



STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF MANAGEMENT AND BUDGET
STATE PLANNING COORDINATION

March 23, 2007

Doug Liberman
Larson Engineering, Inc.
2717 Pulaski Highway
Newark, DE 19702

RE: PLUS review – PLUS 2007-02-03; North Dover Park Center

Dear Mr. Liberman:

Thank you for meeting with State agency planners on February 28, 2007 to discuss the proposed plans for the North Dover Park Center project to be located on the west side of Route 13, 1079' north of Fork Branch Road.

According to the information received, you are seeking site plan approval through Kent County for a 111,463 square foot shopping center.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as Kent County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.

Executive Summary

The following section includes some site specific highlights from the agency comments found in this letter. This summary is provided for your convenience and reference. The full text of this letter represents the official state response to this project. *Our office*

notes that the applicants are responsible for reading and responding to this letter and all comments contained within it in their entirety.

State Strategies/Project Location

- This project is located in Investment Levels 1 and 2 according to the *Strategies for State Policies and Spending*. This site is also located in the Kent County Growth Zone. Investment Levels 1 and 2 reflect areas that are already developed in an urban or suburban fashion, where infrastructure is existing or readily available in the near future, and where future redevelopment or infill projects are expected and encouraged by State policy. Our office has no objections to the proposed development of this project in accordance with the relevant County codes and ordinances.

Street Design and Transportation

- A traffic impact study (TIS) was done for this project in 2005. The DelDOT consultant, McCormick Taylor, reviewed that study and a copy of their comments is attached.
- The plan lacks a continuous sidewalk system. One should be provided so that visitors driving to the site, arriving by bus, or walking from Fieldstone Village can safely walk to the businesses in the shopping center.
- The first access point on the entrance driveway, which as drawn would serve the pharmacy and the fast food restaurant, should be eliminated. Because it is so close to Route 13, a vehicle slowing to turn there could easily be hit by a vehicle exiting the highway.
- The loading zone for the pharmacy is located such that it would be difficult to access and would conflict with the drive-through lane. Additionally, with the closing of the access point that I just recommended, the pharmacy parking would not have good circulation. DelDOT recommends that the building be moved north enough to allow circulation around the building.
- DelDOT recommends that the bank building be set back from the entrance driveway far enough to allow for adequate sight distance. As drawn, vehicles exiting the drive-through lanes could not see or be seen by incoming traffic.
- While the site entrance appears to be designed to discourage left turns out of the site, the islands shown would not be sufficient in that regard. Changes to the

crossover design and possibly to the divider in the entrance driveway will be needed.

- The proposed interconnections to the Fieldstone Village Mobile Home Park are a good thing. It is essential that the two developments fit together well and that the effects of any shopping center traffic passing through the development be addressed. While they did not mention it at the PLUS meeting, traffic calming may be needed on the park streets leading to Fork Branch Road, and if so the shopping center developer should be required to provide it.
- Cross-access easements should be provided such that if the Dooley, Courtney, Carey or Cirrigione properties along Route 13 are ever redeveloped commercially, they can be connected to and served through the shopping center.

Natural and Cultural Resources

- The Drainage Program is aware of drainage concerns downstream of this area. The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water.
- According to the database, there is a small woodlot comprised of wetlands that also serve as a buffer to the headwaters of Dyke Branch. It is highly recommended that at least 100 feet (in width) of this buffer remain intact to protect water quality downstream as well as provide wildlife habitat and travel corridors.

The following are a complete list of comments received by State agencies:

Office of State Planning Coordination – Contact: David Edgell 739-3090

This project is located in Investment Levels 1 and 2 according to the *Strategies for State Policies and Spending*. This site is also located in the Kent County Growth Zone. Investment Levels 1 and 2 reflect areas that are already developed in an urban or suburban fashion, where infrastructure is existing or readily available in the near future, and where future redevelopment or infill projects are expected and encouraged by State policy. Our office has no objections to the proposed development of this project in accordance with the relevant County codes and ordinances.

Division of Historical and Cultural Affairs – Contact: Alice Guerrant 739-5685

Nothing is known within this parcel. Beers Atlas of 1868 shows the H. Stout Heirs House in the vicinity, and the 1937 USDA aerial photograph indicates that this farm complex was partially within the southern corner of this parcel. There is an area with high potential for a prehistoric-period archaeological site, but it has been already disturbed by road and utilities installed for the earlier mobile home park here.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the Stout Heirs House, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out, and the developer may want to hire an archaeological consultant to check for the possibility of a cemetery here if this development is approved. The DHCA would have to have a copy of any archaeological report done for this purpose. They will be happy to discuss these issues with the developer

Department of Transportation – Contact: Bill Brockenbrough 760-2109

- 1) US Route 13 in the area of this development is classified as a minor arterial road. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 40 feet from the centerline on minor arterial roads. Where there is a median, as in this instance, that distance is measured from the inside edge of the travelway. Therefore we will require right-of-way dedication along the frontage to provide any additional width needed from this project.
- 2) A traffic impact study (TIS) was done for this project in 2005. Our consultant, McCormick Taylor, reviewed that study and a copy of their comments is attached. Notably, they recommended that the developer be required to modify the median of Route 13 to prohibit left turns out of the site and to extend the southbound left turn lane at Fork Branch Road as far north as the Marion Drive crossover. DelDOT has since identified a need for improvements by others on the Fork Branch Road approach to this intersection. If it is possible, they ask that the extension of the left turn lane be coordinated with the work on the Fork Branch Road approach so that traffic is disrupted only once.
- 3) DelDOT has several comments on the design of the site:

- a) The plan lacks a continuous sidewalk system. One should be provided so that visitors driving to the site, arriving by bus, or walking from Fieldstone Village can safely walk to the businesses in the shopping center.
 - b) The first access point on the entrance driveway, which as drawn would serve the pharmacy and the fast food restaurant, should be eliminated. Because it is so close to Route 13, a vehicle slowing to turn there could easily be hit by a vehicle exiting the highway.
 - c) The loading zone for the pharmacy is located such that it would be difficult to access and would conflict with the drive-through lane. Additionally, with the closing of the access point that I just recommended, the pharmacy parking would not have good circulation. DelDOT recommends that the building be moved north enough to allow circulation around the building.
 - d) DelDOT recommends that the bank building be set back from the entrance driveway far enough to allow for adequate sight distance. As drawn, vehicles exiting the drive-through lanes could not see or be seen by incoming traffic.
 - e) While the site entrance appears to be designed to discourage left turns out of the site, the islands shown would not be sufficient in that regard. Changes to the crossover design and possibly to the divider in the entrance driveway will be needed.
 - f) The proposed interconnections to the Fieldstone Village Mobile Home Park are a good thing. It is essential that the two developments fit together well and that the effects of any shopping center traffic passing through the development be addressed. While they did not mention it at the PLUS meeting, traffic calming may be needed on the park streets leading to Fork Branch Road, and if so the shopping center developer should be required to provide it.
- 4) Cross-access easements should be provided such that if the Dooley, Courtney, Carey or Cirrigione properties along Route 13 are ever redeveloped commercially, they can be connected to and served through the shopping center.
 - 5) DelDOT may require roadway improvements across the site's frontage. An overlay of the existing roadway may be required.

