting whose character is suburban transition.
- Building heights and floor area ratios are designed to provide a setting that is generally compatible with most of the County's residential areas.

Proposed Development's Compatibility with Comprehensive Plan: The proposed zoning changes would have the WSFS Bank development zoned as ON. The proposed development is planned as a bank and an office building, which is generally compatible with ON zoning. This development appears to fit well into the surrounding area. As such, the proposed development appears to be generally compatible with the New Castle County Comprehensive Plan.

Transportation Analysis Zones (TAZ)

Transportation Analysis Zones (TAZ) where development would be located: 147

TAZ Boundaries:



Current employment estimate for TAZ: 106 jobs in 2005

Future employment estimate for TAZ: 147 jobs in 2030

Current population estimate for TAZ: 7,016 people in 2005

Future population estimate for TAZ: 7,581 people in 2030

Current household estimate for TAZ: 2,544 houses in 2005

Future household estimate for TAZ: 2,929 houses in 2030

Relevant committed developments in TAZ: None

Would the addition of committed developments to current estimates exceed future projections: No

Would the addition of committed developments and the proposed development to current estimates exceed future projections: Unlikely (possibly for employment)

Relevant Projects

On September 3, 2009, DelDOT Secretary Carolann Wicks met with State Representative Joseph E. Miro, along with representatives of the developer and the Lantana Square shopping center, to discuss the potential for signalization of the intersection of Delaware Route 7 and WSFS Site Entrance / Lantana Drive. While DelDOT had previously been opposed to a traffic signal at this location due to safety and noise concerns, numerous issues relating to this intersection were discussed, with the outcome being that DelDOT now supports installation of a signal at this intersection. The community has strongly supported a signal here as traffic volumes have increased in recent years and, now that the WSFS Bank development is to be constructed opposite the Lantana Square entrance, their support for a signal has further increased. All parties desire convenient access for customers to the shopping center and the WSFS Bank, and both the community and DelDOT have determined that the best way to achieve this goal is through a full-access signalized intersection. DelDOT recognizes that the safety and noise concerns can likely be addressed through appropriate signage and warning devices.

The study area has also been evaluated by DelDOT's Hazard Elimination Program (HEP) (formerly Highway Safety Improvement Program or HSIP). Site E of the 2005 HEP consists of a 0.89-mile section of Delaware Route 7 from just north of Massafieri Way through Valley Road (including the proposed WSFS site entrance location). The HEP committee focused on the Delaware Route 7 intersections with Lantana Drive and Valley Road, for which they developed and considered several potential alternatives to improve safety and reduce conflicts without significantly impacting travel through the area. The committee's recommendation at that time was to prohibit all left turns at the intersection of Delaware Route 7 and Lantana Drive, diverting Lantana Square motorists to the intersection of Valley Road and Lantana Drive.

Also based on the HEP committee's original recommendations, DelDOT initiated planning of a proposed improvement project for the intersection of Delaware Route 7 and Valley Road. Improvements to that intersection were to include the addition of a second left-turn lane on the westbound Valley Road approach, along with a second receiving lane along southbound Delaware Route 7. However, based on the fact that DelDOT now supports a full-access signal at the intersection of Delaware Route 7 and WSFS Site Entrance / Lantana Drive, DelDOT is re-evaluating the HEP project. It will likely now consist of extending the existing left-turn lanes at the intersection of Delaware Route 7 and Valley Road (without affecting the Happy Harry's full-access driveway on Valley Road), and upgrading pedestrian facilities at the intersection. The developer of the WSFS Bank will not be responsible for any of these improvements.

Trip Generation

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

- 2,600 square-foot drive-in bank (ITE Land Use Code 912)
 - 3,000 square feet of single-tenant office space (ITE Land Use Code 715*)
- * Note: ITE does not provide Saturday peak hour data for Land Use Code 715, so the TIS used Land Use Code 710 (general office) for the Saturday peak hour trips

Table 1
WSFS BANK PEAK HOUR TRIP GENERATION

Land Use	AM Peak Hour			PM Peak Hour			Saturday Mid-day		
	In	Out	Total	In	Out	Total	In	Out	Total
2,600 sf drive-in bank	18	14	32	34	34	68	36	33	69
Pass-by Trips	-	-	-	16	16	32	16	16	32
3,000 sf single-tenant office	25	3	28	6	33	39	1	1	2
TOTAL TRIPS	43	17	60	24	51	75	21	18	39

Table 2
WSFS BANK DAILY TRIP GENERATION

Land Use	Weekday ADT			Saturday ADT		
	In	Out	Total	In	Out	Total
2,600 sf drive-in bank	193	193	386	112	112	224
3,000 sf single-tenant office	73	73	146	12	12	24
TOTAL TRIPS	266	266	532	124	124	248

