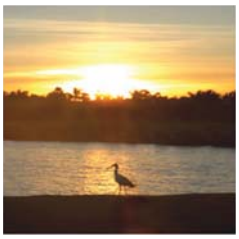
CENTER LAKE

Application for Development Approval

3rd Request for Additional Information

Rj WHIDDEN and ASSOCIATES, INC.
LAND PLANNERS AND DEVELOPMENT CONSULTANTS



Center Lake

Development of Regional Impact

Rj WHIDDEN and ASSOCIATES, INC.
LAND PLANNERS AND DEVELOPMENT CONSULTANTS

September 1, 2010

Mr. Phil Laurien, Executive Director
East Central Florida Regional Planning Council
631 North Wymore, Suite 100
Maitland, Florida 32751

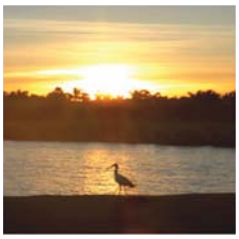
Dear Mr. Laurien:

Rj Whidden and Associates, Inc. as Agent for Center Lake Properties, LLLP is pleased to submit this 3rd response to your request for additional information relative to the Center Lake DRI project in accordance with Section 380.06, F.S. The responses contained herein have been prepared to provide a complete accounting of pertinent information to address all regional issues. The applicant believes the information contained herein together with the ADA submitted on December 3, 2008, the 1st Response to Request for Additional Information submitted on January 21, 2010 and the 2nd Response to Request for Additional Information submitted on May 12, 2010 comprise a complete accounting of information required for the reviewing agencies to complete their review of regional information pursuant to 380.06 F.S. No further information will be filed and the applicant hereby requests that the East Central Florida Regional Planning Council notify Osceola County that a public hearing may be set pursuant to 380.06 (10)(c), F.S. for adoption of the final development order for the Center Lake DRI.

This document has been provided to the individuals and agencies stated in the distribution list as provided by the East Central Florida Regional Planning Council on January 19, 2010. As always, we look forward to working with you and the staff of the East Central Florida Regional Planning Council on this application.

Respectfully yours,

Rj Whidden, President



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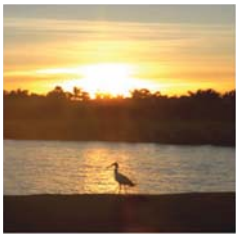


List of Exhibits

Exhibit 1 – Revised Residential Density Program Exhibit

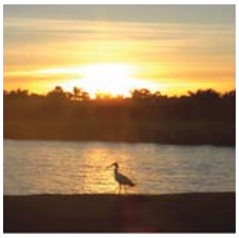
Exhibit 2 – Revised Map H – Concept Plan

Exhibit 3 – Revised Habitat Management Plan

Exhibit 4 – Revised ADA Question 12 D

Exhibit 5 – Revised Table 10-B-1

Exhibit 6 – Transportation Appendix



Center Lake

Development of Regional Impact

2nd Response to Agency Request for Additional Information

East Central Florida Regional Planning Council

Maps and Question 10 – Project Description

1. **Thank you for providing Exhibit 1, the Illustrative Plan. It appears that the northeast portion of the Center Lake plan will match up with the southwest corner of the Northeast District Plan from Osceola County. The Illustrative Plan also shows some development directly north between Center Lake and Jones Road. What is the status of that portion of the plan? We notice the Illustrative plan shows it a bit faded. Please elucidate.**

   As stated in the 2nd Response the applicant provided the Illustrative Plan;

   "as an example of how the development entitlements requested by this application can be implemented in compliance with the Osceola County Comprehensive Plan. It is not intended for, and shall not be considered a binding plan on the proposed DRI nor the surrounding properties."

   The development between the north DRI boundary and Jones Road that appears faded is property outside of the DRI boundary, but still within Mixed Use District 7. The 2nd response was very clear that the Illustrative Plan included properties;

   "both within Mixed Use District 7 and within surrounding land uses".

   The faded effect was place on the plan to differentiate between property within the DRI and property outside of the DRI.

   Additionally, to reiterate the 2nd Response to Additional Information;

   "The applicant can only represent property under their ownership subject to the legal description of this DRI. The applicant cannot assume responsibility to enforce the Mixed Use District policies outside of the boundaries of this DRI."

2. **Regarding the response to question 20 on page 11, the trip generation for the homes, the trip generation rates for the individual pods of homes should be calculated separately and then internal capture applied. The procedure that was done is not correct. Please show the internalization after the homes are calculated separately.**

   Although the residential development is dispersed throughout the project area, all project traffic is concentrated in one of the two zones which contain project traffic. Because the residential developments are not bisected by any major roadways, it seems appropriate to combine the residential uses in the trip generation and internal capture calculations.

   The distribution will be verified by the data collected on traffic orientation during the monitoring and modeling stage.

3. **The response to question 21 on page 11 is not informative. What changes in the socioeconomic data change to affect distribution?**

All ZData for non-project zones was interpolated between the 2000 and 2025 models. No adjustments to the zones southeast of the project were made. The decrease in project traffic trips to the south and east of the projects from Phase 1 to Phase 2 is likely due to the change in the Center Lake development program between the two years. The Phase 1 development program contains far less planned residential units than does Phase 2. It is likely that many of the trips attracted to the office and retail initially originate in the Harmony DRI located southeast of the proposed Center Lake DRI. However, as the residential program drastically increases in the Phase 2 program, these trip patterns now dramatically change.

The accuracy of this model will be tested during the monitoring and modeling stage which will occur at the completion of the Phase I development.

4. **A park and ride lot is not identified as requested in question 24 on page 12. Please make it so.**

Coordination with Lynx and Osceola County through the PD zoning process will occur to determine a location for a park and ride lot.

5. **The response to question 25 on page 12 is not informative. Please address this question.**

As Osceola County's requirements are in a transitional period, once the Smartcode is finalized and adopted by Osceola County, the applicant will identify transit requirements as outlined in the Smartcode.

6. **Regarding the issues raised by the FDOT in their question 12, we agree with the FDOT that the minimum K and D factors must be adhered to. The area does not exhibit the same characteristics as the projects on US 192 near the attractions, which account for the variation from the norm. We did not necessarily agree with the use of the factors with the DRIs near the attractions either: while existing factors may be deviant, they will likely approach the norm as additional residential and non-tourist based trips increase over time. Please comply with the request from the FDOT.**

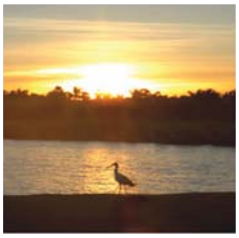
As it is impossible to predict future K and D factors, it seems reasonable to base the analysis on historic K and D factors rather than on state-wide arbitrarily assigned minimums. We do not agree that this site, specifically the corridor along US 192, will exhibit traffic patterns of a predominately residential and non-tourist region and therefore the K&D factors will not approach the minimum FDOT values.