- 6) The shopping center would be served by DART First State Route 301, which provides intercounty bus service between Wilmington and Dover. For that reason, the site design should include sidewalk along the highway frontage and a concrete pad where riders can wait for the bus. For more information regarding Route 301 or the design and optimum location of the pad, the developer should contact Mr. Wayne Henderson, a service development planner for the Delaware Transit Corporation. He may be reached at (302) 576-6063.
- 7) The developer's site engineer should contact the project manager for Kent County, Mr. Brad Herb, regarding specific requirements for access. Mr. Herb may be reached at (302) 266-9600.

The Department of Natural Resources and Environmental Control – Contact: Kevin Coyle 739-9071

Soils

According to the Kent County soil survey update, Hambrook Urban Land complex, Unicorn, Pineyneck, and Fallsington were mapped in the immediate vicinity of the proposed construction. Hambrook Urban Land complex is a well-drained soil that has been extensively modified through human activities, and has variable limitations depending on the degree of disturbance. Unicorn is a well-drained upland soil that, generally, has few limitations for development. Pineyneck is a moderately well-drained soil of low-lying uplands that has moderate limitations for development. Fallsington is a poorly-drained wetland associated (hydric) soil that has severe limitations for development and should be avoided. The wetland associated (hydric) soils were mapped entirely within the forested portion of the parcel.

Wetlands

According to the Statewide Wetland Mapping Project (SWMP) mapping, palustrine forested and palustrine farmed wetlands were mapped on subject parcel. The forested wetlands were mapped throughout the northern portion of subject parcel and closely mirror the mapped occurrence of the Fallsington map unit. The palustrine farmed wetlands were a very small unit mapped along the southern boundary of the parcel.

PLUS application materials indicate that wetlands have been delineated (presumably a field delineation). This delineation should be verified by the U.S. Army Corps of Engineers (USACE, or “the Corps”) through the Jurisdictional Determination process. Please note that impacts to palustrine wetlands are regulated by the Army Corps of Engineers through Section 404 of the Clean Water Act. In situations where the applicant

believes that the delineated wetlands on their parcel are nonjurisdictional isolated wetlands, the Corps must be contacted to make the final jurisdictional assessment. They can be reached by phone at 736-9763. Certain drainage ditches may also be jurisdictional either under the Corps Program or through the DNREC Wetland and Subaqueous Lands program.

In addition, individual 404 permits and certain Nationwide Permits from the Corps also require 401 Water Quality Certification from the DNREC Wetland and Subaqueous Land Section and Coastal Zone Federal Consistency Certification from the DNREC Division of Soil and Water Conservation, Delaware Coastal Programs Section. Each of these certifications represents a separate permitting process.

To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting. These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting.

Impervious Cover

Based on a review of the PLUS application, post-development surface imperviousness is estimated to be about 60 percent. However, given the scope and density of this project, this estimate is **clearly a significant underestimate**. The applicant's apparent use of natural areas (wetlands or buffers) and/or areas of functional utility (stormwater management areas) to meet the County's minimum open space requirements, artificially lowers the estimated amount of this constructed surface imperviousness from this project, resulting in a significant underestimate of its actual environmental impacts. Moreover, credit for open space should not include jurisdictional wetlands. Hence, a Corps-approved wetlands delineation should be conducted prior to the calculation for open space and/or surface imperviousness. Finally, it is also apparent that some constructed forms of surface imperviousness (i.e., rooftops, sidewalks, and roads) were omitted from the applicant's calculation for surface imperviousness. This further contributes to the artificially low estimate of this parcel's surface imperviousness and its negatively proportionate environmental impacts. Therefore, the calculation of surface imperviousness should reflect the omission of all delineated wetlands and potential stormwater management areas from the open space calculation, while including all potential forms of constructed surface imperviousness (i.e., rooftops, sidewalks, and roads). In this way, the finalized calculation for surface imperviousness will reflect the project's true environmental impacts.

Since studies link increases in impervious cover to decreases in water quality, the applicant is strongly encouraged to pursue best management practices (BMPs) that can

mitigate or reduce some of the most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials (“pervious pavers”) in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are some examples of practical BMPs that could easily be implemented to reduce surface imperviousness.

TMDLs

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the St. Jones watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a “water quality limited water body” can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Although TMDLs are required by federal law, states are charged with developing and implementing standards to support these desired use goals. In the St. Jones watersheds, a post-development TMDL reduction level of 40% will be required for nitrogen and phosphorus. Additionally, a TMDL reduction level of 90% will be required for bacteria.

TMDL Compliance through the Pollution Control Strategy (PCS)

As stated above Total Maximum Daily loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the St. Jones watershed. The TMDL calls for a 40% reduction in nitrogen and phosphorus, while a TMDL reduction of 90% will be required for bacteria; both nutrient and bacteria reductions must be from baseline conditions. The Department developed an assessment tool to evaluate how your proposed development may reduce nutrients and bacteria to meet the TMDL requirements. Additional reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, increasing passive wooded open space, and the use of stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

Water Resource Protection Area

The Water Supply Section (WSS) has determined that the proposed development falls partially within a wellhead protection area for a public water supply system (see following map and attached map). This system operated as “Victorian Village Mobile Home Park” which is now inactive. According to Kevin Cottman of the DHSS Office of Drinking Water, the system will reactivate with a name change to “Fieldstone” public water system. According to Anita Beckel also of DHSS – ODW, there were two wells in the system. In a site visit by Water Supply Section, it was determined that the second well is abandoned. Water Resources does not have an application, permit, or

abandonment report on the second well. Anita also reports that there are discussions with Tidewater and plans to tie the service area into their Garrisons Lake District. It is uncertain whether TWU intends on assuming the remaining well or if it is to be abandoned.

Wellhead protection areas are surface and subsurface areas surrounding a public water supply well where land use activities or impervious cover may adversely affect the quantity and quality of ground water moving toward such wells. The review did not find any excellent groundwater recharge areas.

The Water Supply Section recommends that the portion of the new development within the wellhead protection area not exceed 20% impervious cover (DNREC, 2005). Some allowance for augmenting ground-water recharge should be considered if the impervious cover exceeds 20% but is less than 50% of that portion of the parcel within this area. However, the development should not exceed 50% regardless. The purpose of an impervious cover threshold is to minimize loss of recharge (and associated increases in storm water) and protect the quality and quantity of ground water and surface water supplies.

The proposed development would change the impervious over from 11.1% to approximately 59%. The developer on the PLUS application provided these numbers. The portion of the new development within the wellhead protection far exceeds DNREC recommendations. The property immediately to the south of the proposed development is a storage facility. If this proposed development proceeds the only unpaved portion of the wellhead area will be the drainage ditch.

Ideally, relocating any open space areas to the part of the parcel within the wellhead protection area would decrease the total impervious area in the wellhead protection area. This would necessitate relocating the entry, roadway, and parking area.

Abandoning the well is another option as suggested in the North Dover Park Center 2005-08-11 PLUS Review. Should the developer choose to abandon the public well it must be done by a Delaware Licensed driller. Once the well is abandoned, the wellhead protection area can be removed from this area thus removing the impervious cover recommendations.