Overview of TIS

Intersections examined:

- 1) Delaware Route 7 & Site Entrance / Lantana Drive
- 2) Delaware Route 7 & Sheringham Drive
- 3) Delaware Route 7 & Massafieri Way
- 4) Delaware Route 7 & Farm Meadow Lane
- 5) Delaware Route 7 & Community News Building Driveway
- 6) Delaware Route 7 & Happy Harry's Driveway
- 7) Delaware Route 7 & Valley Road
- 8) Valley Road & Lantana Drive / Tweed Tavern Park Drive

Conditions examined:

- 1) 2008 existing conditions (Case 1)
- 2) 2010 without WSFS Bank and with existing roadway conditions (Case 2)
- 3) 2010 without WSFS Bank and with HEP committee's originally proposed DelDOT modifications (Case 3)
- 4) 2010 with WSFS Bank and full-access site entrance (Case 4)
- 5) 2010 with WSFS Bank and HEP committee's originally proposed DelDOT modifications (Case 5)

Peak hours evaluated: Weekday morning and evening, and Saturday mid-day peak hours

Committed developments considered:

- 1) Lantana Square (225,000 square-foot shopping center (21,147 square feet unbuilt))
- 2) Traditions at Pike Creek (64 townhouses – all unbuilt)
- 3) Dennison Ridge (58 single-family detached houses (56 unbuilt) and 84 townhouses (78 unbuilt))
- 4) Hockessin Valley Farms (25 single-family detached houses – all unbuilt)
- 5) Harrogate North – Southwood Road (124 active adult homes (20 unbuilt) and 30 single family houses (all built))

Intersection Descriptions

1) Delaware Route 7 & Site Entrance / Lantana Drive

Type of Control: existing two-way stop-controlled (T-intersection); proposed signalized four-leg intersection

Northbound approach: (Delaware Route 7) existing one through lane and one right-turn lane; proposed one left-turn lane, one through lane, and one right-turn lane

Southbound approach: (Delaware Route 7) existing one left-turn lane and one through lane; proposed one left-turn lane, one through lane, and one right-turn lane

Eastbound approach: (Site Entrance) proposed one shared through/left-turn lane and one right-turn lane

Westbound approach: (Lantana Drive) existing one left-turn lane and one right-turn lane; proposed one shared through/left-turn lane and one right-turn lane

2) Delaware Route 7 & Sheringham Drive

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

Northbound approach: (Delaware Route 7) one through lane and one right-turn lane

Southbound approach: (Delaware Route 7) one left-turn lane and two through lanes

Westbound approach: (Sheringham Drive) one left-turn lane and one right-turn lane, stop-controlled

- 3) **Delaware Route 7 & Massafieri Way**
Type of Control: two-way stop-controlled (T-intersection)
Northbound approach: (Delaware Route 7) one shared through/right-turn lane
Southbound approach: (Delaware Route 7) one shared through/left-turn lane and one exclusive through lane
Westbound approach: (Massafieri Way) one shared left/right-turn lane, stop-controlled

- 4) **Delaware Route 7 & Farm Meadow Lane**
Type of Control: two-way stop-controlled (right-in/right-out T-intersection)
Northbound approach: (Delaware Route 7) one through lane, separated by concrete median
Southbound approach: (Delaware Route 7) two through lanes and one right-turn lane
Eastbound approach: (Farm Meadow Lane) one right-turn-only lane, stop-controlled

- 5) **Delaware Route 7 & Community News Building Driveway**
Type of Control: two-way stop-controlled (right-in/right-out T-intersection)
Northbound approach: (Delaware Route 7) one through lane, separated by concrete median
Southbound approach: (Delaware Route 7) one shared through/right-turn lane
Eastbound approach: (Community News Building Driveway) one right-turn-only lane, stop-controlled

- 6) **Delaware Route 7 & Happy Harry's Driveway**
Type of Control: two-way stop-controlled (right-in/right-out T-intersection)
Northbound approach: (Delaware Route 7) one through lane and one right-turn lane
Southbound approach: (Delaware Route 7) one through lane, separated by concrete median
Westbound approach: (Happy Harry's Driveway) one right-turn-only lane, stop-controlled

- 7) **Delaware Route 7 & Valley Road**
Type of Control: signalized four-leg intersection
Northbound approach: (Delaware Route 7) one left-turn lane, one through lane, and one right-turn lane
Southbound approach: (Delaware Route 7) one left-turn lane, one through lane, and one right-turn lane
Eastbound approach: (Valley Road) one left-turn lane, one through lane, and one right-turn lane
Westbound approach: (Valley Road) one left-turn lane, one through lane, and one right-turn lane

- 8) **Valley Road & Lantana Drive / Tweed Tavern Park Drive**
Type of Control: signalized four-leg intersection
Northbound approach: (Lantana Drive) one shared through/left-turn lane and one right-turn lane
Southbound approach: (Tweed Tavern Park Drive) one shared left/through/right-turn lane
Eastbound approach: (Valley Road) one left-turn lane, one through lane, and one right-turn lane
Westbound approach: (Valley Road) one left-turn lane, one through lane, and one right-turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: The Delaware Transit Corporation (DTC) currently does not offer any transit service near the proposed development.

