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

SHAILEN P. BHATT
SECRETARY

June 6, 2013

Mr. W. Zachery Crouch
Davis, Bowen & Friedel, Inc.
Milford Office
23 North Walnut Street
Milford, DE 19963

Dear Mr. Crouch:

The enclosed Traffic Impact Study (TIS) review letter for the **Love Creek Campground** commercial 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 Standards and Regulations for Subdivision Streets and State Highway Access and other accepted practices and procedures for such studies. DelDOT accepts this review letter and concurs with the recommendations. If you have any questions concerning this letter or the enclosed review letter, please contact me at (302) 760-2167.

Sincerely,

Troy Brestel
Project Engineer

TEB:km
Enclosures
cc with enclosures: Ms. Constance C. Holland, Office of State Planning Coordination
Mr. Lawrence Lank, Director, Sussex County Planning and Zoning
Mr. D.J. Hughes Davis, Bowen & Friedel, Inc.
Mr. Mir Wahed, Johnson, Mirmiran, & Thompson, Inc.
DelDOT Distribution

DelDOT

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Frederick H. Schranck, Deputy Attorney General
Natalie Barnhart, Director, Transportation Solutions (DOTS)
Drew Boyce, Director, Planning
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J. Marc Coté, Assistant Director, Development Coordination
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Jeff Reed, South District Engineer, Central District
Marvin Roberts, South District Public Works Supervisor, Central District
Lisa Collins, Service Development Planner, Delaware Transit Corporation
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
Steve Sisson, Sussex County Subdivision Coordinator, Development Coordination
John Fiori, Subdivision Manager, Development Coordination
Marco Boyce, Planning Supervisor, Statewide & Regional Planning
Claudy Joinville, Project Engineer, Development Coordination

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®

June 6, 2013

Mr. Troy Brestel
Project Engineer
Development Coordination
DelDOT Division of Planning
P O Box 778
Dover, DE 19903

RE: Agreement No. 2048
Traffic Impact Study Services
Task 11A-Love Creek RV Resort and Campground

Dear Mr. Brestel:

Johnson, Mirmiran and Thompson (JMT) has completed the review of the Final Traffic Impact Study (TIS) for the Love Creek RV Resort and Campground development, prepared by Davis, Bowen & Friedel, Inc. (DBF). This review was assigned Task Number 11A. DBF 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 Love Creek RV Resort and Campground which is a recreational vehicle (RV) campground proposed in Sussex County, Delaware. The development is proposed to consist of 628 RV lots where 200 of those lots would be constructed under an initial phase. This initial phase, which is identified in the TIS, was previously proposed with access on Ward Road. However, the Ward Road access has been eliminated from the development proposal.

The subject property is approximately 330 acres, is currently zoned AR-1 (Agricultural) and GR (General Residential), and is bordered by Ward Road (Sussex Road 283A) and Cedar Grove Road (Sussex Road 283) to the north, Delaware Route 24 (Sussex Road 24) to the south, Mulberry Knoll Road (Sussex Road 284) to the east, and Love Creek to the west. The proposed development would occupy approximately 162 acres of the property and the portion of the land currently zoned GR is proposed to be rezoned AR-1. Access would be provided via one full access driveway along Cedar Grove Road. The initial phase of 200 lots is anticipated to be completed by 2016 and the full development of the site is anticipated to be completed by 2018.

DelDOT currently has three relevant projects within the study area: the Plantation Road, Cedar Grove Road/Postal Lane Intersection Improvements (Contract # T200911201), SR 24, Love Creek Bridge to Mulberry Knoll Road improvements (Contract # T201212201), and SR 24, Mulberry Knoll Road to SR 1 improvements (Contract # T200411209). The Plantation Road (Sussex Road 275), Cedar Grove Road/Postal Lane (Sussex Road 283) Intersection Improvements project addresses safety and capacity concerns that exist at the existing intersections. The two intersections are offset approximately 125 feet from each other and have a history of rear end crashes. As a result, this project, which was developed to address a Highway

Safety Improvement Program site, involves the realignment of the unsignalized intersections of Postal Lane and Cedar Grove Road with Plantation Road. This realignment would form a four-legged intersection with signalization and the provision of separate left turn, through, and right turn lanes along all approaches. Bike lanes and sidewalks will also be added along each approach. The semifinal design plans for this project has been completed. Construction is expected to start during the Summer of 2014 and be completed within 2 years. For additional information regarding the Plantation Road, Cedar Grove Road/Postal Lane Intersection Improvements, please see the project website at http://deldot.gov/information/projects/cedar_grove/. None of the study area intersections have been selected for DelDOT's Hazard Elimination Program (HEP) or High Risk Rural Roads Program (HRRRP) within the last five years.

The SR 24, Love Creek Bridge to Mulberry Knoll Road improvement project includes the addition of separate left turn lanes along the Delaware Route 24 approaches to the Mulberry Knoll Road intersection. Concept plans were being developed for this project and construction was expected to start in 2015 and be completed in 2016. However, this project has not received funding and construction is not currently proposed with DelDOT's Capital Transportation Program FY 2014 – FY 2019.

A traffic signal warrant analysis was conducted at the intersection of Delaware Route 24 and Mulberry Knoll Road and the results are summarized in an August 26, 2008 Technical Memorandum prepared by RK&K. Based on the results, a traffic signal was not warranted under existing conditions but was warranted during the PM and Saturday peak hours with the addition of potential future development in the area. However, due to the uncertainty of the future developments, it was recommended that a traffic signal not be considered at this location.

The SR 24, Mulberry Knoll Road to SR 1 project involves roadway widening along Delaware Route 24 to provide a four lane section (two through lanes in each direction with auxiliary turn lanes provided at each signalized intersection) from west of Plantation Road to west of Delaware Route 1. This project would address the capacity constraints along Delaware Route 24 due to growth in the area. Construction was expected to start in 2014 and be completed in 2015. However, this project has not received funding and construction is not currently proposed with DelDOT's Capital Transportation Program FY 2014 – FY 2019. For additional information regarding SR 24, Mulberry Knoll Road to SR 1, please see the project website at http://deldot.gov/information/projects/SR24_MulberryKnollRoad_SR21/index.shtml.

DelDOT has a pavement rehabilitation and resurfacing project (Contract # T201206304) underway along Delaware Route 24, between Love Creek Bridge and Plantation Road. This project involves the installation of a 2" overlay that is scheduled to be completed by June of 2013. DelDOT has a potential future pavement rehabilitation and resurfacing project within the study area, specifically, along Plantation Road from Beaver Dam Road (Sussex Road 285) to Delaware Route 24. Once the Plantation Road with Cedar Grove Road/Postal Lane Intersection Improvements project is completed construction for the pavement rehabilitation project would begin. A contract number has not yet been assigned for this potential future project.