Another option would be to apply to DNREC Water Resources Well reclassified as something other than a public or miscellaneous public well. The water could not be used for public consumption as outlined in the Delaware Regulations Governing the Construction and Use of Wells.

References

Delaware Department of Natural Resources and Environmental Control, 1997, Delaware Regulations Governing the Construction and Use of Wells, p. 49.

<http://www.dnrec.state.de.us/water2000/Sections/WatSupp/WellPermits/WSSWellPermits.htm#data>

Delaware Department of Natural Resources and Environmental Control, 2005, Source Water Protection Guidance Manual for the Local Governments of Delaware, p. 144.

http://www.wr.udel.edu/publications/SWAPP/swapp_manual_final/swapp_guidance_manual_final.pdf

North Dover Park Center (PLUS 2007-02-03). Map of proposed development as it impacts the wellhead protection area. The dark red area shows the wellhead protection area. The affected parcel is in light blue. The proposed development is overlaid to show the total impact of the wellhead protection area. The black and white line is taken directly from the site plan.



Water Supply

The project information sheets state water will be provided to the project by Tidewater Utilities via a public water system. Our records indicate that the project is located within the public water service area granted to Tidewater Utilities under Certificate of Public Convenience and Necessity PSC-1190.

Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

Should you have any questions concerning these comments, please contact Rick Rios at 302-739-9944.

Sediment and Erosion Control/Stormwater Management

Requirements:

1. Land disturbing activities in excess of 5,000 square feet are regulated under the Delaware Sediment and Stormwater Regulations. A detailed sediment and stormwater management plan must be reviewed and approved by the Kent Conservation District prior to any land disturbing activity (i.e. clearing, grubbing, filling, grading, etc.) taking place. The review fee and a completed Application for a Detailed Plan are due at the time of plan submittal to the Kent Conservation District. Construction inspection fees based on developed area and stormwater facility maintenance inspection fees based on the number of stormwater facilities are due prior to the start of construction. Please refer to the fee schedule for those amounts.
2. The following notes must appear on the record plan:

- The Kent Conservation District reserves the right to enter private property for purposes of periodic site inspection.
 - The Kent Conservation District reserves the right to add, modify, or delete any erosion or sediment control measure, as it deems necessary.
 - A clear statement of defined maintenance responsibility for stormwater management facilities must be provided on the Record Plan.
3. Ease of maintenance must be considered as a site design component and a maintenance set aside area for disposal of sediments removed from the basins during the course of regular maintenance must be shown on the Record Plan for the subdivision.
 4. All drainage ways and storm drains should be contained within drainage easements and clearly shown on the plan to be recorded by Kent County.
 5. A soils investigation supporting the stormwater management facility design is required to determine impacts of the seasonal high groundwater level and soils for any basin design.
 6. If a stormwater management pond is going to be utilized as a sediment trap/basin during construction it must be designed to accommodate 3600 cubic feet of storage per acre of contributing drainage area until project stabilization is complete.
 7. All ponds are required to be constructed per pond code 378.
 8. A Certified Construction Reviewer (CCR) is required for any project that is 50 acres or greater.
 9. DNREC regulations require no more than 20 acres to be disturbed at more time. A phased erosion and sediment control plan and sequence of construction will be required.
 10. Under the DNREC Health and Safety Memo of 2000, all wet ponds are required to have an open space depth of 3 feet or more that comprises 50-75 percent of the area of the pond.

Comments:

1. It's not clear what type of facility is being proposed or where the facility is out falling.

2. The designer is encouraged to consider the conservation design approach and limit the amount of tree clearing required for the development of the site including the stormwater management facilities shown in the wooded areas.
3. Access to the proposed stormwater facility must be provided for periodic maintenance. This access should be at least 12 feet wide to leading to the facility and around the facility's perimeter.
4. It is recommended that the stormwater management areas be incorporated into the overall landscape plan to enhance water quality and to make the stormwater facility an attractive community amenity.
5. This project is within a designated area and a watershed with nutrient and bacteria impairments. The applicant is encouraged to preserve any existing riparian buffers to aid in the reduction of nutrients, sediment, and other pollutants. For the further enhancement of water quality, additional widths of vegetated buffers and other water quality measures are encouraged to be implemented on this project. Additionally, the applicant should be aware that additional best management practices for storm water quality may be required by state regulation and county ordinances due to the project location in an impaired waterway.
6. Clearly address how Stormwater Quality and Quantity Treatment will be provided. If this project is eligible for a Quantity Waiver, please make the request in the stormwater narrative citing the specific regulation.
7. Please indicate on the sediment and stormwater management plan who shall be responsible for maintenance of the stormwater management facilities both during construction and after. During the design of the sediment control and stormwater management plan, considerations should be made for maintenance (i.e. access, easements, etc.) of any structures or facilities.
8. A letter of no objection to re-recording will be provided once the detailed Sediment and Stormwater Management plan has been re-approved.
9. Proper drainage of developed lots and active open space should be considered in the development of the grading plan for this subdivision.
10. Based on the site characteristics, a pre-application meeting is suggested to discuss stormwater management and drainage for this site.

Drainage

1. The Drainage Program is aware of drainage concerns downstream of this area. The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water. A downstream analysis is requested to determine if there is sufficient downstream capacity to provide an adequate outfall for this project. Notify downstream landowners of the change in volume of water released on them.
2. Have all drainage easements recorded on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future re-construction. Future property owners may not be aware of a drainage easement on their property if the easement is only on the record plan. However, by recording the drainage easement on the deed, the second owner, and any subsequent owner of the property, will be fully aware of the drainage easement on their property.

For questions or clarifications, please contact Jim Sullivan at 739-9921.

Forested Wetlands

According to the database, there is a small woodlot comprised of wetlands that also serve as a buffer to the headwaters of Dyke Branch. It is highly recommended that at least 100 feet (in width) of this buffer remain intact to protect water quality downstream as well as provide wildlife habitat and travel corridors. Cumulative impacts are a concern as the buffer along this branch system has already been reduced in size by development, highway projects and agriculture. It is important to maintain what is left and the current 25-foot buffer is highly inadequate for the protection of water quality. Changes to the site plan are necessary to increase this buffer to 100 feet. Perhaps parking lot areas (especially area #35 as depicted in the site plan) can be relocated or omitted and the stormwater management pond should be shifted out of the buffer zone or relocated to another area of the site plan. We also suggest the 'Retail' area (and associated parking) in close proximity to this water body be shifted to the left out of the 100-foot buffer zone.

Buffers are an integral component of aquatic and wetland habitats, reducing the amount of sediments, pollutants, and other non-point source material that may affect the function and integrity of habitat and the condition and survivability of aquatic organisms. Forested buffers also serve as habitat for many terrestrial species that are dependent on aquatic and wetlands habitats for a portion of their annual life cycle.

Although the woodlot is relatively small, there could still be wildlife species which inhabit this block and we request that tree clearing not occur April 1st to July 31st to reduce impacts to nesting birds and other wildlife species that utilize forests for breeding.