Planned transit service: McCormick Taylor contacted Mr. Ivan Mitchell, a Service Development Planner for the DTC, via email on March 10, 2009 to determine whether DTC has any plans to extend the existing transit system in the vicinity of the development. In a letter dated March 25, 2009, Mr. Mitchell provided transit-related comments that should be considered if this development is built.

In that letter, Mr. Henderson stated that DTC used to provide bus service to the Lantana Square shopping center but discontinued that service in 2005 due to low ridership. DTC has no immediate plans to resume bus service to Lantana Square but could possibly extend service back to this area in the future. Future service extensions are dependent on the availability of funds, ridership demand, and growth in the area.

Due to the possibility of future service extensions into this area, DTC requests construction of a bus stop on the Delaware Route 7 site frontage. This bus stop would entail a bus stop pad attached to the proposed frontage sidewalk, with curb cuts to provide access to the buildings.

Existing bicycle and pedestrian facilities: According to the *New Castle County Bicycle Map*, Delaware Route 7 and Valley Road are each designated as having below average cycling conditions. Delaware Route 7 has high traffic volumes (greater than 10,000 ADT). There are currently sidewalks along Valley Road near Delaware Route 7, along the east side of Delaware Route 7 between Lantana Drive and Valley Road, and along the west side of Delaware Route 7 between the Community News Building Driveway and Valley Road (north of the proposed WSFS Bank site frontage).

Planned bicycle and pedestrian facilities: DelDOT's Bicycle and Pedestrian Facilities Team indicated, in a letter from Anthony Aglio and Jennifer Baldwin dated February 3, 2009, that the following bicycle and pedestrian facilities should be required. In the letter, Mr. Aglio and Ms. Baldwin commented that the surrounding area includes a significant amount of commercial and residential use. The following should be incorporated into the project to facilitate bicycle and pedestrian transportation:

- a. ADA compliant sidewalks should be extended along the frontage, connecting to the southeast side of Valley Road.
- b. Internal sidewalks should be included throughout the development
- c. Bicycle facilities should be included through right turn lanes.
- d. Covered bike parking should be included near the entrances of the commercial locations.
- e. Where internal sidewalks are located alongside of parking spaces, a buffer or physical barrier should be added to eliminate vehicular overhang onto the sidewalk.
- f. Non-motorized connections, such as pedestrian paths/trails, should be pursued to the surrounding development (Hockessin Hunt) to reduce vehicular traffic.
- g. The developer of this project should contact DART regarding the addition of transit service and transit facilities at this location. The internal sidewalks should be connected to this stop and include parking facilities for bicyclists.

DelDOT also indicated the development is located on an existing Statewide Bicycle Route (Delaware Route 7) and is in close proximity to a Connector Bicycle Route (Brackenville Road / Little Baltimore Road (New Castle Road 288)).

Previous Comments

All comments from DelDOT's Scoping Letter, Traffic Count Review, and Revised Traffic Count Review were addressed in the Final TOA submission, with the following exceptions:

- There were no indications that the applicant contacted Mr. Ivan Mitchell, a Service Development Planner at the DTC.
- The applicant did not submit a Preliminary TIS for review by DelDOT.

General HCS Analysis Comments

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

- 1) The TIS and McCormick Taylor used different volumes for analyses of Case 3 and Case 5. Per DelDOT's direction, McCormick Taylor used revised traffic volumes for these future cases based on adjusted traffic volumes provided by DelDOT.
- 2) For future conditions at the existing intersections, the TIS often assumed a future peak hour factor (PHF) equal to existing PHF, even when the lane group volume increased from existing to future. In some cases however, the TIS assumed a future PHF of 0.88. In cases where the lane group volume increased from existing to future, McCormick Taylor assumed a PHF of either existing PHF or 0.88, whichever was greater. At the proposed site entrance intersection, McCormick Taylor assumed a PHF of 0.88. However, for cases where the lane group volume did not change from existing to future conditions, McCormick Taylor assumed a future PHF equal to existing PHF.
- 3) For future conditions at existing intersections, the TIS assumed heavy vehicle factors (HV) to be the same as existing HV and assumed no minimum HV. In cases where increases in volumes were projected, McCormick Taylor's analysis assumed a future HV of either existing HV or 2%, whichever was greater.