It should be noted that contrary to the direction given in the May 1, 2012 scoping letter, the TIS did not analyze the intersection of Cedar Grove Road with Ward Road under Case 2 conditions since a temporary entrance was no longer proposed along Ward Road. Only the Site Entrance intersection with Cedar Grove Road was analyzed under Case 2 conditions.

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

The following intersections exhibit level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements.

Intersection	***Situations for which deficiencies occur***
Cedar Grove Road/Plantation Road/Postal Lane	2012 AM, PM and Saturday Existing (Case 1)
Delaware Route 24/ Mulberry Knoll Road	2012 AM, PM and Saturday Existing (Case 1) 2018 AM, PM and Saturday No Build conditions without Love Creek RV Resort and Campground (Case 3) 2018 AM, PM and Saturday Build conditions with Love Creek RV Resort and Campground (Case 4)

The unsignalized intersections of Plantation Road with Cedar Grove Road and Postal Lane exhibit LOS deficiencies under existing conditions during all peak periods. The LOS deficiencies take place along the northbound Cedar Grove Road and southbound Postal Lane approaches to the intersection. However, the DelDOT Plantation Road, Cedar Grove Road/Postal Lane Intersection Improvements project addresses the LOS deficiencies. Specifically, with the realignment of Cedar Grove Road and Postal Lane as well as the addition of separate left turn and right turn lanes along each approach to the intersection, and the installation of a traffic signal, this intersection would operate at acceptable levels of service under future conditions with or without the Love Creek RV Resort and Campground development. As a result, we do not recommend any additional improvements be implemented by the developer at this intersection.

The unsignalized intersection of Delaware Route 24 with Mulberry Knoll Road (Sussex Road 284) exhibits LOS deficiencies during all the existing and future peak periods. The LOS deficiencies occur even with the installation of the separate left turn lanes along Delaware Route 24 as part of the DelDOT SR 24, Love Creek Bridge to Mulberry Knoll Road, improvement project. The LOS deficiencies take place along the northbound and southbound Mulberry Knoll Road approaches to the intersection. The projected maximum 95th percentile queue lengths under Case 4 conditions are approximately 27 feet and 45 feet along the northbound and southbound Mulberry Knoll Road approaches, respectively. To address the LOS deficiency at this intersection we recommend that a traffic signal be installed when the appropriate warrants are met as demonstrated through a Signal Justification Study. However, we do not believe it would be reasonable to assign responsibility to the developer for the installation of a traffic signal as the LOS deficiencies would exist even without the proposed Love Creek RV Resort and Campground development. In addition, the DelDOT SR 24 improvement project, which includes the improvement of Delaware Route 24 and Mulberry Knoll Road, has been placed on hold.

While the project is being developed to allow for the use of federal funding, funding for the construction is not currently proposed within DelDOT's *Capital Transportation Program* FY 2014 – FY 2019. With federal funding, the State would be responsible for 20% of the total project costs, including any costs related to the right-of-way. The remaining 80% could come from Delaware's allotment of Federal Highway Funds. We recommend that the developer be responsible for funding the total state allocation, which would be 20% of the total project cost.

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

1. The developer should improve Cedar Grove Road along the entire length of the site frontage and tie into the project limits for the DelDOT Plantation Road, Cedar Grove Road/Postal Lane Intersection Improvements project to meet DelDOT's local road standards. These standards include, but are not limited to, two eleven-foot travel lanes and two five-foot shoulders. Although eleven-foot travel lanes and five-foot shoulders would meet DelDOT's standards, twelve-foot travel lanes and four-foot shoulders are recommended for this section of the roadway due to the type of land use examined for the proposed development and the associated size of the recreational vehicles it is primarily proposed to serve. The developer should provide a bituminous concrete overlay to the existing travel lanes, at DelDOT's direction. DelDOT should analyze the existing lanes' pavement section and recommend an overlay thickness to the developer's engineer if necessary.

2. The developer should construct a full site entrance for the proposed Love Creek RV Resort and Campground on Cedar Grove Road to be consistent with the proposed lane configurations as shown in the table below:

Approach	Current Configuration	Proposed Configuration
Westbound Site Entrance	Approach does not exist	One shared left turn/right turn lane
Northbound Cedar Grove Road	One through lane	One shared through/right turn lane
Southbound Cedar Grove Road	One through lane	One left turn lane and one through lane

Based on DelDOT's *Standards and Regulations for Subdivision Streets and State Highway Access,* the recommended minimum storage length (excluding taper) is 210 feet for the southbound Cedar Grove Road left turn lane. The storage lengths based on the HCS analysis provide shorter queue lengths than what is reported here. The developer should also coordinate with DelDOT's Subdivision Section to ensure that the site entrance is designed to accommodate recreational vehicles.

3. The developer should enter into an agreement with DelDOT to fund 20% of the project cost of the improvements planned at the Delaware Route 24 intersection with Mulberry Knoll Road as part of the DelDOT SR 24, Love Creek Bridge to Mulberry Knoll Road, project. The proposed configuration along each approach to the intersection is shown in the table below. Additionally, the developer should coordinate with DelDOT to ensure that each approach to the intersection is designed to accommodate recreational vehicles.

Approach	Current Configuration	Proposed Configuration
Eastbound Delaware Route 24	One shared through/left turn and one right turn lane	One left turn lane, one through lane, and one right turn lane
Westbound Delaware Route 24	One shared through/left turn and one right turn lane	One left turn lane, one through lane, and one right turn lane
Northbound Mulberry Knoll Road	One shared through/left turn/right turn lane	No Change
Southbound Mulberry Knoll Road	One shared through/left turn/right turn lane	No Change

The recommended minimum storage lengths (excluding taper) of the separate left turn and right turn lanes along Delaware Route 24 are listed below.

Approach	Left Turn Lane	Right Turn Lane
Eastbound Delaware Route 24	260 feet	190 feet
Westbound Delaware Route 24	235 feet	290 feet

The left turn and right turn storage lengths are based on DelDOT's *Standards and Regulations for Subdivision Streets and State Highway Access.* The storage lengths based on the HCS analysis provide shorter queue lengths than what is reported here.

4. The developer should be required to identify routes to and from the proposed development that are well-suited to RV traffic and to encourage their patrons to use these routes when traveling by RV. Directions should be provided through signs, literature, and any website that may be created for the development. For example, traffic to and from the north and south could be directed to use Delaware Route 1, Postal Lane, and Cedar Grove Road. Traffic to and from the west could be directed to use Delaware Route 24, Plantation Road, and Cedar Grove Road.

5. The developer should be required to identify a target number of RVs that would have seasonal, as opposed to short-term, site rentals. The site plan should include this target number and provide on-site storage for the vehicles of any owners who wish to leave them there when the development is closed for the winter.