However, although we do not agree with FDOT's minimum K&D practices, by analyzing the roadway segments using the updated 2009 FDOT AADT volumes and the K100 factors, no external roadway segments will be significant and adverse during Phase I. Table 21-A.2 (b), Table 21-E.1 (b), and Table 21-E.3 (b) include updated 2009 AADTs, K100 factors, and D100 factors for all FDOT roadway segments. These tables can be found in Section B of Exhibit 6. With the inclusion on this table in this submittal, although no agreement was reached concerning use of minimum K100 and D factors, it can be agreed that there are no external roadway segments which will be significant and adverse at the conclusion of Phase I buildout.

Table 21-A.2 (a), Table 21-E.1 (a), and Table 21-E.3 (a) also uses the updated 2009 AADT values from FDOT's online traffic information but uses the K100 and D factors from the Osceola County Roadway Network Database as in previous submittals. These tables were also submitted in Exhibit 6 to indicate the applicant's belief that the K100 and D factors from the Osceola County Roadway Network Database are more accurate in terms of current traffic conditions.

7. **There appear to be several outstanding issues that the FDOT has identified. The FDOT has requested that a meeting be set to discuss the issues. Please make sure to include the county and the ECFRPC in the meetings.**

Meetings and discussions have been completed with FDOT and these discussions have resulted in the resolution to all previous comments. ECFRPC and the County will be invited to all future meetings.



Environmental Management & Design, Inc.

1. **It was difficult to determine the exact on-site acreage for existing wetlands, wetland preservation, upland conservation, and proposed conservation lands. Table 10-B-1, revised Question 12D, and the Habitat Management Plan (HMP) had conflicting numbers. For example, Table 10-B-1 listed 914.55 acres of wetlands that currently exist. The HMP showed current wetlands on-site as 1,041.78 acres and revised Question 12D listed wetland preservation to be 1,046.69 acres. In addition, the HMP indicates that there will 1,036.29 acres of wetlands within the conservation land. Please provide the following acreage amounts:**

    a. **Wetlands (existing, proposed, and impacted)**
    b. **Surface waters (existing, proposed, and impacted)**
    c. **Uplands (proposed conservation lands including upland buffers)**
    d. **Uplands (recreational lands not within the conservation lands)**

    Please note that the South Florida Water Management District (SFWMD) has issued a Formal Wetland Determination (FWD) since the time of the previous submittal. In accordance with FWD 49-00009-F, a total of 1,041.220 acres of wetlands and 5.101 acres of surface waters are located on the property (total = 1,046.321 acres of jurisdictional areas). These acreages are summarized in the below table.

Wetland I.D.	Existing Acreage
1	2.573
2	8.326
3	8.128
4	3.724
5	1.048
6	7.268
7	1.008
8 east	14.091
8 west	6.333
9	27.375
10	183.642
11	136.945
12	0.412
13	236.978
14	175.714
15	1.464
16	0.565
17	4.921
18	219.561
19	1.000
20	0.089
21	0.055
Wetland Subtotal	**1041.22**

Surface Water I.D.	Existing Acreage
1	0.160
2	0.457
3	0.408
4	0.613
5	0.629
6	0.719
7	0.552
8A	0.436
8B	0.612
9	0.072
10	0.443
S.W. Subtotal	**5.101**
TOTAL	**1046.3**

The HMP document, Exhibit 3 attached hereto, and revised Question 12D, Exhibit 4 attached hereto, have been modified to reflect the updated acreages. Regarding Table 10-B-1, please note that the total jurisdictional acreage is obtained by calculating the sum of the wetland vegetative community acreages within both sections of the table ("*Lands Above the Safe Development Line*" and "*Lands Below the Safe Development Line*"). This table has been updated to reflect the SFWMD approved wetland acreages.

In Table 10-B-1, the impact acreage for each wetland vegetative community type is obtained by calculating the sum of the "difference" column for each wetland FLUCCS code within Table 10-B-1. Based on the revised Table 10-B-1, Exhibit 5 attached hereto, the wetland impact acreage for this project is anticipated to be 5.3; therefore, ±1,035.9 acres of wetlands will remain. The surface water impact acreage is anticipated to be 4.8; therefore, ±0.3 acres of surface water will remain. All unimpacted wetland and surface water areas will be preserved (approx. 1,036.2 acres).

As presented in Table 10-B-1, the proposed acreage of parks, recreation, and open space (i.e. recreational lands not in conservation area) in the post-development condition is 138.9 acres. Additionally, the following land use / vegetative communities will remain onsite in the post-development condition (i.e. proposed conservation lands including upland buffers): Improved Pastures (83.2 acres), Pine-Mesic Oak (37.2 acres), Xeric Oak (3.7 acres), Live Oak (15.0 acres), and Hardwood Coniferous Mixed (8.5 acres).

2. It is unclear if any water-dependent structures (boardwalks, piers, docks, etc.) are proposed within the Safe Development Line of Lake Center. Please confirm.

No water-dependent structures within areas waterward of the Safe Development Line of Lake Center are presently proposed. This should not be interpreted that the applicant is relinquishing riparian rights. Rather, the applicant reserves the right to seek permits for future construction activities waterward of the Sovereign Submerged Lands line.

3. **The HMP indicates that any activities proposed between the 330' and 660' eagle protection zone may require coordination with the Florida Fish and Wildlife Conservation Commission (FWC). Please revise the HMP to also include coordination with the U.S. Fish & Wildlife Service (FWS). The eagle is still protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. In addition, the FWS has developed proposed eagle permit regulations which are currently under review.**

   The applicant will comply with the requirements of the FWC and the USFWS as they pertain to the bald eagle. The HMP has been modified to reflect this information.

4. **There is a statement within the revised Question 12D that indicates significant acreage of occupied gopher tortoise habitat will remain undisturbed post-development. However, the revised Map H Concept Plan does not show the majority of the occupied gopher tortoise habitat as being preserved. In addition, the HMP indicates that there are no habitat areas within the site that have sufficient acreage meeting the habitat suitability requirements of FWC. Please confirm what is proposed for protecting the gopher tortoise population.**

   It is agreed that much of the onsite occupied gopher tortoise habitat is not being preserved. The verbiage in Question 12 D, Exhibit 4 attached hereto has been revised to more accurately read as follows:

   "***Some*** *occupied gopher tortoise habitat will remain undisturbed in the post-development condition,* ***mostly associated with undisturbed wetland buffers and passive use Park and Recreational areas****. FFWCC regulations allow for relocation of gopher tortoises from lands slated for development within the occupied habitat areas following receipt of the appropriate permits and in accordance with permit conditions. Prior to commencement of development, the Developer shall obtain all necessary permits from the FFWCC to address impacts to on-site gopher tortoise habitat. The permit applications shall be for relocation of tortoises to a long-term protected offsite recipient area and shall be consistent with the FFWCC's Gopher Tortoise Permitting Guidelines. The relocation effort may be permitted in phases as development and construction will proceed in phases. As a result of the proposed habitat conservation and gopher tortoise relocation efforts, this project is not expected to result in adverse impacts to this species.*"

   Our previous statement that there are no habitat areas within the site that have sufficient acreage meeting the habitat suitability requirements of FWC is accurate. Please note that FWC guidelines require a minimum of 40 acres of contiguous suitable habitat. Further, the guidelines state that recipient areas should ideally be configured in the shape of a block or circle. The suitable tortoise habitat that will remain within conservation and passive recreational use areas onsite is irregularly shaped and does not result in 40 acres of contiguous suitable habitat. Many burrows located within these undisturbed areas will be avoided, and suitable habitat will remain for use by those individuals. However, based on the existing regulations, it will not be possible to relocate the population to avoided onsite habitat areas.