- 4) The HCS analyses included in the TIS did not always reflect the lane widths observed in the field by McCormick Taylor. McCormick Taylor's HCS analyses incorporated the field-measured lane widths.
- 5) The TIS and McCormick Taylor used different cycle lengths and/or signal timing parameters when analyzing the signalized intersections in some cases.
- 6) The TIS input existing Right-Turn-on-Red (RTOR) volumes for existing and future analyses. McCormick Taylor input no RTOR volumes.

Table 3
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Unsignalized Intersection ¹ Two-Way Stop Control	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Site Entrance / Lantana Drive						
2008 Existing (Case 1)						
Southbound Delaware Route 7 – Left	A (8.5)	A (9.9)	A (9.4)	A (8.5)	A (9.9)	A (9.4)
Westbound Lantana Drive	D (27.6)	F (362.9)	F (292.6)	D (27.6)	F (362.9)	F (292.6)
2010 without WSFS Bank (Case 2)						
Southbound Delaware Route 7 – Left	A (8.6)	B (10.0+)	A (9.5)	A (8.6)	A (9.7)	A (9.1)
Westbound Lantana Drive	D (30.5)	F (457.9)	F (381.3)	C (24.1)	F (287.4)	F (242.7)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 1</i> ²						
Southbound Delaware Route 7 – Left	A (8.6)	B (10.0+)	A (9.5)	A (8.6)	A (9.7)	A (9.1)
Westbound Lantana Drive – Right	B (13.0)	D (33.4)	D (31.0)	B (12.2)	C (21.3)	C (18.5)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 2</i> ³						
Westbound Lantana Drive – Right	N/A	N/A	N/A	B (12.2)	C (21.3)	C (18.5)
2010 with WSFS Bank (Case 4) <i>With Improvement Option 1</i> ⁴						
Northbound Delaware Route 7 – Left	A (8.8)	A (9.3)	A (9.4)	A (8.9)	A (9.3)	A (9.4)
Southbound Delaware Route 7 – Left	A (8.6)	A (10.0-)	A (9.4)	A (8.6)	A (9.6)	A (9.1)
Eastbound Site Entrance	D (25.2)	F (385.2)	F (161.3)	C (24.3)	F (295.2)	F (111.3)
Westbound Lantana Drive	F (56.0)	F (927.8)	F (738.0)	E (36.9)	F (638.1)	F (489.1)

¹ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

² DelDOT Modification Option 1 allows left turns in from Delaware Route 7 but prohibits left turns out from westbound Lantana Drive (Case 3).

³ DelDOT Modification Option 2 prohibits all left turns at this intersection, allowing only right-in/right-out access for Lantana Drive (Case 3).

⁴ Improvement Option 1 assumes both approaches of Delaware Route 7 would consist of one left-turn lane, one through lane, and one right-turn lane, while the eastbound site entrance and westbound Lantana Drive would each consist of one shared through/left-turn lane and one right-turn lane.

Table 3 (continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Unsignalized Intersection ⁵ Two-Way Stop Control	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Site Entrance / Lantana Drive						
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 1 ⁶						
Northbound Delaware Route 7 – Left	A (9.1)	A (10.0-)	B (10.2)	A (9.1)	B (10.0+)	B (10.3)
Southbound Delaware Route 7 – Left	A (8.6)	A (10.0-)	A (9.2)	A (8.6)	A (9.8)	A (9.2)
Eastbound Site Entrance – Right	B (13.2)	C (19.2)	C (18.6)	B (13.2)	C (18.5)	C (17.9)
Westbound Lantana Drive – Right	B (13.2)	D (31.8)	D (25.3)	B (12.3)	C (22.4)	C (18.9)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 2 ⁷						
Eastbound Site Entrance – Right	N/A	N/A	N/A	B (13.2)	C (18.5)	C (17.9)
Westbound Lantana Drive – Right	N/A	N/A	N/A	B (12.5)	C (23.9)	C (19.8)

Signalized Intersection ⁵	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Site Entrance / Lantana Drive						
2010 with WSFS Bank (Case 4) With Improvement Option 1 ⁸	B (0.53)	C (0.80)	C (0.78)	B (0.53)	C (0.79)	C (0.79)
2010 with WSFS Bank (Case 4) With Improvement Option 2 ⁹	N/A	N/A	N/A	B (0.56)	C (0.81)	C (0.82)
2010 with WSFS Bank (Case 4) With Improvement Option 3 ¹⁰ * This represents recommendation	N/A	N/A	N/A	B (0.49)	C (0.70)	C (0.71)

⁵ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

⁶ DelDOT Modification Option 1 allows left turns in from Delaware Route 7 but prohibits left turns out from both westbound Lantana Drive and the eastbound site entrance (Case 5).