6. The following bicycle, pedestrian, and transit improvements should be included:

    a. A minimum fifteen-foot wide permanent easement from the edge of the right-of-way should be dedicated to DelDOT along Cedar Grove Road, from the adjacent Coastal Towing business to the easterly limits of the site frontage. Within this easement, a ten-foot wide multi use path that meets current AASHTO and ADA standards should be constructed. A minimum five-foot setback should be maintained from the edge of the pavement to the multi use path. If feasible, street trees should be provided within the buffer area.
    b. Where internal sidewalks are located alongside of parking spaces, a buffer, physical barrier or signage should be added to eliminate vehicular overhang onto the sidewalk.
    c. ADA compliant curb ramps and marked crosswalks should be provided at the site entrance. The use of Type 3 curb ramps is discouraged.
    d. Utility covers should be moved outside of any designated bicycle lanes or should be flush with the pavement.
    e. The addition of an onsite transit stop should be considered at either the welcome center or at a standalone shelter/bus pad for a future Delaware Transit Corporation (DTC) route along Cedar Grove Road. An onsite bus turnaround area should be provided and the pavement should meet the guidelines to support the weight of a bus.

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.

Improvements in this TIS may be considered "significant" under DelDOT's *Work Zone Safety and Mobility Procedures and Guidelines*. These guidelines are available on DelDOT's website at http://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 DelDOT's Traffic Section. Mr. Weiser can be reached at (302) 659-4073 or by email at Adam.Weiser@state.de.us.

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

Sincerely,
Johnson, Mirmiran, and Thompson, Inc.

Mir Ale Wahed,
Mir Wahed, P.E., PTOE

Enclosure

General Information

Report date: January, 2013.
Prepared by: Davis, Bowen & Friedel, Inc. (DBF)
Prepared for: Jack Lingo Asset Management
Tax Parcels: 334-12.00-18.00, 45.01
Generally consistent with DelDOT's *Standards and Regulations for Subdivision Streets and State Highway Access*: Yes.

Project Description and Background

Description: 628 recreational vehicle (RV) lots.
Location: The subject site is bordered by Ward Road (Sussex Road 283A) and Cedar Grove Road (Sussex Road 283) to the north, Delaware Route 24 (Sussex Road 24) to the south, and Mulberry Knoll Road (Sussex Road 284) to the east.
Amount of Land to be developed: The property is approximately 330 acres and the proposed development would occupy approximately 162 acres of the land.
Land Use approval(s) needed: AR-1 Conditional Use.
Proposed completion date: The initial phase of 200 lots is anticipated to be completed in 2016 and the full development of the site is anticipated to be completed in 2018.
Proposed access locations: One full access along Cedar Grove Road.
Daily Traffic Volumes:

- 2011 Average Annual Daily Traffic on Cedar Grove Road: 2,161 vehicles per day.

Site Map

**Graphic is an approximation based on the Conditional Use/Site Overview plan prepared by Davis, Bowen & Friedel, Inc., dated September, 2012.*

Relevant and On-going Projects

DelDOT currently has three relevant projects within the study area: the Plantation Road, Cedar Grove Road/Postal Lane Intersection Improvements (Contract # T200911201), SR 24, Love Creek Bridge to Mulberry Knoll Road improvements (Contract # T201212201), and SR 24, Mulberry Knoll Road to SR 1 improvements (Contract # T200411209). The Plantation Road (Sussex Road 275), Cedar Grove Road/Postal Lane (Sussex Road 283) Intersection Improvements project addresses safety and capacity concerns that exist at the existing intersections. The two intersections are offset approximately 125 feet from each other and have a

history of rear end crashes. As a result, this project, which was developed to address a Highway Safety Improvement Program site, involves the realignment of the unsignalized intersections of Postal Lane and Cedar Grove Road with Plantation Road. This realignment would form a four-legged intersection with signalization and the provision of separate left turn, through, and right turn lanes along all approaches. Bike lanes and sidewalks will also be added along each approach. The semifinal design plans for this project has been completed. Construction is expected to start during the Summer of 2014 and be completed within 2 years. For additional information regarding the Plantation Road, Cedar Grove Road/Postal Lane Intersection Improvements, please see the project website at http://deldot.gov/information/projects/cedar_grove/. None of the study area intersections have been selected for DelDOT's Hazard Elimination Program (HEP) or High Risk Rural Roads Program (HRRRP) within the last five years.

The SR 24, Love Creek Bridge to Mulberry Knoll Road improvement project includes the addition of separate left turn lanes along the Delaware Route 24 approaches to the Mulberry Knoll Road intersection. Concept plans were being developed for this project and construction was expected to start in 2015 and be completed in 2016. However, this project has not received funding and has been placed on hold indefinitely. It should be noted that a traffic signal warrant analysis was conducted at the intersection of Delaware Route 24 and Mulberry Knoll Road and the results are summarized in an August 26, 2008 Technical Memorandum prepared by RK&K. Based on the results, a traffic signal was not warranted under existing conditions but was warranted during the PM and Saturday peak hours with the addition of potential future development in the area. However, due to the uncertainty of the future developments, it was recommended that a traffic signal not be considered at this location.

The SR 24, Mulberry Knoll Road to SR 1 project involves roadway widening along Delaware Route 24 to provide a four lane section (two through lanes in each direction with auxiliary turn lanes provided at each signalized intersection) from west of Plantation Road to west of Delaware Route 1. This project would address the capacity constraints along Delaware Route 24 due to growth in the area. Construction was expected to start in 2014 and be completed in 2015. However, this project has not received funding and has been placed on hold indefinitely. For additional information regarding SR 24, Mulberry Knoll Road to SR 1, please see the project website at http://deldot.gov/information/projects/SR24_MulberryKnollRoad_SR21/index.shtml.

DelDOT has a pavement rehabilitation and resurfacing project (Contract # T201206304) underway along Delaware Route 24, between Love Creek Bridge and Plantation Road. This project involves the installation of a 2" overlay that is scheduled to be completed by June of 2013. DelDOT has a potential future pavement rehabilitation and resurfacing project within the study area. Specifically, a potential pavement rehabilitation project is proposed along Plantation Road, from Beaver Dam Road (Sussex Road 285) to Delaware Route 24. Once the Plantation Road with Cedar Grove Road/Postal Lane Intersection Improvements project is completed construction for the pavement rehabilitation project would begin. A contract number has not yet been assigned for this potential future project.

Livable Delaware
(Source: Delaware Strategies for State Policies and Spending, 2010)

Location with respect to the Strategies for State Policies and Spending Map of Delaware: The proposed development is located within Investment Level 2 and Level 3 areas.