Underground Storage Tanks

There are two inactive LUST site(s) located near the proposed project:

Dykes Branch Pump Station, Facility # 1-000636, Project # K9811192
Preston Trucking Inc, Facility # 1-000345, Project # K9703037

No environmental impact is expected from the above inactive/active LUST site(s). However, should any underground storage tank or petroleum contaminated soil be discovered during construction, the Tank Management Branch must be notified as soon as possible. It is not anticipated that any construction specifications would need to be changed due to petroleum contamination. However, should any unanticipated contamination be encountered and PVC pipe is being utilized, it will need to be changed to ductile steel with nitrile rubber gaskets in the contaminated areas.

Site Investigation and Restoration

There are 4 SIRB sites within a half-mile radius of the proposed site:

May's Body Shop (DE-0273) is a former auto body shop that was closed in the 1970s. The site is located north of the proposed site. A well at the site was sampled due to complaints of fowl smell. Upon analysis, low concentrations of semi volatiles were detected in water samples. This is a low priority site. Therefore, DNREC does not foresee any impact on the proposed site.

Intersection of Rt. 13 and Rt. 154 (DE-1393) is located north of the proposed site. This is a new site with contaminants in surface and groundwater. Further investigation is currently on the way. Based on the amount of information available, DNREC foresees no danger to the proposed site.

Cheswold Landfill (DE-002) is a former landfill located south of the proposed site. Low levels of organic and inorganic constituents were found in groundwater. DNREC foresees no danger to the proposed site since the contamination onsite was insignificant. Moreover, the direction of groundwater flow is southwards, away from the proposed site.

Reichold Chemical Inc. (DE-0245) is located south of the proposed site. Semi volatiles (SVOCs) and metallic contaminants were detected in both surface and groundwater

samples. DNREC foresees no danger to the proposed site since the direction of groundwater flow is southwest, away from the proposed site. No salvage yards were found. If you have any questions, please contact Babatunde Asere at 302-395-2600.

State Fire Marshal's Office – Contact: John Rudd 739-4394

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal's Office. At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):

- a. **Fire Protection Water Requirements:**
 - Water distribution system capable of delivering at least 1500 gpm for 2-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers.
 - Where a water distribution system is proposed for Mercantile sites, the infrastructure for fire protection water shall be provided, including the size of water mains for fire hydrants and sprinkler systems.

- b. **Fire Protection Features:**
 - All structures over 10,000 Sq. Ft. aggregate will require automatic sprinkler protection installed.
 - Buildings greater than 10,000 sq.ft., 3-stories or more, over 35 feet, or classified as High Hazard, are required to meet fire lane marking requirements
 - Show Fire Department Connection location (Must be within 300 feet of fire hydrant), and detail as shown in the DSFPR.
 - Show Fire Lanes and Sign Detail as shown in DSFPR

- c. **Accessibility**
 - All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus.
 - Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
 - The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.

- The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.
- d. **Gas Piping and System Information:**
 - Provide type of fuel proposed, and show locations of bulk containers on plan.
- e. **Required Notes:**
 - Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
 - Proposed Use
 - Alpha or Numerical Labels for each building/unit for sites with multiple buildings/units
 - Square footage of each structure (Total of all Floors)
 - National Fire Protection Association (NFPA) Construction Type
 - Maximum Height of Buildings (including number of stories)
 - Note indicating if building is to be sprinklered
 - Name of Water Provider
 - Letter from Water Provider approving the system layout
 - Provide Lock Box Note (as detailed in DSFPR) if Building is to be sprinklered
 - Provide Road Names, even for County Roads

Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.delawarestatefiremarshal.com, technical services link, plan review, applications or brochures.

Department of Agriculture - Contact: Scott Blaier 698-4500

The Delaware Department of Agriculture has no objections to the proposed application. The *Strategies for State Policies and Spending* encourages environmentally responsible development in Investment Levels 1 and 2.

Right Tree for the Right Place

The Delaware Department of Agriculture Forest Service encourages the developer to use the “Right Tree for the Right Place” for any design considerations. This concept allows for the proper placement of trees to increase property values in upwards of 25% of

appraised value and will reduce heating and cooling costs on average by 20 to 35 dollars per month. In addition, a landscape design that encompasses this approach will avoid future maintenance cost to the property owner and ensure a lasting forest resource.

Native Landscapes

The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

Tree Mitigation

The Delaware Forest Service encourages the developer to implement a tree mitigation program to replace trees at a 1:1 ratio within the site and throughout the community. This will help to meet the community's forestry goals and objectives and reduce the environmental impacts to the surrounding natural resources. To learn more, please contact our offices at (302) 349-5754.

Public Service Commission - Contact: Andrea Maucher 739-4247

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

Department of Education – Contact: John Marinucci 739-4658

This proposed development is within the Capital School District. This is a commercial/industrial development with no apparent impact on educational infrastructure, capacity or demand. The DOE has no objections or comments regarding this commercial/industrial development proposal.

Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

Sincerely,

A handwritten signature in black ink that reads "Constance C. Holland". The signature is written in a cursive style with a large initial 'C'.