⁷ DelDOT Modification Option 2 prohibits all left turns at this intersection, allowing only right-in/right-out access for Lantana Drive and the WSFS site entrance (Case 5).

⁸ Improvement Option 1 assumes both approaches of Delaware Route 7 would consist of one left-turn lane, one through lane, and one right-turn lane, while the eastbound site entrance and westbound Lantana Drive would each consist of one shared through/left-turn lane and one right-turn lane.

⁹ Improvement Option 2 assumes both approaches of Delaware Route 7 would consist of one left-turn lane, one through lane, and one right-turn lane, while the eastbound site entrance and westbound Lantana Drive would each consist of one left-turn lane and one shared through/right-turn lane.

¹⁰ Improvement Option 3 assumes both approaches of Delaware Route 7 would consist of one left-turn lane, one through lane, and one right-turn lane, while the eastbound site entrance and westbound Lantana Drive would each consist of one left-turn lane, one through lane, and one flared right-turn lane.

Table 4
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Unsignalized Intersection ¹¹ Two-Way Stop Control (T-intersection)	LOS per TIS ¹²			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Sheringham Drive						
2008 Existing (Case 1)						
Southbound Delaware Route 7 – Left	A (9.5)	B (11.3)	A (9.8)	A (9.5)	B (11.3)	A (9.8)
Westbound Sheringham Drive	F (92.2)	F (196.9)	F (83.1)	E (39.5)	F (75.7)	E (37.6)
2010 without WSFS Bank (Cases 2-3)						
Southbound Delaware Route 7 – Left	A (9.7)	B (11.5)	A (10.0-)	A (9.7)	B (11.5)	A (10.0)
Westbound Sheringham Drive	F (111.7)	F (248.1)	F (101.5)	E (39.4)	F (88.8)	E (40.5)
2010 with WSFS Bank (Case 4)						
Southbound Delaware Route 7 – Left	A (9.8)	B (11.6)	B (10.0+)	A (9.8)	B (11.6)	B (10.0)
Westbound Sheringham Drive	F (101.4)	F (274.1)	F (95.7)	E (41.7)	F (93.3)	E (41.3)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 1 ¹³						
Southbound Delaware Route 7 – Left	A (9.8)	B (12.2)	B (10.2)	A (9.8)	B (12.4)	B (10.3)
Westbound Sheringham Drive	F (101.4)	F (380.6)	F (108.2)	E (44.3) ¹⁴	F (136.0) ¹⁴	E (46.6) ¹⁴
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 2 ¹⁵						
Southbound Delaware Route 7 – Left	N/A	N/A	N/A	A (9.8)	B (12.4)	B (10.3)
Westbound Sheringham Drive	N/A	N/A	N/A	E (44.3) ¹⁴	F (136.0) ¹⁴	E (46.6) ¹⁴

¹¹ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

¹² The TIS analyzed this intersection with only one through lane on the southbound approach. Based on field observations, McCormick Taylor analyzed this intersection with two through lanes on the southbound approach.

¹³ DelDOT Modification Option 1 affects volumes at this intersection by modifying the intersection of Delaware Route 7 & Site Entrance / Lantana Drive to allow left turns in from Delaware Route 7 but prohibit left turns out from both westbound Lantana Drive and the eastbound site entrance (Case 5).

¹⁴ The 95th percentile queue length for the westbound Sheringham Drive approach during each of the three Case 5 peak hours (AM, PM, and Saturday) is 3 vehicles or less.

¹⁵ DelDOT Modification Option 2 affects volumes at this intersection by prohibiting all left turns at the intersection of Delaware Route 7 & Site Entrance / Lantana Drive, allowing only right-in/right-out access for Lantana Drive and the WSFS site entrance (Case 5).

Table 4 (continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Signalized Intersection ¹⁶	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Sheringham Drive						
2010 without WSFS Bank (Cases 2-3)	N/A	N/A	N/A	A (0.60)	A (0.79)	A (0.61)
2010 with WSFS Bank (Case 4)	N/A	N/A	N/A	A (0.62)	A (0.80)	A (0.62)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 1 ¹⁷	N/A	N/A	N/A	A (0.62)	A (0.80)	A (0.62)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 2 ¹⁸	N/A	N/A	N/A	A (0.62)	A (0.80)	A (0.62)

¹⁶ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

¹⁷ DelDOT Modification Option 1 affects volumes at this intersection by modifying the intersection of Delaware Route 7 & Site Entrance / Lantana Drive to allow left turns in from Delaware Route 7 but prohibit left turns out from both westbound Lantana Drive and the eastbound site entrance (Case 5).

¹⁸ DelDOT Modification Option 2 affects volumes at this intersection by prohibiting all left turns at the intersection of Delaware Route 7 & Site Entrance / Lantana Drive, allowing only right-in/right-out access for Lantana Drive and the WSFS site entrance (Case 5).