Investment Level 2

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

In Investment Level 2 Areas, like Investment Level 1 Areas, state investments and policies should support and encourage a wide range of uses and densities, promote other transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. Investments should encourage departure from the typical single-family-dwelling developments and promote a broader mix of housing types and commercial sites encouraging compact, mixed-use development where applicable. Level 2 Areas share similar priorities as with the Level 1 Areas where the aim remains to: make context sensitive transportation system capacity enhancements, preserve existing facilities, make safety enhancements, make transportation system capacity improvements, create transit system enhancements, ensure ADA accessibility, and close gaps in the pedestrian system, including the Safe Routes to School projects. Other priorities for Level 2 Areas include: Corridor Capacity Preservation, off-alignment multi-use paths, interconnectivity of neighborhoods and public facilities, and signal-system enhancements.

Investment Level 3

Investment Level 3 Areas generally fall into two categories. The first category covers lands that are in the long-term growth plans of counties or municipalities where development is not necessary to accommodate expected population growth during a five-year planning period (or longer). The second category includes lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are otherwise categorized as Investment Levels 1 or 2. Investment Level 3 is further characterized by areas with new development separated from existing development by a substantial amount of vacant land that is not contiguous with existing infrastructure, areas that are experiencing some development pressure, areas with existing but disconnected development, and possible lack of adequate infrastructure.

The state will consider investing in infrastructure within Investment Level 3 Areas once the Investment Level 1 and 2 Areas are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems and deemed appropriate to serve a particular area. The priorities in the Level 3 Areas are for the Department to focus on regional movements between towns and other population centers. Local roadway improvements will be made by developers

and property owners as development occurs. Lower priority is given to transportation system–capacity improvements and transit-system enhancements.

Proposed Development's Compatibility with Livable Delaware:

According to Livable Delaware, use of the land located within Investment Level 2 areas should promote recreational facilities. Additionally, Livable Delaware states that land within Investment Level 3 areas should support forestry activities. Campgrounds are typically located within areas where trees are maintained. Further, trees complement the recreational activities typically provided at a campground. As such, the addition of the Love Creek RV Resort and Campground would be consistent with the character of the area. Therefore, this development appears to be generally consistent with the 2010 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans
(Source: Sussex County, June 2008 Comprehensive Plan Update)

Sussex County Comprehensive Plan:

The proposed development is situated within Sussex County and the parcel is currently zoned as AR-1 (Agricultural) and GR (General Residential). As part of the development, the portion of the land currently zoned GR is proposed to be rezoned AR-1. According to the Sussex County Comprehensive Plan, the future land use of the property would be within the Mixed Residential Area as well as the Low Density Area. All lands designated as Low Density are zoned AR-1. Additionally, the entire site is designated as an Environmentally Sensitive Developing area. This designation characterizes a location to be desirable for new housing. Furthermore, these regions contain ecologically important wetlands and provide extensive habitat for native flora and fauna.

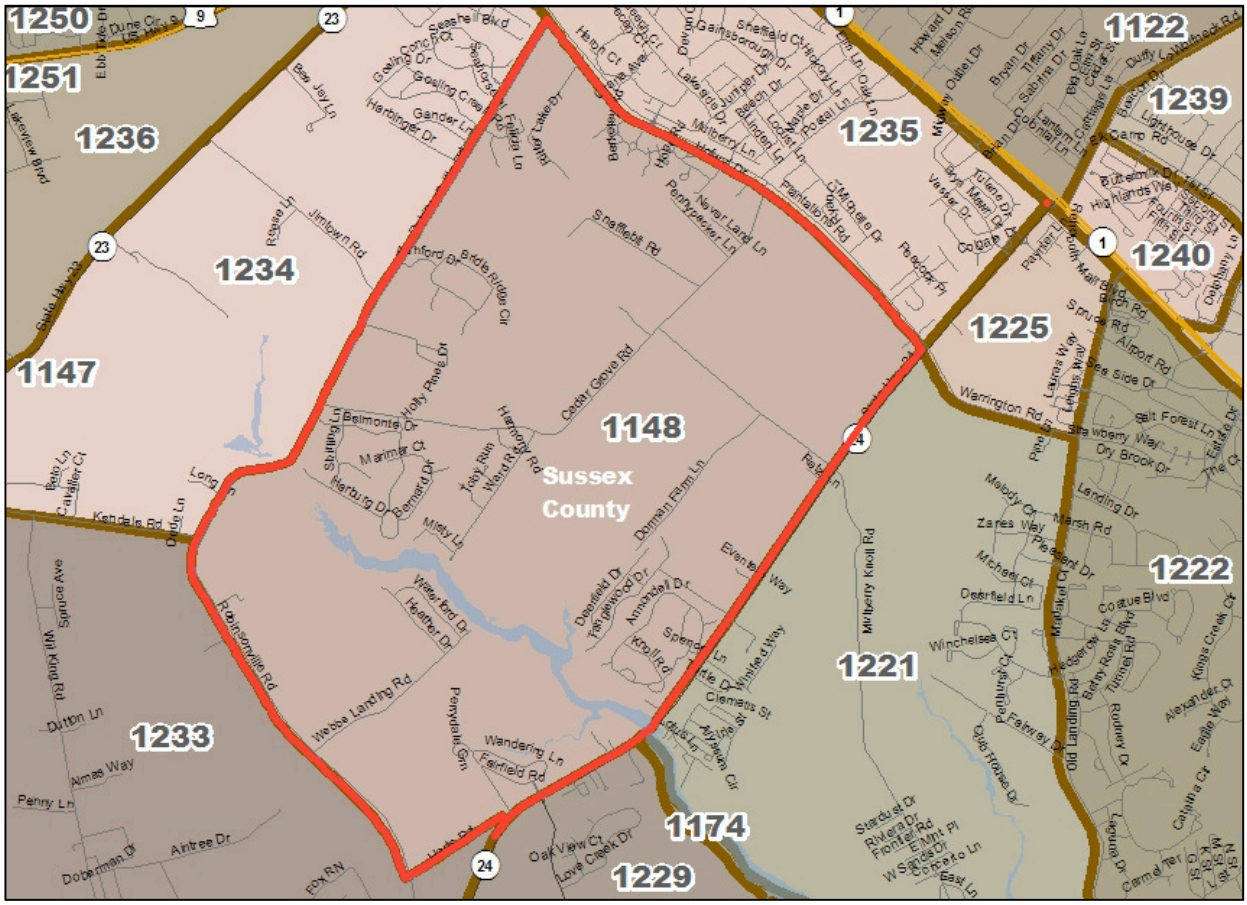
Proposed Development's Compatibility with the Sussex County Comprehensive Plan:

As part of the development proposal, the portion of the property within the GR land use would be rezoned as AR-1. As a result, the site would be generally compatible with the County Comprehensive Plan of providing a low density area for this part of the county. Additionally, the campground is expected to accommodate seasonal users who would stay for longer periods of time and therefore operate similarly to a residential area. As such, the development is generally compatible with the Sussex County Comprehensive Plan.