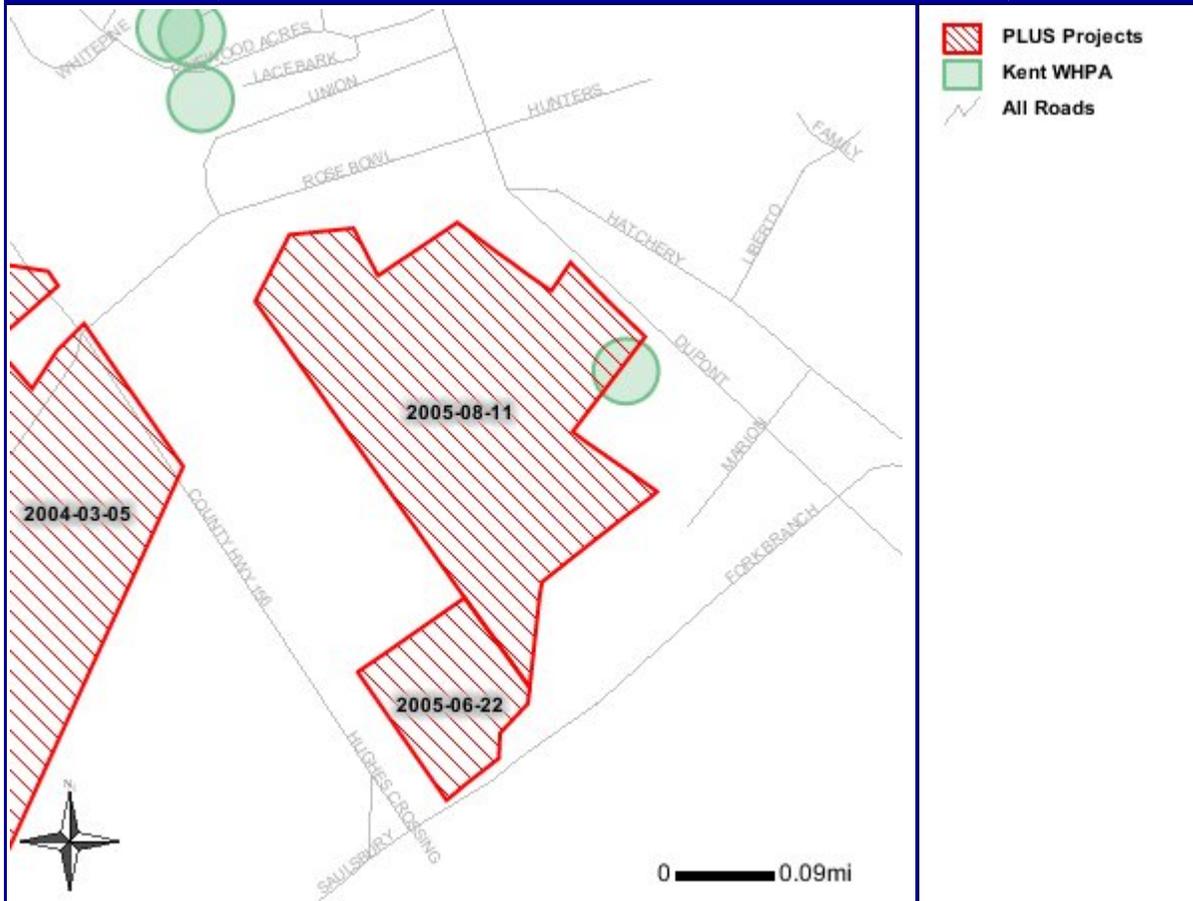
Constance C. Holland, AICP
Director

CC: Kent County
City of Dover



North Dover Park Center

2005-08-11



This map was produced by the Delaware Department of Natural Resources and Environmental Control.





June 3, 2005

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

RE: Agreement No. 1294
Traffic Impact Study Review Services
Task No. 31 – North Dover Park Center

Dear Mr. Sammons,

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the North Dover Park Center Property prepared by Traffic Concepts, Inc. dated January 2005. This review was assigned as Task Number 31. Traffic Concepts, Inc. prepared the report in a manner generally consistent with DelDOT's *Rules and Regulations for Subdivision Streets*.

The TIS evaluates the impacts of the North Dover Park Center Property, located on southbound US Route 13 north of Fork Branch Road (Kent Road 153), and more generally north of Dover, in Kent County, Delaware. The proposed development consists of a 117,891 square foot shopping center with four pad sites and a 104 lot active adult community. The developer has proposed a signal at US Route 13 and Moffitt Drive, which will serve as access onto US Route 13. Full build-out construction of this development is anticipated to be complete by 2007.

Rummel, Klepper & Kahl, a consultant working for DelDOT, has completed a draft of an access study of the US Route 13 corridor between Leipsic Road (Kent Road 12) in Smyrna and Scarborough Road (Kent Road 294) in Dover. The draft, which has yet to be accepted by DelDOT, recommends locations for future signalized intersections.

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

The applicant is proposing to install a signal at US Route 13 and Moffitt Drive. This is not consistent with the current draft of the US 13 Access Study. In this area of US Route 13, the draft recommends the intersection of US Route 13 and Fork Branch Road (Kent Road 153)/Dyke Branch Road (Kent Road 331), located 1,200 feet to the south of Moffitt Drive for future signalization. In fact, the signalization of the intersection of US Route 13 and Fork Branch Road/Dyke Branch Road is currently in design and is expected to be operational by 2006.

DelDOT commissioned the US 13 Access Study to identify locations that could be signalized while still maintaining good traffic progression on US Route 13. Therefore, while the study is not yet final, DelDOT is generally opposed to the signalization of intersections that would not be

specified for signalization in the US 13 Access Study, particularly if alternate access options are available. Therefore, as part of this review, McCormick Taylor considered alternate access options.

Allowing full access (all turn movements) at the US Route 13/Moffitt Drive intersection without signalization would result in unacceptable levels of service, particularly for the eastbound left-turn movement from Moffitt Drive to northbound US Route 13. By prohibiting lefts from Moffitt Drive and diverting these vehicles south on US Route 13 to make a u-turn at Fork Branch Road/Dyke Branch Road, the intersection is still expected to experience level of service deficiencies. However, delays would be significantly less than if the left-turn movement were allowed; therefore, we consider this option viable. The intersection of US Route 13 and Fork Branch Road/Dyke Branch Road, once signalized, is expected to operate at an acceptable level of service, even with the traffic diverted from Moffitt Drive as described above. Therefore, we recommend that the US Route 13/Moffitt Drive intersection not be signalized, and that the eastbound left-turn movement from Moffitt Drive be prohibited.

Beyond the US Route 13/Moffitt Drive intersection, one additional intersection is expected to experience level of service deficiencies, the intersection of US Route 13 and Rose Bowl Road (Kent Road 154)/Hunters Run. Based on very low traffic volumes and the moderate delays expected, we do not recommend any improvements at this intersection.

Specific details of our analysis, conclusions and the various signalization and access options that were reviewed are included in the attached detailed TIS review.

Should the County choose to approve the project, the following items should be incorporated into the site design, should be reflected on the record plan, and should be completed during or prior to street construction:

1. The developer should extend the southbound left-turn lane on US Route 13 at the intersection with Fork Branch Road/Dyke Branch Road to approximately 420 feet (not including taper). This will require that the extended left-turn lane begin approximately at the Marian Drive crossover on US Route 13.
2. Internal sidewalks within the development should be provided. A minimum of a five-foot sidewalk (with a minimum of a three foot buffer from the roadway) should be included along the site frontage of the proposed development on both US Route 13 and Moffitt Drive.
3. The developer should modify the unsignalized US Route 13/Moffitt Drive intersection to prohibit eastbound left-turns from Moffitt Drive to northbound US Route 13.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's 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 mluszcz@mtmail.biz if you have any questions concerning this review.

Sincerely,
McCormick Taylor, Inc.



Mark Luszcz, P.E., PTOE, AICP
Associate
Enclosures

General Information

Report date: January 2005

Prepared by: Traffic Concepts, Inc.

Prepared for: G.W. Stephens & Associates, Inc.

Tax parcel: LC00-046.00-02-55.00, 56.00, 57.00, 58.00, 59.00, 60.00

Generally consistent with DelDOT's *Rules and Regulations for Subdivision Streets*: Yes

Project Description and Background

Description: Development of 117,891 square feet of shopping center with four pad sites (assumed to be four, 3,500 square feet fast food restaurants with a drive through) and a 104 lot active adult community

Location: North side of Moffitt Drive and west of US 13

Amount of land to be developed: 41.35 acres

Land use approval(s) needed: Zoning approval

Proposed completion date: 2007

Proposed access locations: four access points on Moffitt Drive, three to the commercial portion of the development, one to the residential portion of the development

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 location of the North Dover Park Center is located within Investment Level 2.

Description of Investment Level:

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 and 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 development proposed in the North Dover Park Center TIS is generally consistent with the policies stated in the 2004 update of the Livable Delaware “Strategies for State Policies and Spending.”