5. **The HMP, page 16, indicates that there is an estimated gopher tortoise population of 65-66 tortoises on site. However, on page 23, it is estimated that 131 tortoises will need to be relocated. Please confirm the estimated gopher tortoise population.**

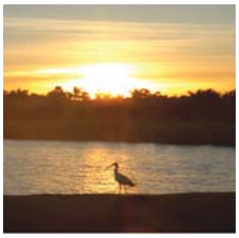
   Response: Page 23 of the HMP, Exhibit 3 attached hereto has been revised to resolve this discrepancy.

6. **There still is concern that the development provides adequate protection to the existing Sherman's fox squirrel population on site. The HMP indicates that the planned preservation of native forested communities within the Upland Management Areas and upland buffers will provide on-site habitat for the species. However, it appears from map F that many of the preserved uplands are not forested and are proposed to be parks and recreation. Please provide a map of the habitats that are suitable for this species that are not proposed as active parks and recreation.**

   Section 4.2.2 of the HMP, Exhibit 3 attached hereto has been revised to address this concern. Figure 6 has also been added to the HMP, and depicts the lands that are expected to be utilized by the Sherman's fox squirrel in the post-development condition.

7. **As discussed during the recent site review, there is a concern about impacts to habitats that are suitable for protected wildlife species, specifically the upland parcel located along the southern property line closest to Nova Road that is slated for residential development. As shown on the Wildlife Resources Map (Map G), this area appears to have one of the two largest areas that contain the most gopher tortoises on site. In addition, the Sherman's fox squirrel has been observed within this area. Please explain why this parcel could not be placed under conservation or used as a passive recreational area.**

   The area in question consists of an abandoned citrus grove that was converted into improved pasture land in the late 1980's. The area is vegetated with bahia grass and broadly scattered live oak trees. The only listed species observed on this historically disturbed site are the gopher tortoise and Sherman fox squirrel. Consistent with regulations set forth by FWC, the applicant proposes to relocate the gopher tortoises to an approved off-site recipient area. The fox squirrel was observed crossing the field to access a stand of pine trees located within the wetland buffer area that is included within the proposed conservation land. Further, there are two upland management areas (UMA 1 and UMA 2) located a short distance to the northeast that are being set aside for conservation and parks / recreational use. These areas, as well as the other onsite conservation and parks / recreational areas, will provide onsite habitat for the fox squirrel following development. Please also refer to Section 4.2.2 of the Habitat Management Plan for conservation measures related to the Sherman's fox squirrel.



Center Lake

Development of Regional Impact

Osceola County Development Services Department

1. **Throughout the document, it is stated that the Center Lake DRI is within the Northeast District Conceptual Master Plan or the Northeast Development District. The Center Lake DRI is not within the boundaries of the Northeast District Conceptual Master plan (CPA09-0009). However, the Center lake DRI is within the boundaries of a new study the County will be beginning shortly titled the Narcoossee Community Plan.**

   The applicant has reviewed the entire 2nd Response for Additional Information and has found only one direct reference that implies the inclusion of the Center Lake DRI within the Northeast Mixed Use District (MXD). That one reference was included in the response to the letter from LYNX. The intent was to illustrate that the Northeast MXD will require and define transit routes within the area and that the Center Lake DRI will comply and facilitate connections for the future transit routes that will be defined by the policies of the Northeast MXD. The applicant understands that the Center Lake DRI is not a part of the Northeast MXD Conceptual Master Plan. However, multiple references to the transit policies and the school facilities within the Northeast MXD have been included to illustrate compliance with and connectivity to the facilities that have been included within the Northeast MXD. It is clearly understood that the Center Lake DRI is not within, but adjacent to the Northeast MXD.

2. **On the "Residential Density Program Exhibit", verify the numbers in the Net Residential Density table, Neighborhood #3, #5, and the total do not calculate correctly.**

   The Residential Density Program Exhibit has been revised to correct the total units and the resulting density for Neighborhoods #3 and #5. Please consult Exhibit 1, Revised Residential Density Program Exhibit, attached hereto.

3. **On the "Residential Density Program Exhibit", there is a total of 3,373 residential units, however the description in the ADA (December 3, 2008) calls for 3,300 mixed residential units. Please address this inconsistency.**

   The description in the original ADA did not include the additional 134 acres that was included in the 1st Response to Request for Additional Information. With the inclusion of the additional 134 acres, the applicant revised the development program to account for additional developable land within the DRI. The 3,373 units proposed is consistent with the revised development program presented in the 1st Response to Request for Additional Information and all relevant ADA questions, including Question 10 were revised to reflect the proposed modification to the development program.

4. **On the Illustrative Plan, please make the ROW white, the green conflicts with the wetlands and the wetlands buffers.**

   As stated in the 2nd Response the applicant provided the Illustrative Plan;

   "as an example of how the development entitlements requested by this application can be implemented in compliance with the Osceola County Comprehensive Plan. It is not intended for, and shall not be considered a binding plan on the proposed DRI nor the surrounding properties."

   Any revision to the Illustrative Plan is not relevant to the DRI review process. The applicant will make adjustments as deemed necessary to graphics for public hearing purposes for clarification to the public.

5. **In response to #4 in the Osceola County Development Services Department section. Please refer to the proposed CPA10-00012 changes to the Future Land Use Element, specifically FLU Policy 1.3.15.**

2. Neighborhood Centers	
a. Multi-family residential	**0 – 20%**
b. Commercial	**0 – 50%**
c. Office	**0 – 50%**
d. Public/Civic	**0 – 50%**
e. Public/Park	**50 – 100%**

The Neighborhood Center requirements have been adjusted to allow for the transition from park to a more intense use. Please designate a Neighborhood Center within each residential development pod. Each development pod should function as a discrete neighborhood based on their size and separation.