Transportation Analysis Zones (TAZ)

Transportation Analysis Zones (TAZ) where development would be located: 1148

TAZ Boundaries:



Current employment estimate for TAZ: 44 in 2010
Future employment estimate for TAZ: 178 in 2040
Current Population estimate for TAZ: 1,218 in 2010
Future Population estimate for TAZ: 1,487 in 2040
Current household estimate for TAZ: 500 in 2010
Future household estimate for TAZ: 694 in 2040
Relevant committed developments in the TAZ: None.
Would the addition of committed developments to current estimates exceed future projections: Yes.
Would the addition of committed developments and the proposed development to current estimates exceed future projections: Yes.

Trip Generation

As per the TIS, the trip generation for the proposed development was determined by using the comparable land use and rates/equations contained in the *Trip Generation, 8th Edition: An ITE Informational Report*, published by the Institute of Transportation Engineers (ITE) for ITE Land Use Code 240 (Mobile Home Park). ITE Land Use Code 416 (Campground/Recreational Vehicle Park) was not utilized as only limited data is available for that land use.

The peak period trip generation for the Love Creek RV Resort and Campground development is included in Table 1.

Table 1
LOVE CREEK RV RESORT AND CAMPGROUND

Land Use	ADT	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Initial Phase: 200 Unit Mobile Home Park	982	18	70	88	72	44	116	55	48	103
Full Development: 628 Unit Mobile Home Park	**2,488**	**55**	**221**	**276**	**223**	**137**	**360**	**139**	**124**	**263**

Overview of TIS

Intersections examined:

1. Site Entrance/Cedar Grove Road (Sussex Road 283)
2. Cedar Grove Road (Sussex Road 283)/Ward Road (Sussex Road 283A)
3. Cedar Grove Road (Sussex Road 283)/Mulberry Knoll Road (Sussex Road 284)
4. Plantation Road (Sussex Road 275)/Cedar Grove Road (Sussex Road 283)/Postal Lane (Sussex Road 283)
5. Delaware Route 24/Mulberry Knoll Road (Sussex Road 284)

Note: Contrary to the direction given in the May 1, 2012 scoping letter, the TIS did not analyze the intersections of the Site Entrance with Delaware Route 24/Mariner Middle School Entrance Road, Delaware Route 24 with Plantations Road/Warrington Road, and Delaware Route 24 with the Mariner Middle School Entrance. These intersections were omitted from the analysis since an entrance was no longer proposed along Delaware Route 24 as part of the latest site plan.

Conditions examined:

1. Case 1 - 2012 Existing conditions
2. Case 2 – 2016 Build conditions with 200 unit Love Creek RV Resort and Campground
3. Case 3 – 2018 No Build conditions without Love Creek RV Resort and Campground
4. Case 4 – 2018 Build conditions with 628 unit Love Creek RV Resort and Campground

Note: Contrary to the direction given in the May 1, 2012 scoping letter, the TIS did not analyze the intersection of Cedar Grove Road with Ward Road since a temporary entrance was no longer proposed along Ward Road. Only the Site Entrance intersection with Cedar Grove Road was analyzed under Case 2 conditions.

Peak hours evaluated: Weekday morning, weekday evening and summer Saturday midday peak hours.

Committed Developments considered:

1. Deep Valley Farm (192 single-family detached houses)
2. Heritage Village (147 residential units)
3. Summercrest (98 single-family detached houses)

Intersection Descriptions

1. **Site Entrance and Cedar Grove Road (Sussex Road 283) (Proposed Full Access)**
   Type of Control: proposed stop controlled intersection (T-intersection)
   Westbound Approach: (Site Entrance) proposed one shared left turn/right turn lane, stop controlled
   Northbound Approach: (Cedar Grove Road) proposed one shared through/right turn lane
   Southbound Approach: (Cedar Grove Road) proposed one through lane and one left turn lane

2. **Cedar Grove Road (Sussex Road 283) and Ward Road (Sussex Road 283A)**
   Type of Control: existing stop controlled intersection (T-intersection)
   Eastbound Approach: (Cedar Grove Road) existing one shared through/right turn lane
   Westbound Approach: (Cedar Grove Road) existing one shared through/left turn lane
   Northbound Approach: (Ward Road) existing one shared left turn/right turn lane, stop controlled

3. **Cedar Grove Road (Sussex Road 283) and Mulberry Knoll Road (Sussex Road 284)**
   Type of Control: existing stop controlled intersection (T-intersection)
   Eastbound Approach: (Cedar Grove Road) existing one shared through/right turn lane
   Westbound Approach: (Cedar Grove Road) existing one shared through/left turn lane
   Northbound Approach: (Mulberry Knoll Road) existing one shared left turn/right turn lane, stop controlled

4. **Plantation Road (Sussex Road 275) and Cedar Grove Road/Postal Lane (Sussex Road 283)**
   Type of Control: existing stop controlled intersections; proposed four-legged signalized intersection
   Eastbound Approach: (Plantation Road) existing one shared through/left-turn/right-turn lane; proposed one left turn lane, one through lane, and one channelized right turn lane
   Westbound Approach: (Plantation Road) existing one shared through/left-turn/right-turn lane; proposed one left turn lane, one through lane, and one channelized right turn lane

Northbound Approach: (Cedar Grove Road) existing one shared through/left-turn/right-turn lane, stop controlled; proposed one left turn lane, one through lane, and one channelized right turn lane
Southbound Approach: (Postal Lane) existing one shared through/left-turn/right-turn lane, stop controlled; proposed one left turn lane, one through lane, and one channelized right turn lane
Note: The northbound Cedar Grove Road and southbound Postal Lane approaches to this intersection are currently offset approximately 125 feet. This intersection is being improved as part of the DelDOT Plantation Road at Cedar Grove Road/Postal Lane Intersection Improvement project and should be completed prior to the full build out of the Love Creek RV Resort and Campground. As part of the DelDOT project, Cedar Grove Road and Postal Lane will be realigned, a traffic signal will be installed, and separate left turn and right turn lanes on each approach will be added to the intersection.

5. **Delaware Route 24 and Mulberry Knoll Road (Sussex Road 284)**
Type of Control: existing stop controlled intersection
Eastbound Approach: (Delaware Route 24) existing one shared through/left turn lane and one channelized right turn lane; proposed one left turn lane, one through lane, and one right turn lane
Westbound Approach: (Delaware Route 24) existing one shared through/left turn lane and one channelized right turn lane; proposed one left turn lane, one through lane, and one channelized right turn lane
Northbound Approach: (Mulberry Knoll Road) one shared through/left turn/right turn lane, stop controlled
Southbound Approach: (Mulberry Knoll Road) one shared through/left turn/right turn lane, stop controlled
Note: The intersection is being improved as part of the DelDOT SR 24, Love Creek to Mulberry Knoll Road project. As part of the DelDOT project, separate left turn lanes would be added to the Delaware Route 24 approaches to the intersection.