County Comprehensive Plan

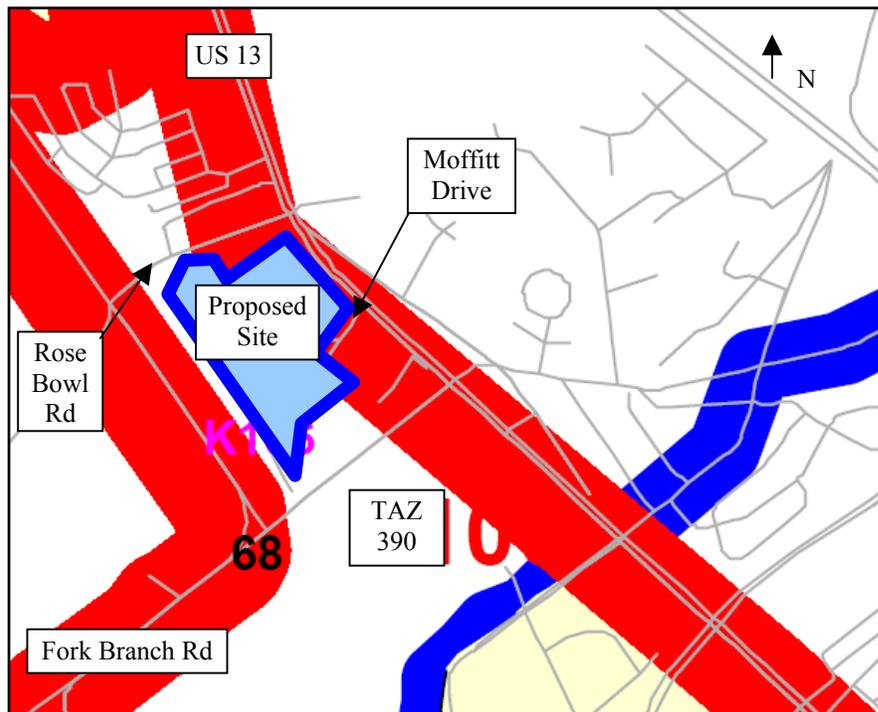
The proposed development is located within Kent County boundaries.

Kent County Comprehensive Plan: (Source: Kent County 2002 Comprehensive Plan Development Update, Department of Land Use) This plan indicates that the proposed development is located in two types of designated areas “High Density (5.9 to 21 dwelling units per acre)” and “Commercial” future land use.

Proposed Development’s Compatibility with Comprehensive Plans: The proposed development is somewhat consistent with the Kent County Comprehensive plan. The commercial area of the development is larger than that shown in the comprehensive plan.

Transportation Analysis Zones (TAZ) where development would be located: 390 (Peninsula Code designation)

TAZ Boundaries:



Current employment estimate for TAZs: 451 jobs in 2000

Future employment estimate for TAZs: 657 jobs in 2030

Current population estimate for TAZs: 1,146 in 2000

Future population estimate for TAZs: 1,536 in 2030

Current household estimate for TAZs: 423 in 2000

Future household estimate for TAZs: 634 in 2030

Relevant committed developments in the TAZs: 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: Yes

Relevant Projects in the DelDOT Capital Transportation Program (2005-2010)

According to DelDOT's *Capital Transportation Program FY 2005-FY 2010*, one planned capital improvement project within the vicinity of the proposed development is the US 13 Dover curbing, gutter and landscaping project.

In addition, DelDOT recently completed a study titled "US 13 Access Study – Dover to Smyrna." Part of the goal of the study was to determine the optimum locations for potential future signalized intersections. This study recommends the intersection of US 13 & Fork Branch/Dyke Branch Road for future signalization. As determined through McCormick Taylor's recent conversations with DelDOT, the Department will not support the signalization of intersections in locations other than those determined in the study.

Trip Generation

Trip generation for the proposed development was computed using comparable land uses and equations contained in Trip Generation, Seventh Edition, published by the Institute of Transportation Engineers (ITE). Land Use Codes 820 (Shopping Center), 934 (Fast Food Restaurant with Drive-thru) and 230 (Condominium/Townhouse) were utilized to estimate the amount of new traffic generated for the North Dover Park Center property:

- 117,891 square foot shopping center (ITE land use code 820)
- 4 - 3,500 square foot fast food restaurants with drive-thru (ITE land use code 934)
- 104 condominiums/townhouses (ITE land use code 230)

Table 1. North Dover Park Center Property Net Trip Generation

Land Use	Morning Peak Hour			Evening Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
118,000 SF shopping center	105	67	172	335	363	698	501	463	964
Internal Capture	0	0	0	56	63	119	135	132	267
Net External Trips	105	67	172	279	300	579	366	331	697
Pass-By Trips	0	0	0	103	111	214	132	119	251
Primary Shopping Center Trips	105	67	172	176	189	365	234	212	446
4 – 3,500 SF fast-food restaurant w/drive thru	380	364	744	252	232	484	424	408	832
Internal Capture	0	0	0	60	59	119	132	135	267
Net External Trips	380	364	744	192	173	365	292	273	565
Pass-By Trips	186	178	364	96	87	183	146	137	283
Primary Fast-Food Restaurant Trips	194	186	380	96	86	182	146	136	282
104 condominiums/townhouses	9	44	53	42	20	62	39	33	72
Internal Capture	0	0	0	26	20	46	26	26	52
Primary Residential Trips	9	44	53	16	0	16	13	7	20
TOTAL PRIMARY TRIPS	308	297	605	288	275	563	393	355	748

Overview of TIS

Intersections examined:

- 1) US 13 & Rose Bowl/Hunters Run
- 2) US 13 & Hatchery Road
- 3) US 13 & Moffitt Drive
- 4) US 13 & Fork Branch Road/Dyke Branch Road

Conditions examined:

- 1) 2004 Existing conditions
- 2) 2007 No-Build with committed developments
- 3) 2007 Build

Peak hours evaluated:

- 1) AM Peak Hour
- 2) PM Peak Hour
- 3) Saturday Midday Peak Hour

Committed developments considered:

- Parker's Run (173 Single Family Homes)
- Hazel Farm (80 Single Family Homes)
- Central Delaware Industrial Park (70 acres of Industrial Park – 28 occupied)
- Fox Pointe (357 Mobile Home Park Units – 73 occupied)

Intersection Descriptions

US 13 & Rose Bowl Road (Kent Road 154)/Hunters Run:

Type of Control: stop-controlled T-intersection with private entrance offset from Rose Bowl Road

Northbound approach: (US 13) one left turn lane, one through lane, one shared through/right lane

Southbound approach: (US 13) one left turn lane, two through lanes, one right turn lane

Eastbound approach: (Rose Bowl Road) stop-controlled shared left/right lane

Westbound approach: (private access) stop-controlled shared left/right lane

US 13 & Hatchery Road (Kent Road 154):

Type of Control: stop-controlled T-intersection

Northbound approach: (US 13) two through lanes, one right turn lane

Southbound approach: (US 13) two through lanes, one left turn lane

Westbound approach: (Hatchery Road) stop-controlled right turn lane

US 13 & Moffitt Drive:

Type of Control: stop-controlled T-intersection

Northbound approach: (US 13) two through lanes, one left turn lane

Southbound approach: (US 13) one right turn lane, two through lanes, one u-turn lane

Eastbound approach: (Moffitt Drive) stop-controlled left turn lane and channelized right turn lane

US 13 & Fork Branch Road (Kent Road 153)/Dyke Branch Road (Kent Road 331):

Type of Control: two-way stop-controlled intersection

Northbound approach: (US 13) one left turn lane, two through lanes, one right turn lane

Southbound approach: (US 13) one left turn lane, two through lanes, one right turn lane

Eastbound approach: (Fork Branch Road) stop-controlled shared left/through/right lane

Westbound approach: (Dyke Branch Road) stop-controlled shared left/through/right lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: The applicant contacted Wayne Henderson of the Delaware Transit Corporation (DTC) via email regarding existing transit facilities. Intercounty Bus Route 301 currently operates along US 13 between Wilmington and Dover serving several intermittent towns.