Table 5
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Unsignalized Intersection ¹⁹ Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Massaferi Way²⁰						
2008 Existing (Case 1)						
Southbound Delaware Route 7 – Left	N/A	N/A	N/A	A (10.0-)	B (11.7)	A (9.6)
Westbound Massaferi Way	D (25.2)	E (44.1)	C (23.3)	D (33.8)	F (64.0)	D (30.9)
2010 without WSFS Bank (Cases 2-3)						
Southbound Delaware Route 7 – Left	N/A	N/A	N/A	B (10.0+)	B (11.8)	A (9.8)
Westbound Massaferi Way	D (26.8)	E (48.9)	C (25.0)	D (33.3)	F (68.1)	D (33.8)
2010 with WSFS Bank (Cases 4-5)						
Southbound Delaware Route 7 – Left	N/A	N/A	N/A	B (10.1)	B (11.9)	A (9.8)
Westbound Massaferi Way	D (27.9)	E (49.4)	D (25.6)	D (34.5)	F (71.6) ²¹	D (34.5)

¹⁹ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

²⁰ Although left turns from southbound Delaware Route 7 onto Massaferi Way are allowed, the volume for that movement was zero vehicles during all three peak hours. The TIS coded the southbound approach as two exclusive through lanes in their HCS analyses. Based on field observations, McCormick Taylor analyzed the southbound approach as one shared through/left-turn lane and one exclusive through lane but assigned zero volume to the left-turn movement.

²¹ The 95th percentile queue length for the westbound Massaferi Way approach during the Case 5 PM peak hour is less than 1 vehicle.

Table 6
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Unsignalized Intersection ²² Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per McCormick Taylor ²³		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Farm Meadow Lane						
2008 Existing (Case 1)						
Eastbound Farm Meadow Lane – Right	B (11.0)	B (11.4)	B (11.4)	B (11.6)	B (12.1)	B (12.0)
2010 without WSFS Bank (Cases 2-3)						
Eastbound Farm Meadow Lane – Right	B (11.0)	B (11.6)	B (11.6)	B (11.7)	B (12.4)	B (12.3)
2010 with WSFS Bank (Cases 4-5)						
Eastbound Farm Meadow Lane – Right	B (11.1)	B (11.7)	B (11.6)	B (11.7)	B (12.5)	B (12.3)

²² For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

²³ There were no heavy vehicle counts for AM and PM peak hours at this intersection. McCormick Taylor assumed 2% heavy vehicles for those peak hours.

Table 7
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Unsignalized Intersection ²⁴ Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Community News Building Driveway						
2008 Existing (Case 1)						
Eastbound Community News Drive – Right	B (13.5)	C (18.1)	C (15.7)	B (13.7)	C (17.9)	C (15.7)
2010 without WSFS Bank (Case 2)						
Eastbound Community News Drive – Right	B (13.7)	C (18.3)	C (16.3)	B (14.0)	C (18.0)	C (16.3)
2010 without WSFS Bank (Case 3) With DelDOT Modification Option 1 ²⁵						
Eastbound Community News Drive – Right	B (14.5)	C (22.4)	C (19.7)	B (14.8)	C (22.1)	C (19.6)
2010 without WSFS Bank (Case 3) With DelDOT Modification Option 2 ²⁶						
Eastbound Community News Drive – Right	N/A	N/A	N/A	B (14.6)	C (20.0)	C (18.2)
2010 with WSFS Bank (Case 4)						
Eastbound Community News Drive – Right	B (14.0)	C (18.5)	C (16.5)	B (14.3)	C (18.3)	C (16.4)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 1 ²⁵						
Eastbound Community News Drive – Right	B (14.8)	C (22.7)	C (19.9)	C (15.1)	C (22.4)	C (19.8)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 2 ²⁶						
Eastbound Community News Drive – Right	N/A	N/A	N/A	C (15.2)	C (21.0)	C (19.1)

²⁴ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

²⁵ DelDOT Modification Option 1 affects volumes at this intersection by modifying the intersection of Delaware Route 7 & Site Entrance / Lantana Drive to allow left turns in from Delaware Route 7, but prohibit left turns out from westbound Lantana Drive (Case 3) and from both westbound Lantana Drive and the eastbound site entrance (Case 5).

²⁶ DelDOT Modification Option 2 affects volumes at this intersection by prohibiting all left turns at the intersection of Delaware Route 7 & Site Entrance / Lantana Drive, allowing only right-in/right-out access for Lantana Drive (Case 3) and for both Lantana Drive and the WSFS site entrance (Case 5).