Pursuant to 380.06, F.S. a development order is required to be found in compliance with State, Regional and Local Comprehensive Plans. This requires compliance with adopted policies, not proposed policies. Assuming that the proposed CPA 10-00012 is adopted and in effect prior to or concurrent with the adoption of the Center Lake DRI Development Order, the applicant understands and will modify Map H to comply with the revised FLUE Policy 1.3.15. As shown on the current Illustrative Plan, the proposed development includes multiple parks and recreation areas near the center of all neighborhoods. These park and recreation areas can be modified to locate a Neighborhood Center should the proposed policy be adopted. However, until such time that the policy is adopted, found in compliance by the FDCA and in effect, the applicant will continue to present a proposed Map H that is in compliance with the currently adopted Comprehensive Plan.

6. **In response to #23 in the ECFRPC section it is stated that "The construction of the internal roadway network as part of Center Lake Ranch development will include at build-out a four-lane divided roadway that will connect from Narcoossee Road to Nova Road". The County does not anticipate four lane roadways within the Center Lake Ranch DRI, consistent with it approach of relying on an interconnected network of smaller streets to accommodate traffic needs within the Mixed Use Districts.**

The applicant is aware of the policies governing roadway design within the Mixed Use Districts. The applicant is also aware that Osceola County has not yet adopted the Smartcode that will govern the Planned Development zoning for the Center Lake DRI. The applicant anticipates that the Smartcode will define roadway segment designs for the various network roadways within the Mixed Use Districts. It is the intent of this DRI to establish a new roadway connecting Narcoossee Road and Nova Road in compliance with the policies of inter-connectivity of the Mixed Use Districts. This new roadway will be the equivalent of a four lane roadway. The final specific design of this roadway and all other framework and fine grain network roadways will be subject to compliance with the Smartcode. The applicant anticipates a Development Order Condition that will require the Center Lake DRI to be in compliance with the adopted Smartcode when the Planned Development zoning application is submitted to Osceola County for review and approval.

7. **In response #6 in the School District of Osceola County section, last paragraph. Reference is made to the schools which are located within the Northeast District Conceptual master Plan. Three high schools which are shown on the Schools Map within the Data and Analysis. These school sites, types and amount have not been confirmed by the School District of Osceola County (SDOC). The amount, type and amount of schools are shown for planning purposes only. It is not feasible to count on that capacity being available when these have not been accepted by the SDOC and the Northeast District Conceptual Master Plan has not been adopted by the Osceola County Board of County Commissioners.**

   The county has relied on the school sites included in the data and analysis to justify the Northeast District Conceptual Master Plan. The FDCA will rely on the information presented in the data and analysis submitted by Osceola County for their review and finding of compliance of the Northeast MXD. It is understood that;

   "The amount, type and amount of schools are shown for planning purposes only."

   Similarly, the applicant's response, the proposed development program and the entire DRI process is a planning process only. If it is feasible for the county to "count on that capacity" to justify the Northeast MXD Conceptual Master Plan, then it is just as "feasible" for the applicant to "count on that capacity" for planning purposes for the DRI.

   The response clearly establishes that the applicant is not merely counting on projected school capacity. The applicant is not relying on the capacities of any future schools to measure impacts to the public school system from the Center Lake DRI. The response was clear that the School Board of Osceola County currently has available capacity to accommodate the impacts projected from the Center Lake DRI. The applicant has made further reference that future development plans will be subject to school concurrency. If any deficiencies of school capacities occur in the future, the school concurrency ordinance will account for mitigation of such deficiencies.

8. **The Center Lake DRI Draft Habitat Management Plan that was submitted on May 12, 2010 is considered to be sufficient at this time. Policies pertaining to the Habitat Management plan will be drafted for the Development Order. These policies will outline the additional requirements to be submitted to the County for the compliance review no later than the submittal of the Planned Development Zoning Map Amendment application.**

   This comment is noted and appreciated.

9. **Provide a revised Table 21.A-4 Planned and Programmed Road improvements, which shows the updated scheduling of roadway improvements for Osceola County to verify consistency with the current adopted FY 2009-2010 Osceola county CIP. The roadway improvement schedule from the 1st RAI is not consistency with the currently adopted Osceola County CIP.**

   A revised Table 21.A-4 Planned and Programmed Road improvements is included with this submission as Section G in Exhibit 6 and now shows the updated scheduling of roadway improvements for Osceola County.

10. **The proposed intersection improvements for mitigation need to be consistent with the Osceola County Narcoossee Road improvement project currently underway. Coordination with Osceola County Public Works Department is required to identify the necessary improvements.**

The proposed intersection geometries for all future year intersections were revised to match the 100% plans for the Narcoossee Road improvement project received from Osceola County. The attached revised 2015 HCS Analyses are now consistent with the Osceola County Narcoossee Road improvement project which is currently underway. The 2015 HCS Analyses can be found in Section D of Exhibit 6.

11. **Revise intersection analysis for CR/15Jones Road to indicate a future signal at this location per the 100% design plans for the Narcoossee Road improvements. Coordination with the Osceola County Public works Department is required to determine necessary mitigation for this intersection. Coordination with FDOT is required to determine the necessary mitigation for the intersections of US 192/CR 15 and US 192/Michigan Avenue East.**

The intersection at CR 15 and Jones Rd will function at an acceptable level of service with the proposed geometry according to the 100% Narcoossee Rd. plans and signalization. No mitigation will be required at this intersection for the Phase I buildout.

12. **Provide calculations for the cost of each identified improvement and the projects proportionate share of the cost. The cost estimate for each identified improvement should include design, right-of-way, and construction costs including CEI.**

The proportionate share calculations for each of the identified improvements and the project's proportionate share of the costs are included with this submittal as Section F in Exhibit 6. It appears that enough public ROW is available for all identified improvements. Therefore, the ROW costs were not included in the proportionate share calculations.

13. **The Center Lake DRI will be required to coordinate with Osceola County staff to identify the specific primary transit functions of the DRI in terms of adjacent development and the proposed development program of the project. Through this coordination process the layout of the transit system and facilities within the Center Lake DRI will be identified and the future needs for operation and maintenance of the transit system and facilities will be determined.**

The applicant agrees that the Center Lake DRI will coordinate with Osceola County staff to identify specific primary transit functions within the development and continuing and connecting to adjacent development transit facilities. This coordination and identification of transit facilities can be specified through future development approvals. The applicant anticipates a Development Order Condition requiring all future development approvals to address the transit issue to the specifics required by the Osceola County Smartcode, when adopted.

14. In accordance with the proposed CPA10-00012, specifically FLU Policy 1.3.13

Within the Mixed Use category, commercial, office and industrial development shall take the form of centers. As described below, a hierarchy of centers is created based upon their function, size and relationship to residential development. The standards and criteria governing the centers shall be outlined in a Conceptual Master Plan or a DRI or DCI pursuant to FLUE Policy 1.1.10 and implemented through the County's adopted SmartCode.

The proposed Map H (with the changes discussed herein) is sufficient. However, the standards and criteria need to be added as policies to the Center Lake DRI Development Order. All other detail shall be differed to the SmartCode.