Planned transit service: According to the correspondence between the applicant and the DTC, the FY06 Service Plan includes a request for funding of a local service connecting Smyrna, Cheswold and Dover.

Existing bicycle and pedestrian facilities: No correspondence occurred between the applicant and DelDOT's bike and pedestrian planners regarding existing or proposed bike or pedestrian facilities. Currently, there are average cycling conditions on US 13. Rose Bowl Road, Hatchery Road and Fork/Dyke Branch Road are designated as having above average cycling conditions

according to the *Kent County Bicycle* map. Additionally, there is a park and ride site just south of the study area.

Planned bicycle and pedestrian facilities: In a phone conversation with McCormick Taylor, Mr. Anthony Aglio, DelDOT's bicycle and pedestrian coordinator for Kent County, indicated that the developer should be aware of these items regarding planned bicycle and pedestrian facilities near the proposed development:

- Maintain a minimum five-foot shoulder along the frontage of the property on US 13.
- Utility covers must be moved outside of the shoulder or be flush with the pavement.
- Connections to the existing pedestrian networks should be provided as well as internal sidewalks within the development. A five-foot sidewalk (with a minimum of a three foot buffer from the roadway) should be included along the frontage of the proposed development on both US 13 and Moffitt Drive.

Previous Comments

All comments from DelDOT's scoping letter and traffic count review letters were addressed in the Final TIS submission except for the following:

- Per DelDOT scoping letter, dated 6/17/04, an evaluation of the roadway facilities of US 13 from Rose Bowl Road to Fork Branch Road/Dyke Branch Road was to be completed to determine conformance with applicable DelDOT, AASHTO and MUTCD standards for geometry and traffic control devices. This evaluation was not included in the study.

The applicant did not submit a Preliminary Traffic Impact Study (PTIS). Normally, DelDOT would review the PTIS, ensure that previous comments were addressed, and submit comments to the applicant on traffic projections, prior to the submission of a Final TIS. In this case, DelDOT/McCormick Taylor reviewed the work normally included in the PTIS, and immediately continued the review work of a Final TIS. The PTIS-level review indicated that there were minor traffic projection comments on Exhibit 8B (page 26) and Exhibit 11 (page 31). McCormick Taylor utilized the corrected traffic projections. These corrections are available upon request.

Summary of Options Considered

The US 13 Access Study was undertaken by DelDOT to determine the need and optimal location for new traffic signals along US 13 between Smyrna and Dover. Recommending a signal at the intersection of US 13 and Moffitt Drive is not consistent with the results of that study. Additionally, signalizing the site access does not correspond with the hierarchy of minor street functional classifications for the consideration of signalization, as determined by the US 13 Access Study. The established hierarchy is as follows:

1. Intersections with state numbered roadways
2. Intersections with county numbered roadways
3. Intersections with other existing local roadways
4. Intersections with new local roadways that consolidate access from multiple surrounding developments.

The intersection with Fork Branch Road/Dyke Branch Road falls under Category 2 in the above hierarchy, while Moffitt Drive falls under Category 3. For these reasons, signalization of US 13 and Moffitt Drive is not recommended.

Therefore, McCormick Taylor investigated unsignalized access options for the proposed development with US 13 and Moffitt Drive. Given the traffic volume generated by the site and projected volumes on US 13, the only feasible option considered by McCormick Taylor included providing unsignalized access on US 13 at Moffitt Drive, allowing all movements except for the eastbound left-turns out of the site. The desired eastbound left-turn movement out of the site would need to be accommodated through a right-turn movement onto US 13 southbound, followed by a u-turn at the signalized intersection of US 13 and Fork Branch/Dyke Branch Road. Based on this scenario, Moffitt Drive would still operate with an unsignalized level of service F. However, the delay would be significantly reduced compared to the option that allows the eastbound left-turn movement. Additionally, the intersection of US 13 and Fork Branch/Dyke Branch Road would still operate with acceptable levels of service with the additional traffic that would be diverted here.

The intersection of US 13 and Rose Bowl Road/Hunters Run would not warrant a signal due to the small volume of traffic using the side streets. The improvements anticipated from adding additional turning lanes on these approaches, as suggested in the TIS, does not justify adding them. One option of prohibiting left turns on the side streets is expected to result in acceptable levels of service; however, due to the small volume of traffic in the peak hour (less than 20 vehicles in all scenarios for the eastbound approach and less than 2 vehicles in all scenarios for the westbound approach) it is expected that these vehicles would naturally redirect themselves to the right turn lane and a subsequent u-turn movement if the delays became excessive.

HCS Analysis Comments

General

- 1) The TIS analysis indicated that the median type on US 13 was undivided. It is actually divided and McCormick Taylor used a raised curb as the median type.
- 2) The TIS used raw count data for the existing scenario. McCormick Taylor used seasonally adjusted volumes for this analysis.
- 3) McCormick Taylor corrected the residential trip distribution for the 2007 Build scenario.
- 4) The TIS recommended improvements, but did not perform HCS analyses to determine the effects of implementing the recommended improvements. McCormick Taylor performed these analyses for each intersection as appropriate.

US 13 & Rose Bowl Road/Hunters Run

- 5) No additional comments.

US 13 & Hatchery Road

- 6) No additional comments.

US 13 & Moffitt Drive

- 7) No additional comments.

US 13 & Fork Branch Road/Dyke Branch Road

- 8) The TIS used eastbound volumes that had not been grown in the 2007 No Build scenario. McCormick Taylor used projected volumes for this analysis.