Table 8
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Unsignalized Intersection ²⁷ Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Happy Harry's Driveway						
2008 Existing (Case 1)						
Westbound Happy Harry's Driveway – Right	B (12.8)	C (20.5)	B (15.0)	B (12.8)	C (20.5)	B (14.9)
2010 without WSFS Bank (Case 2)						
Westbound Happy Harry's Driveway – Right	B (13.1)	C (21.5)	C (15.6)	B (13.1)	C (21.5)	C (15.4)
2010 without WSFS Bank (Case 3) With DelDOT Modification Option 1 ²⁸						
Westbound Happy Harry's Driveway – Right	B (13.5)	C (24.1)	C (17.3)	B (13.1)	C (21.6)	C (15.5)
2010 without WSFS Bank (Case 3) With DelDOT Modification Option 2 ²⁹						
Westbound Happy Harry's Driveway – Right	N/A	N/A	N/A	B (13.1)	C (21.6)	C (15.5)
2010 with WSFS Bank (Case 4)						
Westbound Happy Harry's Driveway – Right	B (13.2)	C (22.3)	C (15.7)	B (13.2)	C (22.3)	C (15.6)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 1 ²⁸						
Westbound Happy Harry's Driveway – Right	B (13.6)	D (25.2)	C (17.5)	B (13.3)	C (22.4)	C (15.6)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 2 ²⁹						
Westbound Happy Harry's Driveway – Right	N/A	N/A	N/A	B (13.5)	C (23.3)	C (16.1)

²⁷ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

²⁸ DelDOT Modification Option 1 affects volumes at this intersection by modifying the intersection of Delaware Route 7 & Site Entrance / Lantana Drive to allow left turns in from Delaware Route 7, but prohibit left turns out from westbound Lantana Drive (Case 3) and from both westbound Lantana Drive and the eastbound site entrance (Case 5).

²⁹ DelDOT Modification Option 2 affects volumes at this intersection by prohibiting all left turns at the intersection of Delaware Route 7 & Site Entrance / Lantana Drive, allowing only right-in/right-out access for Lantana Drive (Case 3) and for both Lantana Drive and the WSFS site entrance (Case 5).

Table 9
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Signalized Intersection ³⁰	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Valley Road						
2008 Existing (Case 1)	C (0.63)	D (0.92)	C (0.63)	C (0.75)	D (0.92)	C (0.86)
2010 without WSFS Bank (Case 2)	C (0.65)	F (1.03)	C (0.66)	C (0.82)	D (0.85)	C (0.89)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 1</i> ³¹	N/A	N/A	N/A	C (0.87)	E (0.96)	D (0.87)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 1</i> ³¹ <i>And DelDOT Valley Road Improvements</i> ³²	C (0.65)	F (1.35)	D (0.89)	D (0.85)	E (0.91)	D (0.77)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 1</i> ³¹ <i>And Valley Road Improvement Option 2</i> ³³	N/A	N/A	N/A	C (0.85)	D (0.88)	D (0.77)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 2</i> ³⁴	N/A	N/A	N/A	C (0.87)	F (1.26)	D (0.89)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 2</i> ³⁴ <i>And DelDOT Valley Road Improvements</i> ³²	N/A	N/A	N/A	C (0.85)	E (0.97)	D (0.72)
2010 without WSFS Bank (Case 3) <i>With DelDOT Modification Option 2</i> ³⁴ <i>And Valley Road Improvement Option 2</i> ³³	N/A	N/A	N/A	C (0.85)	E (0.95)	D (0.72)

³⁰ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

³¹ DelDOT Modification Option 1 affects volumes at this intersection by modifying the intersection of Delaware Route 7 & Lantana Drive to allow left turns in from Delaware Route 7 but prohibit left turns out from westbound Lantana Drive (Case 3).

³² DelDOT Valley Road Improvements would convert the westbound approach of Valley Road from one left-turn lane, one through lane, and one right-turn lane to two left-turn lanes and one shared through/right-turn lane. These improvements include protected-prohibited left-turn phasing on the Valley Road approaches.

³³ Valley Road Improvement Option 2 includes the addition of a second left-turn lane to the westbound approach of Valley Road, but retains an exclusive through lane and an exclusive right-turn lane. These improvements also include protected-prohibited left-turn phasing on the Valley Road approaches.

³⁴ DelDOT Modification Option 2 affects volumes at this intersection by prohibiting all left turns at the intersection of Delaware Route 7 & Lantana Drive, allowing only right-in/right-out access for Lantana Drive (Case 3).