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: Delaware Transit Corporation (DTC) currently does not provide any service in the study area. The closest bus route to the subject property is DTC Route 207. Route 207 is a seasonal route that operates during the resort season (from Memorial Day to Labor Day). This route operates nine daily round trips from Rehoboth to Massey's Landing between 6:45 a.m. to 11:15 p.m. The route does not traverse through any of the study locations. The closest bus stop is at the Delaware Route 24 intersection with the Love Creek Marina, which is approximately 1 mile south of the proposed project.

Planned transit service: DBF contacted Lisa Collins, Service Development Planner of DTC. In an email from February 2013, it was noted that within the DTC's business plan for FY15, Route 207 is proposed to be made year round and more bus routes are proposed to be added along Delaware Route 24 between Millsboro and Rehoboth. Additionally, the DTC anticipates that the number of campground sites proposed with the Love Creek RV Resort and Campground may warrant future bus service along Cedar Grove Road. As such, an onsite transit stop could be

provided either at the welcome center or at a standalone shelter/bus pad. DBF plans to coordinate with DART during site plan development to determine the onsite transit stop location.

Existing bicycle and pedestrian facilities: According to DelDOT's *Delaware Bicycle Facility Master Plan* (October 2005) and the *Sussex County Bicycle Map*, Statewide Bicycle Route 1 and Regional Bicycle Route S-5 exist within the study area. Within the area, Statewide Bicycle Route 1 runs along Plantation Road and traverses through one of the project's study intersections (the Plantation Road intersection with Cedar Grove Road and Postal Lane). Regional Bicycle Route S-5 runs along Delaware Route 24 and traverses through one of the project's study intersections (the Delaware Route 24 intersection with Mulberry Knoll Road).

Planned bicycle and pedestrian facilities: JMT and DBF contacted Mr. Marco Boyce, DelDOT's Bicycle and Pedestrian Coordinator. Additionally, DBF contacted Ms. Sarah Coakley, DelDOT's Pedestrian and Safe Routes to School Coordinator. In a February 15, 2013 email, Ms. Coakley recommended the provision of a 15 feet wide easement for a future shared use pathway along Cedar Grove Road. In a February 25, 2013 email, Mr. Anthony Aglio, DelDOT's Bicycle Coordinator, confirmed that a 5 foot bike lane be provided along the southbound Cedar Grove Road approach to the site driveway. In a February 26, 2013 email, Mr. Boyce recommended reviewing easements at each study intersection to accommodate future shared use pathways and/or sidewalks.

Bicycle Level of Service and Bicycle Compatibility Index: According to the League of Illinois Bicyclists (LIB), Bicycle Level of Service (BLOS) is an emerging national standard for quantifying the bike-friendliness of a roadway by measuring on-road bicyclist comfort levels for specific roadway geometries and traffic conditions. Utilizing the 10-year projected AADT along the site frontages, the BLOS with the construction of the proposed development and the provision of 5 foot bike lanes are summarized below. The BLOS was determined utilizing the calculators published on the LIB website: http://www.bikelib.org/roads/blos/blosform.htm

- Ward Road – BLOS: B
- Cedar Grove Road – BLOS: E
- Mulberry Knoll Road – BLOS: D
- Delaware Route 24 – BLOS: B

Previous Comments
None.

General HCS Analysis Comments

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

1. Davis, Bowen, and Friedel, Inc. performed analyses using HCS2000 Version 4.1f. JMT used HCS+T7F, Version 5.5. As such, some of the results are different between the two analyses.

2. For future conditions, the TIS sometimes used peak hour factors inconsistent with the guidelines provided in the *DelDOT Standards and Regulations for Subdivision Streets and State Highway Access*. However, JMT applied the appropriate peak hour factors in accordance to the DelDOT standards (0.80, 0.88, or 0.92 based on the total intersection volumes, or the peak hour factor based on existing turning movement counts, when greater).

3. The TIS conservatively used 100% heavy vehicles from the site during peak hours, however JMT discussed the site with DelDOT and it was determined that 100% heavy vehicles would not be from the site during typical peak hours. As such, JMT developed uniform truck percentages in coordination with DelDOT and applied the percentages throughout the network. JMT conducted an additional conservative analysis consistent with the TIS assuming higher heavy vehicle percentages from the site for some intersections close to the site. All recommendations given within this letter are based on the conservative analysis approach.

4. For future case analyses, JMT utilized a minimum of 3% heavy vehicles along movements where site traffic would not influence the traffic flow, whereas the TIS used existing truck percentages based on traffic counts.

Table 2
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection[1] Two-Way Stop Control (T-Intersection)	**LOS per TIS**			**LOS per JMT**		
Site Entrance/Cedar Grove Road[2]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2016 with 200 lot Love Creek RV Resort (Case 2) [3]						
Southbound Cedar Grove Road Left	-	-	-	A (8.7)	A (8.7)	A (8.7)
Southbound Cedar Grove Road Through/Left	A (8.7)	A (8.7)	A (8.7)	-	-	-
Westbound Site Entrance	B (11.0)	B (10.1)	B (10.3)	B (11.0)	B (10.1)	B (10.3)
2016 with 200 lot Love Creek RV Resort (Case 2) [4]						
Southbound Cedar Grove Road Left	-	-	-	A (7.8)	A (7.7)	A (7.7)
Westbound Site Entrance	-	-	-	A (9.8)	A (9.1)	A (9.3)
2018 with 628 lot Love Creek RV Resort (Case 4)[3]						
Southbound Cedar Grove Road Left	-	-	-	A (8.9)	A (9.4)	A (9.1)
Southbound Cedar Grove Road Through/Left	A (8.9)	A (9.4)	A (9.1)	-	-	-
Westbound Site Entrance	B (13.8)	B (10.8)	B (11.2)	B (13.8)	B (10.8)	B (11.2)

[1]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[2]Although a separate southbound Cedar Grove Road left turn lane is proposed by DBF as part of this project, the TIS analyzes this intersection with one shared southbound Cedar Grove Road through/left turn lane. JMT analyzes this approach with one southbound Cedar Grove Road left turn lane and one southbound Cedar Grove Road through lane consistent with the development proposal and as required by the DelDOT Subdivision Manual.
[3]The TIS and JMT assumes movements to/from the site would be 100% heavy vehicles.
[4] JMT performed an additional analysis assuming movements to/from the site would be 20% heavy vehicles taking into account the site trips from non-seasonal users.