Table 2
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for North Dover Park Center
Report dated January 2005
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection ¹	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
US 13 & Rose Bowl Road/Hunters Run						
2004 Existing						
Northbound US 13	C (15.4)	B (13.7)	B (12.8)	C (15.3)	B (13.6)	B (13.9)
Southbound US 13	A (9.8)	B (14.2)	B (11.7)	A (9.7)	B (14.1)	B (12.4)
Eastbound Rose Bowl Rd	F (347.1)	F (439.5)	F (602.9)	E (43.2)	E (38.2)	F (59.1)
Westbound Hunters Run	N/A	F (440.3)	B (13.8)	N/A	F (68.0)	B (14.5)
2007 No-Build						
Northbound US 13	C (17.1)	C (15.3)	C (16.0)	C (17.1)	C (15.3)	C (16.0)
Southbound US 13	B (10.4)	C (16.2)	B (13.8)	B (10.4)	C (16.2)	B (13.8)
Eastbound Rose Bowl Rd	F (297.6)	F (590.4)	F (901.2)	F (51.6)	E (47.2)	F (68.0)
Westbound Hunters Run	N/A	F (495.8)	C (16.2)	N/A	F (78.5)	C (16.2)
2007 Build						
Northbound US 13	C (19.9)	C (17.5)	C (19.6)	C (19.9)	C (17.4)	C (19.5)
Southbound US 13	B (11.0)	C (17.2)	B (14.9)	B (11.0)	C (17.2)	B (14.9)
Eastbound Rose Bowl Rd	F (524.5)	F (706.7)	F (1544)	F (58.0)	E (41.2)	F (67.2)
Westbound Hunters Run	N/A	F (974.5)	C (17.4)	N/A	F (107.8)	C (17.3)
2007 Build with separate right and left EB/WB turn lanes						
Northbound US 13	N/A	N/A	N/A	C (19.9)	C (17.4)	C (19.5)
Southbound US 13	N/A	N/A	N/A	B (11.0)	C (17.2)	B (14.9)
Eastbound Rose Bowl Rd	N/A	N/A	N/A	E (40.7)	D (34.3)	E (47.1)
Westbound Hunters Run	N/A	N/A	N/A	N/A	F (107.8)	C (17.3)
2007 Build with Prohibited lefts at Rose Bowl Road						
Northbound US 13	N/A	N/A	N/A	C (19.9)	C (17.4)	C (19.5)
Southbound US 13	N/A	N/A	N/A	B (11.1)	C (17.3)	C (15.0)
Eastbound Rose Bowl Rd	N/A	N/A	N/A	D (26.4)	C (20.0)	C (23.1)
Westbound Hunters Run	N/A	N/A	N/A	N/A	C (19.5)	C (17.5)

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.

Table 3
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for North Dover Park Center
Report dated January 2005
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection ²	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
US 13 & Hatchery Road						
2004 Existing						
Southbound US 13	A (9.7)	C (16.2)	B (10.8)	A (9.1)	B (13.0)	A (9.7)
Westbound Hatchery Road	B (11.4)	C (18.4)	B (12.6)	B (10.7)	C (15.3)	B (11.5)
2007 No-Build						
Southbound US 13	A (9.8)	C (15.0)	B (10.5)	A (9.8)	C (15.0)	B (10.5)
Westbound Hatchery Road	B (11.6)	C (17.6)	B (12.5)	B (11.6)	C (17.6)	B (12.5)
2007 Build						
Southbound US 13	B (10.5)	C (16.4)	B (11.4)	B (10.5)	C (16.4)	B (11.3)
Westbound Hatchery Road	B (12.4)	C (19.1)	B (13.5)	B (12.4)	C (19.1)	B (13.5)
2007 Build with Prohibited Lefts at Rose Bowl Road						
Southbound US 13	N/A	N/A	N/A	B (10.6)	C (16.8)	B (11.6)
Westbound Hatchery Road	N/A	N/A	N/A	B (12.6)	C (19.7)	B (13.9)

² 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.

Table 4
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for North Dover Park Center
Report dated January 2005
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection ³	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
US 13 & Moffitt Drive						
2004 Existing						
Northbound US 13	B (13.4)	B (11.9)	B (13.5)	B (11.5)	B (10.6)	B (11.6)
Southbound US 13	A (9.5)	B (14.8)	B (10.6)	A (8.9)	B (12.5)	A (9.7)
Eastbound Moffitt Drive	D (29.3)	E (38.7)	D (32.0)	C (16.3)	C (15.3)	C (16.0)
2007 No-Build						
Northbound US 13	B (12.5)	B (11.8)	B (13.1)	B (12.5)	B (11.8)	B (13.0)
Southbound US 13	A (9.7)	B (14.3)	B (10.6)	A (9.7)	B (14.3)	B (10.6)
Eastbound Moffitt Drive	C (25.0)	E (43.2)	D (26.3)	C (17.8)	C (19.3)	C (17.8)
2007 Build						
Northbound US 13	D (26.3)	C (22.9)	F (71.2)	D (26.3)	C (21.8)	F (60.3)
Southbound US 13	A (9.5)	B (13.8)	B (10.2)	A (9.5)	B (13.8)	B (10.2)
Eastbound Moffitt Drive	F (1983)	F (3059)	F (39213)	F (272.6)	F (337.1)	F (2288)
2007 Build w/ Prohibited Eastbound Lefts from Moffitt Drive						
Northbound US 13	N/A	N/A	N/A	D (26.3)	C (21.8)	F (60.3)
Southbound US 13	N/A	N/A	N/A	B (10.3)	C (15.4)	B (11.4)
Eastbound Moffitt Drive	N/A	N/A	N/A	F (180.3)	F (124.5)	F (313.7)

³ 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.

Table 5
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for North Dover Park Center
Report dated January 2005
Prepared by Traffic Concepts, Inc.

Unsignalized Intersection ⁴	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
US 13 & Fork Branch/Dyke Branch Rd						
2004 Existing						
Northbound US 13	B (14.6)	B (13.9)	B (14.0)	B (12.2)	B (11.6)	B (11.7)
Southbound US 13	A (9.2)	B (14.8)	B (11.0)	A (8.7)	B (12.4)	B (10.0)
Eastbound Fork Branch Rd	F (52.9)	F (80.7)	E (39.0)	D (31.5)	D (32.0)	C (24.0)
Westbound Dyke Branch Rd	E (46.2)	F (276.4)	F (63.5)	D (25.7)	F (71.2)	D (32.3)
2007 No-Build ⁵						
Northbound US 13	B (13.4)	B (13.4)	B (13.4)	B (13.4)	B (13.4)	B (13.4)
Southbound US 13	A (9.3)	B (13.8)	B (10.9)	A (9.3)	B (13.8)	B (10.9)
Eastbound Fork Branch Rd	E (41.4)	E (47.5)	E (30.7)	E (42.4)	E (48.8)	D (31.4)
Westbound Dyke Branch Rd	D (33.3)	F (130.5)	F (41.1)	D (33.5)	F (130.5)	E (41.1)
2007 Build						
Northbound US 13	C (15.2)	C (15.2)	C (15.8)	C (15.2)	C (15.2)	C (15.6)
Southbound US 13	A (10.0)	C (15.4)	B (12.1)	A (10.0)	C (15.3)	B (12.0)
Eastbound Fork Branch Rd	F (163.9)	F (207.0)	F (167.0)	F (167.1)	F (199.2)	F (160.8)
Westbound Dyke Branch Rd	E (47.1)	F (229.7)	F (63.6)	E (47.1)	F (222.5)	F (62.7)

Signalized Intersection ⁴	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday	Weekday AM	Weekday PM	Saturday
US 13 & Fork Branch/Dyke Branch Rd						
2007 Build	N/A	N/A	N/A	A (0.66)	A (0.70)	A (0.64)
2007 Build w/ Prohibited Eastbound Left Turns at Moffitt Drive	N/A	N/A	N/A	C (0.78)	C (0.82)	C (0.80)

⁴ 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.

⁵ The TIS used eastbound volumes that had not been grown in the 2007 No Build scenario. McCormick Taylor used grown volumes for this analysis.