The applicant is willing to negotiate any and all development order conditions (not policies) that county staff desires to include in a development order. However, as previously stated, the DRI Development Order must be found in compliance with State, Regional and Local Comprehensive plans, pursuant to 380.06 F.S. Should CPA 10-00012 be adopted, found in compliance and be effect prior to or concurrent with the adoption of a Development Order for the Center Lake DRI, then the applicant is not opposed to compliance with the proposed modification to FLU Policy 1.3.13. However, until such time, the applicant will continue to present information and plans in compliance with the currently adopted policies of the Osceola County Comprehensive plan.

Florida Department of Transportation

Comment Number	Page(s)	General Areas of Concern	Specific Review Comment(s)
1	Appendix A	Methodology	**Original comment: FDOT provided several methodology comments to the applicant in July 2008. These comments pertained to existing conditions data, use of minimum K&D factors, modeling, intersection analysis, and other topics. Many of the methodology comments originally provided by FDOT were not incorporated into the analysis. Please refer back to FDOT's July 2008 methodology comments when revising the analysis.** ***Applicant Response:*** *Many of the comments from the July 2008 document were repeated in the most recently issued FDOT comments. One comment that was not addressed from the July 2008 comments is FDOT-10, the comment referencing the current TIP. An additional Appendix which contains the TIP should rectify this outstanding comment. The 2009 reanalysis addresses all comments.* **FDOT 1st Sufficiency Response: No further response is required. Specific outstanding issues are covered in other comments.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*
2	21-5	Existing Conditions	**Original Comment: Table 21-A.2 shown on Page 21-5 contains a significant number of changes to the existing conditions data since methodology. In particular, many of the service volumes have been increased for individual roadway segments (although the corresponding number of lanes and LOS standards have not changed). The FDOT will defer to the local city/county regarding changes in service volumes require modification:** • **US 192 from Mississippi Ave to Narcoossee Rd – Table 21-A.2 currently shows a peak hour / peak direction service volumes of 2,790, which reflects a 6-lane capacity. Please adjust the service volume back to 1,860 (as it was shown in the methodology) to reflect the existing 4-lane cross-section.** ***Applicant Response:*** *The service volumes which appear in Table 21-A.2 were taken from either the Orange County or Osceola County Roadway Network Database. If the service volumes were not available through either of these two sources, then the service volumes were taken from FDOT's 2008 Traffic Information DVD.* *The Osceola County Existing Roadway Network Capacity updated on 6/9/09 now shows the service volume on US 192 from Mississippi Ave. to Narcoossee Rd. as 1,860. This update has been included in the submission.*

			FDOT 1st Sufficiency Response: No further response is required. ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*
3	**21-5**	**Existing Traffic Volumes**	**Original Comment: The existing count data provided in Table 21-A.2 indicates that existing traffic volumes were obtained over a three year period (2006, 2007, and 2008) and represent a variety of sources (City, County, and FDOT). Per the methodology comments, please clearly document how these differing count years were rectified to a consistent 2008 "base" year**. ***Applicant Response:*** *Counts for each roadway segments were taken from the source with the most recent data and grown accordingly. Although the existing conditions analysis reflects data from several years, the historic growth procedure accounts for these varying years. The title of the table was changed to "Summary of Roadway Segment Level of Service, Existing Conditions" to avoid further confusion.* *A table comparing the historic and model growth rates now appears in Appendix F.* **FDOT 1st Sufficiency Response: The segment of US 192 from Narcoossee Rd. to Nova Rd. is shown as counted in 2009 in Table 21-A-2. However, the AADT is the same as in the ADA submission which was cited from 2007. Please correct the year presented in Table 21-A-2 and the back ground volume in the future segment analysis tables.** **Per the original comment, FDOT requests that a common existing conditions year be used to avoid issues in calculations between the existing and future years. Besides making it more difficult for FDOT to review/verify the future year background volumes, mistakes in calculations are more common when varying years of data are used on each segment. For future analysis (such as NOPC and M&M studies) please use a common analysis year for the existing conditions. No further response is necessary at this time beyond addressing the specific issue identified above on the segment of US 192.** ***Applicant Response****: The volumes used in Table 21-A-2 were the most current at the time of submittal. The growth from these volumes to future phase year's accounts for the different "current" years.* **FDOT 2nd Sufficiency Response: A revised segment analysis table was not submitted with the 2nd Sufficiency response. Therefore, FDOT reviewers were not able to verify whether or not the volumes have been updated for the section of US 192 from**

			Narcoossee Road to Nova Road. Per FDOT's comments at first sufficiency, there were questions regarding whether the background volumes had been calculated correctly for this segment in the future conditions analysis. Please provide an updated segment analysis table that shows the revised trip distribution/assignment used in the 2nd Sufficiency analysis. **Applicant Response:** The background calculations had been correctly calculated using the count year of 2007 for segment data from the Osceola County Traffic Count Program, 2008 for segment data from the Orange County Traffic County Program, and 2009 for segment data from FDOT Traffic Information. These years were appropriately incorporated into the future growth calculations with a formula that references the existing year column. Roadway Segments Tables (b) contains the existing and future phase years roadway segments tables. Table 21-A.2 (b) contains a 'Count Date' column which is referenced by formulas in the subsequent growth rate tables sheets. These tables can be found in Section B of Exhibit 6.
4	**21-5**	**Existing Traffic Volumes**	**Original Comment: At the methodology stage it was requested that FDOT data be used for all segments of US 192 within the St. Cloud area since more count stations are available from this source. FDOT also provided the applicant with advance 2007 count data, which has subsequently been released on the 2007 Florida Traffic Information DVD.** **FDOT also requested at methodology that the segments along US 192 be broken into smaller sub-segments. In the first version of the methodology, the portion of US 192 through St. Cloud (now shown as Columbia to Mississippi and Mississippi to Narcoossee) was previously shown as five segments. Given the lack of uniformity of traffic volumes along US 192 through this area, it is more appropriate to have the smaller subsections to more accurately reflect the actual roadway traffic conditions.** **For the section of US 192 from Columbia to Narcoossee, please revise the analysis to use smaller subsegments and utilize the FDOT data from the 2007Traffic Information CD, per the July 2008 FDOT methodology comments.** ***Applicant Response:*** *The same roadway segment breakpoints were used as in the County's adopted concurrency table. Although there are more count stations available on the 2007 Florida Traffic Information DVD than from Osceola County's concurrency table, the counts available from Osceola County are more recent and therefore more accurate.* **FDOT 1st Sufficiency Response: On state roadways, FDOT prefers that its counts be used when data is available. FDOT counts are taken on an annual basis and have had the**