Table 2 (Continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection[5] Two-Way Stop Control (T-Intersection)	**LOS per TIS**			**LOS per JMT**		
Site Entrance/Cedar Grove Road[6]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 with 628 lot Love Creek RV Resort (Case 4)[7]						
Southbound Cedar Grove Road Left	-	-	-	A (7.9)	A (8.1)	A (8.0)
Westbound Site Entrance	-	-	-	B (11.4)	A (9.6)	A (9.8)

[5]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[6]Although a separate southbound Cedar Grove Road left turn lane is proposed by DBF as part of this project, the TIS analyzes this intersection with one shared southbound Cedar Grove Road through/left turn lane. JMT analyzes this approach with one southbound Cedar Grove Road left turn lane and one southbound Cedar Grove Road through lane consistent with the development proposal and as required by the DelDOT Subdivision Manual.
[7] JMT performed an additional analysis assuming movements to/from the site would be 20% heavy vehicles taking into account the site trips from non-seasonal users.

Table 3
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection[8] Two-Way Stop Control	**LOS per TIS**			**LOS per JMT**		
Cedar Grove Road/Ward Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2012 Existing (Case 1)						
Westbound Cedar Grove Road	A (7.5)	A (7.3)	A (7.4)	A (7.5)	A (7.3)	A (7.4)
Northbound Ward Road	A (9.2)	A (9.0)	A (9.1)	A (9.2)	A (9.0)	A (9.0)
2018 without Love Creek RV Resort (Case 3)						
Westbound Cedar Grove Road	A (7.6)	A (7.3)	A (7.4)	A (7.6)	A (7.4)	A (7.4)
Northbound Ward Road	A (9.2)	A (9.0)	A (9.1)	A (9.2)	A (9.0)	A (9.1)
2018 with 628 lot Love Creek RV Resort (Case 4)						
Westbound Cedar Grove Road	A (7.6)	A (7.3)	A (7.4)	A (7.6)	A (7.4)	A (7.4)
Northbound Ward Road	A (9.2)	A (9.0)	A (9.1)	A (9.2)	A (9.0)	A (9.1)

[8]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.

Table 4
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection[9] Two-Way Stop Control	**LOS per TIS**			**LOS per JMT**		
Cedar Grove Road/Mulberry Knoll Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2012 Existing (Case 1)						
Westbound Cedar Grove Road	A (7.6)	A (7.4)	A (7.5)	A (7.6)	A (7.4)	A (7.5)
Northbound Mulberry Knoll Road	A (9.6)	A (9.7)	A (9.8)	A (9.6)	A (9.7)	A (9.8)
2018 without Love Creek RV Resort (Case 3)[10]						
Westbound Cedar Grove Road	A (7.6)	A (7.4)	A (7.5)	A (7.6)	A (7.4)	A (7.5)
Northbound Mulberry Knoll Road	A (9.6)	A (9.8)	A (9.9)	A (9.5)	A (9.9)	A (9.9)
2018 with 628 lot Love Creek RV Resort (Case 4)[10,11]						
Westbound Cedar Grove Road	A (8.2)	A (7.7)	A (7.9)	A (8.3)	A (7.8)	A (7.8)
Northbound Mulberry Knoll Road	B (12.7)	C (15.9)	B (13.7)	B (12.7)	C (15.9)	B (13.7)
2018 with 628 lot Love Creek RV Resort (Case 4)[12]						
Westbound Cedar Grove Road	-	-	-	A (8.3)	A (7.8)	A (7.8)
Northbound Mulberry Knoll Road	-	-	-	B (12.1)	B (14.4)	B (12.7)

[9]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[10]The TIS included volume inputs for westbound Cedar Grove Road right turn movements that are not feasible at this intersection.
[11]The TIS and JMT used 50% heavy vehicles for the northbound Mulberry Knoll Road left turn movement. JMT used 3% heavy vehicles for the other movements whereas the TIS maintained the existing heavy vehicle percentages.
[12]JMT conducted an additional analysis with 10% heavy vehicles for site distributed trip movements and 3% for other movements.

Table 5
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection Two-Way Stop Control[13]	**LOS per TIS**			**LOS per JMT**		
Cedar Grove Road/Plantation Road/Postal Lane	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2012 Existing (Case 1)[14]						
Eastbound Plantation Road	A (8.6)	A (8.4)	A (8.6)	A (8.6)	A (8.4)	A (8.6)
Westbound Plantation Road	A (8.1)	A (8.4)	A (8.2)	A (8.1)	A (8.4)	A (8.2)
Northbound Cedar Grove Road	F (138.3)	F (92.8)	F (56.5)	F (138.3)	F (92.8)	F (56.5)
Southbound Postal Lane	F (55.0)	F (424.2)	F (239.8)	F (55.0)	F (424.2)	F (239.8)

[13]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[14]Under existing conditions, The Plantation Road intersections with Cedar Grove Road and Postal Lane are two unsignalized T-intersections offset approximately 125 feet from each other. However, to maintain a conservative analysis, both the TIS and JMT analyzed the two intersections as one four legged unsignalized intersection.

Table 5 (Continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Signalized Intersection[15]	**LOS per TIS**			**LOS per JMT**		
Cedar Grove Road/Plantation Road/Postal Lane[16,17]	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 without Love Creek RV Resort (Case 3)	B (19.7)	C (22.1)	C (22.0)	B (15.8)	B (18.4)	B (16.6)
2018 with 628 lot Love Creek RV Resort (Case 4)	C (23.9)	C (30.2)	C (25.8)	C (20.3)	C (21.2)	C (20.9)

[15]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[16]Future cases assume build out of DelDOT intersection improvement project, including turning lane additions and traffic signal installation.
[17]The TIS assumed a cycle length of 75 seconds for the proposed signal whereas JMT assumed a cycle length of 90 seconds. Additionally, the TIS analyzed the left turn movements along each approach as a protected phase however, based on the conflict factor analysis JMT analyzed the left turn movements along each approach as a protective/permissive phase.

Table 6
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection[18] Two-Way Stop Control	**LOS per TIS**			**LOS per JMT**		
Delaware Route 24/ Mulberry Knoll Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2012 Existing (Case 1)						
Eastbound Delaware Route 24 Left/Through	A (8.9)	B (10.8)	A (9.4)	A (8.9)	B (10.8)	A (9.3)
Westbound Delaware Route 24 Left/Through	B (12.3)	A (9.2)	B (10.6)	B (12.3)	A (9.2)	B (10.6)
Northbound Mulberry Knoll Road	F (57.6)	E (39.9)	C (23.9)	F (57.6)	E (39.9)	C (23.9)
Southbound Mulberry Knoll Road	E (50.0)	D (30.5)	E (38.8)	E (50.0)	D (30.5)	E (38.8)
2018 without Love Creek RV Resort (Case 3)[19]						
Eastbound Delaware Route 24 Left/Through	-	-	-	A (8.9)	B (11.5)	A (9.7)
Westbound Delaware Route 24 Left/Through	-	-	-	B (12.2)	A (9.5)	B (11.2)
Northbound Mulberry Knoll Road	-	-	-	F (52.8)	F (52.7)	D (28.1)
Southbound Mulberry Knoll Road	-	-	-	E (40.1)	E (37.8)	F (51.7)
2018 without Love Creek RV Resort (Case 3) *with Improvement*[20]						
Eastbound Delaware Route 24 Left	A (8.8)	B (11.3)	A (9.7)	A (8.9)	B (11.5)	A (9.7)
Westbound Delaware Route 24 Left	B (12.1)	A (9.5)	B (11.1)	B (12.2)	A (9.5)	B (11.2)
Northbound Mulberry Knoll Road	E (47.7)	E (47.7)	D (25.9)	E (48.7)	E (49.2)	D (26.4)
Southbound Mulberry Knoll Road	E (35.1)	E (35.8)	E (44.2)	E (36.2)	E (36.4)	E (45.5)

[18]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[19]JMT conducted an additional analysis utilizing the existing lane configurations at the intersection since the DelDOT intersection improvement project has been placed on hold.
[20]Improvement scenario assumes build out of DelDOT intersection improvement project, including provision of separate left turn lanes along the eastbound and westbound Delaware Route 24 approaches.