Table 9 (continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Signalized Intersection ³⁵	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Delaware Route 7 & Valley Road						
2010 with WSFS Bank (Case 4) * This represents recommendation (no improvements here by developer)	C (0.65)	D (0.89)	C (0.67)	C (0.83)	D (0.87)	C (0.89)
2010 with WSFS Bank (Case 5) <i>With DelDOT Modification Option 1</i> ³⁶	N/A	N/A	N/A	C (0.80)	F (1.05)	D (0.87)
2010 with WSFS Bank (Case 5) <i>With DelDOT Modification Option 1</i> ³⁶ <i>And DelDOT Valley Road Improvements</i> ³⁷	C (0.64)	F (1.06)	D (0.83)	D (0.86)	E (0.91)	D (0.77)
2010 with WSFS Bank (Case 5) <i>With DelDOT Modification Option 1</i> ³⁶ <i>And Valley Road Improvement Option 2</i> ³⁸	N/A	N/A	N/A	D (0.86)	D (0.88)	D (0.77)
2010 with WSFS Bank (Case 5) <i>With DelDOT Modification Option 2</i> ³⁹	N/A	N/A	N/A	C (0.80)	F (1.18)	D (0.89)
2010 with WSFS Bank (Case 5) <i>With DelDOT Modification Option 2</i> ³⁹ <i>And DelDOT Valley Road Improvements</i> ³⁷	N/A	N/A	N/A	C (0.86)	E (0.98)	D (0.73)
2010 with WSFS Bank (Case 5) <i>With DelDOT Modification Option 2</i> ³⁹ <i>And Valley Road Improvement Option 2</i> ³⁸	N/A	N/A	N/A	C (0.86)	E (0.96)	D (0.73)

³⁵ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

³⁶ DelDOT Modification Option 1 affects volumes at this intersection by modifying the intersection of Delaware Route 7 & Site Entrance / Lantana Drive to allow left turns in from Delaware Route 7 but prohibit left turns out from both westbound Lantana Drive and the eastbound site entrance (Case 5).

³⁷ DelDOT Valley Road Improvements would convert the westbound approach of Valley Road from one left-turn lane, one through lane, and one right-turn lane to two left-turn lanes and one shared through/right-turn lane. These improvements include protected-prohibited left-turn phasing on the Valley Road approaches.

³⁸ Valley Road Improvement Option 2 includes the addition of a second left-turn lane to the westbound approach of Valley Road, but retains an exclusive through lane and an exclusive right-turn lane. These improvements also include protected-prohibited left-turn phasing on the Valley Road approaches.

³⁹ DelDOT Modification Option 2 affects volumes at this intersection by prohibiting all left turns at the intersection of Delaware Route 7 & Site Entrance / Lantana Drive, allowing only right-in/right-out access for Lantana Drive and the WSFS site entrance (Case 5).

Table 10
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for WSFS Bank – Limestone Road
Report dated February 2009
Prepared by VMI-Maris Traffic Consultants

Signalized Intersection ⁴⁰	LOS per TIS			LOS per McCormick Taylor		
	Weekday AM	Weekday PM	Saturday Mid-day	Weekday AM	Weekday PM	Saturday Mid-day
Valley Road & Lantana Drive / Tweed Tavern Park Drive						
2008 Existing (Case 1)	C (0.40)	D (0.68)	D (0.75)	B (0.40)	C (0.64)	C (0.73)
2010 without WSFS Bank (Case 2)	C (0.41)	D (0.71)	D (0.76)	B (0.38)	C (0.66)	C (0.70)
2010 without WSFS Bank (Case 3) With DelDOT Modification Option 1 ⁴¹	C (0.43)	D (0.77)	D (0.79)	B (0.43)	C (0.80)	C (0.72)
2010 without WSFS Bank (Case 3) With DelDOT Modification Option 2 ⁴²	N/A	N/A	N/A	B (0.43)	C (0.80)	C (0.72)
2010 with WSFS Bank (Case 4)	C (0.40)	D (0.71)	D (0.76)	B (0.39)	C (0.67)	C (0.70)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 1 ⁴¹	C (0.42)	D (0.78)	D (0.79)	B (0.44)	C (0.75)	C (0.72)
2010 with WSFS Bank (Case 5) With DelDOT Modification Option 2 ⁴²	N/A	N/A	N/A	B (0.44)	C (0.75)	C (0.72)

⁴⁰ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analyses, those numbers are X-critical, a composite volume-to-capacity ratio.

⁴¹ DelDOT Modification Option 1 affects volumes at this intersection by modifying the intersection of Delaware Route 7 & Site Entrance / Lantana Drive to allow left turns in from Delaware Route 7, but prohibit left turns out from westbound Lantana Drive (Case 3) and from both westbound Lantana Drive and the eastbound site entrance (Case 5).

⁴² DelDOT Modification Option 2 affects volumes at this intersection by prohibiting all left turns at the intersection of Delaware Route 7 & Site Entrance / Lantana Drive, allowing only right-in/right-out access for Lantana Drive (Case 3) and for both Lantana Drive and the WSFS site entrance (Case 5).