			appropriate adjustments made to reflect an AADT volume. Within the County's database, counts span over a time period of several years; therefore, it is unclear how the County concurrency table is more recent or more accurate than the FDOT data. However, given that the counts currently being applied appear to be more conservative than the FDOT counts, FDOT has no further comment regarding the existing counts being utilized. ***Applicant Response:*** *Comment noted. No further action has been taken.*
5	**21-5**	**Programmed Improvements**	**Original Comment: FDOT reviewed the Planned and Programmed improvements listed in Table 21-A.4 against the projects shown in MetroPlan's TIP for years 2008-2012 and 2009-20013. It was noted that several of the programmed improvements listed in Table 21-A.4 have either have been removed from the 2009-2013 TIP or have construction funding beyond the three year horizon.** **Given that the MetroPlan TIP can quickly become out of date, we ask that documentation of the committed improvements be provided in the form of the FDOT adopted work program or local government CIE's (per the requirements of FAC 9J-2.045). . Please either provide documentation indicating that funding is available for construction within the next three years or remove the following projects from the list of programmed improvements:** • **Boggy Creek – Construction in 2013 is beyond the 3-year timeframe for being considered as a committed improvement.** • **Fortune Rd/Lake Shore Blvd – Per previous methodology comments, the construction dates for this improvement was not until the year 2011/2012 timeframe per the 2008-2012 TIP. This is beyond the 3-year window for consideration as a committed improvement. Additionally, the improvement could no longer be located in the 2009-2013 TIP and may have been removed.** • **Narcoossee Rd, from Jack Brack Rd to Orange/Osceola County line – 2009-2013 TIP shows construction in 2011/2012 fiscal year which is beyond the 3 year timeframe for being considered committed.** ***Applicant Response:*** *The improvement of Boggy Creek is scheduled to begin construction in 2011 which is within the 3 year time frame for being considered as a committed improvement.* *The segment of Fortune Road/ Lakeshore Blvd. was removed from Metro Plan's TIP and was therefore removed from Table 21-A.4 'Planned and Programmed Improvements.'*

			The improvement of Narcoossee Road from US 192 to Rummel Road is scheduled to begin construction in 2009. The improvement of Narcoossee Road from US 192 to the Orange/ Osceola County line is scheduled to begin construction in 2010. Both segments will be under construction within the 3 year timeframe. **FDOT 1st Sufficiency Response: It should be noted that over a year passed between the ADA and first sufficiency responses and therefore the committed improvements lists have changed during that time period making the original comment out of date. Please verify with Osceola County staff that all assumed improvements off of the state facility are still in the local City/County CIP. The FDOT does not consider the MetroPlan TIP to be acceptable documentation since the actual local commitments may change between TIP updates.** ***Applicant Response:*** *The programmed improvements shown in Table 21-A.4 were updated in January 2010 from the Osceola County TIP, Orange County TIP, Florida's Turnpike Enterprise and FDOT Work Program web site.* **FDOT 2nd Sufficiency Response: No further comment** ***Applicant Response:*** This comment was addressed in the previous submittal. No further action has been taken.
6	**21-8**	**Programmed Improvements Narcoossee Road**	**Original Comment: Additional coordination is required regarding the status of the Narcoossee Road widening projects.** **Since the March 2008 methodology, FDOT has requested that additional information from the Local government CIE be provided to verify the funding commitments and timing of the Narcoossee Road projects (per the requirements of FAC 9J-2.045). To date, only information from the MetroPlan TIP has been provided, which the FDOT does not consider to be acceptable documentation. In the 2008-20012 TIP, the three segments of the project were lumped together making it impossible to differentiate which projects would be funded within the three-year timeframe for inclusion as a committed improvement. The 2009-2013 TIP now breaks up the three segments and shows the segment from Jack Brack to the County line as not occurring until the 2011/2012 fiscal year. To clarify the timing and funding commitment for all segments of the Narcoossee widening, please provide the additional local CIE documentation, as requested in the methodology comments.** ***Applicant Response:*** *The TRIP funding for the segment of Narcoossee Road from Rummel Road to Jack Brack Road has been deferred, but despite the deferral of TRIP funding for this segment of Narcoossee Road, the construction schedule for the 4-lane widening*

			of Narcoossee from US 192 to the Orange County Line has not been changed. The 4-lane widening of Narcoossee Road from US 192 to the Orange County Line is still fully-funded within the 3-Year CIP for construction and construction will move forward as originally scheduled. **FDOT 1st Sufficiency Response: No further comment.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*
7	1-10	Pass-By	**Original Comment: Within Table 21-B.2, there appears to be an error in the pass-by trip calculations currently shown (29 total trips does not equal 14 in + 3 out). Please check the calculations for pass-by and revise appropriately to correct the math errors.** **Additionally, as stated in the methodology, pass-by will only be allowed if the retail component of the development is fronting a regional roadway that carries non-project traffic. Based upon the Map H it does not appear that any commercial uses are proposed along Nova Road and therefore pass-by reductions do not seem appropriate.** **Please remove the pass-by reduction from the analysis unless additional information can be provided to adequately justify the pass-by reductions.** ***Applicant Response:*** *There was an error with the outbound pass-by trip calculation which has been corrected.* **FDOT 1st Sufficiency Response: Please provide additional information on the site access points that are expected to be in place for Phase 1. It appears that the Center Lake DRI site does not extend fully to Narcoossee Road and that access to Narcoossee will be dependent upon the improvement to a property outside of the DRI's control. Please provide additional information on the timing of the construction to Narcoossee and how that might affect the potential pass-by reduction.** ***Applicant Response:*** *Center Lake DRI will extend to Narcoossee Road and connect with the existing Rummel Road intersection. Attached is a draft agreement currently being negotiated with Osceola County for realignment (Exhibit 4)* **FDOT 2nd Sufficiency Response: No further comment on Pass-by from Narcoossee Road** ***Applicant Response:*** This comment was noted. No further action has been taken.

8	21-13, 21-14, 21-15	Distribution	**Original Comment: The distribution shown in Exhibits 21-B.1 and 21-B.2 do not appear to account for 100% of traffic entering or exiting the site. In addition, the lack of detail in the trip distribution figure does not allow for the tracking of the trip distribution as trips are being assigned to smaller roadways and neighborhoods.** **Please revise the trip distribution to provide more detail and ensure that the external trip distribution adds up to 100%. Project assignment for the intersection analysis could not be verified due to questions regarding the overall trip distribution. Revision of the trip distribution may affect the conclusions of the segment and intersection analyses. FDOT will provide more detailed review and comment of these areas at 1st Sufficiency.** ***Applicant Response:*** *The original distribution shown in Exhibits 21-B.1 and 21-B.2 did not account for 100% of traffic entering or exiting the site. More detailed cordon line graphics now appear in Appendix E which account for 100% of traffic entering or exiting the site.* **FDOT 1st Sufficiency Response: The cordon line provided in Appendix E does not show a total near 100%. However, FDOT has continued concerns with the distribution of traffic from the site. Please refer to additional FDOT comment on modeling and distribution for more details. No further response is required to Comment 8.** ***Applicant Response:*** *Comment noted. Response provided to other comments related to distribution.*
9		Modeling/ Distribution	**Original Comment: Based upon a review of the model for year 2018, it appears that the trip distribution may not have been adjusted to reflect external trips only. Interaction (internal capture) between the 3 zones that represent the development result in only about 90% of the project traffic making it to the external roadway network. This may explain why the trip distribution figures do not add up to 100%.** **This distribution was applied by the applicant to the segment analysis using trip generation data that also accounted for internal capture. Therefore, if the information in the first paragraph (above) is correct, the analysis would be effectively double-counting internal capture reductions.** **The 2013 model output files containing trip distribution information were not provided to FDOT to allow for review; however, it is presumed that the same issue is also occurring in the 2013 model scenario as was identified for 2018. Please adjust the 2013 model trip distribution as necessary to ensure that it is reflecting the distribution of external trips only.** ***Applicant Response:*** *No applicant response was provided.*