Table 6 (Continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection[21] Two-Way Stop Control	**LOS per TIS**			**LOS per JMT**		
Delaware Route 24/ Mulberry Knoll Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 with 628 lot Love Creek RV Resort (Case 4)[22,23,24]						
Eastbound Delaware Route 24 Left/Through	-	-	-	A (9.3)	B (13.4)	B (10.6)
Westbound Delaware Route 24 Left/Through	-	-	-	B (12.2)	A (9.5)	B (11.2)
Northbound Mulberry Knoll Road	-	-	-	F (60.0)	F (81.7)	D (30.3)
Southbound Mulberry Knoll Road	-	-	-	D (34.4)	E (44.9)	F (54.8)
2018 with 628 lot Love Creek RV Resort (Case 4)[25,26]						
Eastbound Delaware Route 24 Left/Through	-	-	-	A (9.0)	B (12.2)	B (10.0)
Westbound Delaware Route 24 Left/Through	-	-	-	B (12.2)	A (9.5)	B (11.2)
Northbound Mulberry Knoll Road	-	-	-	F (58.4)	F (77.2)	D (30.0)
Southbound Mulberry Knoll Road	-	-	-	D (31.2)	E (43.3)	F (50.0)

[21]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[22]JMT conducted an additional analysis utilizing the existing lane configurations at the intersection since the DelDOT intersection improvement project has been placed on hold.
[23]JMT utilized conservative heavy vehicle percentages consistent with the TIS along the eastbound Delaware Route 24 left turn and southbound Mulberry Knoll Road right turn movements. JMT used 3% heavy vehicles for the other movements.
[24]The southbound Mulberry Knoll Road approach has a delay reduction between Cases 3 and 4 during the weekday AM peak hour due to the volume increase along the southbound Mulberry Knoll Road right turn lane.
[25]JMT conducted an additional analysis with 10% heavy vehicles for site distributed trip movements and 3% for other movements.
[26]The southbound Mulberry Knoll Road approach has a delay reduction between Cases 3 and 4 during the weekday AM and Saturday peak hours due to the volume increases along the southbound Mulberry Knoll Road right turn lane.

Table 6 (Continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Unsignalized Intersection[27] Two-Way Stop Control	**LOS per TIS**			**LOS per JMT**		
Delaware Route 24/ Mulberry Knoll Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 with 628 lot Love Creek RV Resort (Case 4) *with Improvement*[28,29,30]						
Eastbound Delaware Route 24 Left	A (9.3)	B (13.4)	B (10.6)	A (9.3)	B (13.4)	B (10.6)
Westbound Delaware Route 24 Left	B (12.1)	A (9.5)	B (11.1)	B (12.2)	A (9.5)	B (11.2)
Northbound Mulberry Knoll Road	F (52.2)	F (65.4)	D (26.9)	F (52.8)	F (68.5)	D (27.4)
Southbound Mulberry Knoll Road	D (29.5)	E (41.4)	E (43.9)	D (30.0)	E (41.7)	E (43.9)
2018 with 628 lot Love Creek RV Resort (Case 4) *with Improvement*[28,30,31]						
Eastbound Delaware Route 24 Left	-	-	-	A (9.0)	B (12.2)	B (10.0)
Westbound Delaware Route 24 Left	-	-	-	B (12.2)	A (9.5)	B (11.2)
Northbound Mulberry Knoll Road	-	-	-	F (52.2)	F (68.5)	D (27.2)
Southbound Mulberry Knoll Road	-	-	-	D (27.9)	E (41.0)	E (41.6)

[27]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[28]Improvement scenario assumes build out of DelDOT intersection improvement project, including provision of separate left turn lanes along the eastbound and westbound Delaware Route 24 approaches.
[29]JMT utilized conservative heavy vehicle percentages consistent with the TIS along the eastbound Delaware Route 24 left turn and southbound Mulberry Knoll Road right turn movements. JMT used 3% heavy vehicles for the other movements whereas the TIS maintained the existing heavy vehicle percentages.
[30]The southbound Mulberry Knoll Road approach has a delay reduction between Cases 3 and 4 during the weekday AM and Saturday peak hours due to the volume increases along the southbound Mulberry Road right turn lane.
[31]JMT conducted an additional analysis with 10% heavy vehicles for site distributed trip movements and 3% for other movements.

Table 6 (Continued)
PEAK HOUR LEVELS OF SERVICE (LOS)
Based on Traffic Impact Study for Love Creek RV Resort and Campground
Prepared by Davis, Bowen, & Friedel, Inc.

Signalized Intersection[32]	**LOS per TIS**			**LOS per JMT**		
Delaware Route 24/ Mulberry Knoll Road	Weekday AM	Weekday PM	Saturday Midday	Weekday AM	Weekday PM	Saturday Midday
2018 with 628 lot Love Creek RV Resort (Case 3) *with Improvement*[33]	-	-	-	C (21.0)	C (22.4)	B (10.4)
2018 with 628 lot Love Creek RV Resort (Case 4) *with Improvement*[33,34]	-	-	-	C (24.4)	C (25.0)	B (12.3)
2018 with 628 lot Love Creek RV Resort (Case 4) *with Improvement*[33,35]	-	-	-	C (22.3)	C (23.1)	B (10.8)

[32]For signalized and unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds.
[33]Improvement scenario assumes build out of DelDOT intersection improvement project, including provision of separate left turn lanes along the eastbound and westbound Delaware Route 24 approaches and the addition of a 120 second cycle length traffic signal.
[34]JMT utilized conservative heavy vehicle percentages consistent with the TIS along the eastbound Delaware Route 24 left turn and southbound Mulberry Knoll Road right turn movements. JMT used 3% heavy vehicles for the other movements.
[35]JMT conducted an additional analysis with 10% heavy vehicles for site distributed trip movements and 3% for other movements.