			FDOT 1st Sufficiency Response: This issue has been addressed through other comments. No further response is required. ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*
10	**21-13, 21-14, 21-15**	**Modeling / Distribution**	**Original Comment: Please provide additional information to explain the high capture of trips that is occurring immediately south of the site (in the area between Nova Road and Pine Grove Road).** ***Applicant Response:*** *The high capture of trips that is occurring immediately south of the site is due to the fact that there is a major connection to the site and the model accordingly assigned a higher trip distribution rate.* **FDOT 1st Sufficiency Response: The area described in the original comment is represented in the model as TAZ 1095. The structure of the regional travel demand model structure for this TAZ does not appear to adequately account for access connections to this area at a micro-level and therefore may be misrepresenting project trip distribution and assignment to this zone. In particular, the location of the connectors provides access to Nova Rd. and Pine Grove Rd., but not US 192. The existing homes in this area all have access to US 192 through Bradley Dr. Please include this connector as well as relocating the existing connectors to the approximate location where Lake Lizzie Dr. meets Nova Rd. and Pine Grove Rd. near US 192.** ***Applicant Response:*** *The project distribution produced by the model shows that the project trip interaction with TAZ 1095 would not be affected with an additional connection to US 192 from TAZ 1095, as all trips come from the Nova Road connection. Additionally, Bradley Drive is not a regionally significant road and therefore does not need to be included in the network.* **FDOT 2nd Sufficiency Response: FDOT continues to have concerns that the travel demand model may be slightly overestimating the number of project trips that will be captured to TAZ 1095 based upon the existing development intensity within the zone. Due to close proximity of the TAZ to the project site, it makes sense that modifications to the model network are not resulting in significant change the results of the additional verification is needed on the projected development intensity represented in the ZDATA for that zone that may be causing the large capture of trips. Based upon a review of the Z-Data, there 1739 residential units shown for TAZ 1095 which appears to be a large increase over the existing intensity. This extra trip attenuation neat the site may be causing impacts to the US 192/Nova Road intersection to be underestimated.**

			Applicant Response: The submitted project traffic distribution represents the output from the approved regional model. This model was only modified as appropriate to include the proposed project development and other significant projects identified in the approved methodology. The actual project traffic distribution will be determined at the Phase I buildout as part of the M&M process through data collected on traffic orientation.
11	**21-13, 21-14, 21-15**	**Model Data**	**Original Comment: Within the model data, several inconsistencies were noted between the project development program and the values used in the ZDATA files.** • **The development program shown In Table 21-A.1 indicates that there will be no office component in Phase 1. However, the table on Page 21-13 and the ZDATA 2 file in the 2013 model shows 475 service employees. Given the lack of office in Phase 1, it appears as though the service employees in the ZDATA 2 file should be zero for Phase 1.** • **The 2018 ZDATA 1 input file shows a total single family population of 2,770. However, the calculations shown on Page 21-13 indicate that this number was supposed to be 2270. Please make the appropriate adjustments to update the ZDATA files and re-run the model.** **For the 1st Sufficiency please re-submit all revised model files, including outputs and scripts required to review and reproduce the analysis.** ***Applicant Response:*** *The development program and phase years for this submission have changed. All ZDATA files were updated accordingly and are included with this submission.* *According to the ITE Trip Generation Report, a school of 970 students attracts 485 service employees. Additionally, with this 2009 submission, office was added to the Phase I development program yielding a net of 594 service employees.* *The updated development program which includes 300 single family dwelling units corresponds to the single family population of 750.* **FDOT 1st Sufficiency Response: The ZDATA for the service employees (594 v 589) and school enrollment (970 v 950) differ between those listed on page 21-13 and the model files. Please revise the model accordingly.** ***Applicant Response:*** *The zdata was changed and model rerun to reflect 970 student enrollment at the school.*

			FDOT 2nd Sufficiency Response: No further comment. ***Applicant Response:*** This comment was addressed in the previous submittal. No further action has been taken.
12	**Tables 21-E.1 and 21-E.3**	**K and D Factors Future Conditions Analysis**	**Original Comment: Please add two columns to Table 21-E.1 and 21-E.3 to show the "K" and "D" factors used in the calculation of the PM peak hour background volumes. Please also add a column to both tables that identifies the trip distribution percentage assigned to each roadway segment.** **Please note that for all FDOT facilities, the future conditions analysis must follow the guidance in the 2002 Quality/LOS Handbook regarding the use of minimum values for K100 (Page 67, Table 3-4), the use of a minimum D factor of 0.52 (Page 67) and the use of a maximum PHF of 0.95 (Page 68). The current analysis presented in the ADA analysis does not use minimum K&D factors.** ***Applicant Response:*** *Columns for "K", "D", and the trip distribution percentage were added to Tables 21-E.1 and 21-E.3.* *The minimum values of "K" and "D" were used on all segments except for those along US 192. All future intersection analyses were adjusted to include a maximum PHF value of 0.95.* **FDOT 1st Sufficiency Response: The "K" and "D" factors on US 192 must follow the guidance in the 2009 Quality/LOS Handbook regarding the use of minimum values to represent 100th highest hour conditions. The use of minimum K and D values is consistent with FDOT requirements for all other DRIs and projects along US 192, including all of the DRIs recently approved along the east side of Lake Toho. Please revise the US 192 segment analysis accordingly.** **FDOT also has concerns with the D-factors that are being applied in the analysis along US 192. In particular, the use of various count years and count sources is resulting in extreme variations in the D-factor between some adjacent segments. For example, the segment of US 192 from Mississippi to Narcoossee is shown to have a D factor of 0.52. However, both the upstream and downstream segments are shown to have a D factor of 0.57. Please revise the D factor being applied to the segment from Mississippi to Narcoossee to provide greater consistency with the adjacent segments. Likewise, the remainder of the data should be reviewed for reasonableness to verify that the D factors being applied are appropriate.**

			Applicant Response: *The "K" and "D" factors used in the analysis are consistent with those shown in the Osceola County Concurrency Management Database and with the actual conditions that exist on the area roadway network. We recognize that the Department prefers to use a "planning level" minimum "K" factor but in some cases, the minimum is not realistic with the current or expected conditions on facilities. Where there are significant differences between the actual and the "default" factor, it should be considered reasonable to apply the actual "K" factor from documented sources to conduct the analysis. Otherwise, impacts can often be overstated.* *It is not correct to indicate that "all" other DRI's have consistently used the minimum "K" and "D" factors. For example, the approved methodology for the World Gateway DRI traffic analysis included the use of "K" factors for US 192 that are less than the minimum and based on documented data from Osceola County. Additionally, the Star Island DRI, now having received approval for the proposed mitigation plan for its impacts used alternate "K" factors for the analysis and those were also based on County data and for US 192. Also, the Green Island DRI (one of the 5 Lake Toho projects referenced by the Department) utilized "K" factors well below the minimum for US 192. This project was approved by the Department and as one suggested as an example, confirms that acceptability of using a documented "K" factor over a policy minimum.* *Because the DRI process requires the evaluation of all "regionally significant" roadways within the study area, the analysis necessarily includes the analysis for non-State facilities as well. Use of the documented "K" and "D" factors from the local database is the common practice for those roadways and the accepted approach by the host community. Use of a "minimum" factor that is not supported by years of documented conditions would not be consistent with those evaluations.* *Therefore, we believe that the use of the documented data is the more valid approach.* **FDOT 2nd Sufficiency Response: The use of minimum K100 and D100 factors in the analysis have been clearly requested by FDOT on the Center Lake DRI project since methodology. The use of minimum values is requested of all DRI analyses to reflect demand conditions under future forecast traffic scenarios. Given the significant amount of approved development traffic from the Lake Toho DRIs, Harmony DRI, and other projects in the area, FDOT feels that the use of minimum K-factors is appropriate for US 192 in the St. Cloud area.**

			It should be recognized the K-values provided to Osceola County Roadway Network Database do not match the values from FDOT's annual traffic counts (even for the data where FDOT is referenced as the source). Rather, the K-factors shown in the Osceola County database appear to be a simple peak-to-daily ratio based upon a one-day count off of the FDOT synopsis reports. For State roadways, the level of service standards are based upon the 100th highest volume hour of the year and therefore a K100 value needs to be utilized in the analysis rather than an unadjusted peak-to-daily ratio. Therefore, FDOT continues to request that the analysis of all state facilities be updated to use minimum K100 and D100 factors as previously requested. **The specific circumstances of the World Gateway DRI are not known to this reviewer; however, the use of minimum K and D factors is a standard part of the DRI methodology process in FDOT District 5. The applicant is incorrect on the use of lower K and D values on the Green Island and Star Island projects. For Green Island, the analyses (and final recommendations developed by FDOT) were based upon the use minimum K100 factors. On Star Island, the FDOT never agreed to the use of K100 factors lower than the minimums. Based upon an independent analysis by FDOT, it was identified that the conclusions of the analysis would not have changed if minimum K100 factors were applied and therefore FDOT agreed to move beyond the issue for the Star Island project. However, this should not be misconstrued as acceptance of the use of K100 factors or as a precedent for use on future projects.** ***Applicant Response:*** As it is impossible to predict future K and D factors, it seems reasonable to base the analysis on historic K and D factors rather than on state-wide arbitrarily assigned minimums. We do not agree that this site, specifically the corridor along US 192, will exhibit traffic patterns of a predominately residential and non-tourist region and therefore the K&D factors will not approach the minimum FDOT values. It can be argued that volumes continue to increase on primary arterials such as US 192, the peak periods of traffic congestion will be longer, resulting in lower K- factors. However, although we do not agree with FDOT's minimum K&D practices, we updated the roadway segments using the updated 2009 FDOT AADT volumes and the K100 factors. As a result, no external roadway segments will be significant and adverse during Phase I. Table 21-A.2 (b), Table 21-E.1 (b), and Table 21-E.3 (b) include updated 2009 AADTs, K100 factors, and D100 factors for all FDOT roadway segments. These tables can be found in Section B of Exhibit 6. With the inclusion on these tables in this submittal, although no agreement was reached concerning use of minimum K100 and D factors, it can be agreed that there are no external roadway segments which will be significant and adverse at the conclusion of Phase I buildout.

			Table 21-A.2 (a), Table 21-E.1 (a), and Table 21-E.3 (a) also uses the updated 2009 AADT values from FDOT's online traffic information but includes the K100 and D factors from the Osceola County Roadway Network Database as in previous submittals. These tables were also submitted as Section A of Exhibit 6 to indicate the applicant's belief that the K100 and D factors from the Osceola County Roadway Network Database are more accurate in terms of current traffic conditions.
13	Tables 21-E.1 and 21-E.3	Future Daily Direction Traffic Volumes	**Original Comment: The background traffic volumes shown in future year segment analyses indicate a 10% to 15% decreases in traffic volume on several segments of US 192. Based upon Table 21.E-1 and 21.E-3 it appears that only model growth rates were considered in the analysis (i.e. the actual 2013 model volumes were used in the analysis instead of using existing counts grown by the appropriate model or historical growth factor). The growth rate calculations shown in Appendix E indicate that historical growth rates were supposed to be used for most of the US 192 segments to ensure that a minimum of 2% annual growth is used in the analysis per the methodology. Please revise all future year background traffic volumes such that the traffic volume growth corresponds to the rates indicated in Appendix E.** ***Applicant Response:*** *We can find no instances in which the background traffic volumes in future year segment analyses indicated a decrease in traffic volumes. For every segment of the roadway segment analysis, a minimum 2% annual growth rate was assumed.* **FDOT 1st Sufficiency Response: The FDOT concern regarding the applied growth background growth rates appears to have been addressed through the revision of Tables 21.E-1 and 21.E-3. No further comment.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken*
14	Tables 21-E.1 and 21-E.3	Future Peak Hour Direction Traffic Volumes	**Tables 21-E.1 and 21-E.3 – Future Peak Hour Direction Traffic Volumes - Original Comment: There appears to be some errors in the volume calculations within Tables 21-E.1 and 21-E.3 between the AADT and the calculated peak-hour/peak-direction volumes. An example location is the segment of Narcoossee Rd from 10th St to Rummel Rd. The Peak Hour, Peak Direction identified in the Table 21-E.1 is only 974 trips for an AADT is 43,441. Utilizing the FDOT minimum K and D factors the Peak Hour Peak Direction Volume should be 2,033. Please review all of the background volume calculations within the future conditions segment tables and make the necessary corrections.**

			Applicant Response: *In the example provided, the AADT of 43,441 is the model background daily volume. This number is the daily volume, as predicted by the model, multiplied by the model conversion factor. The '2013 Background Volume' column was calculated using the 'Existing Background AADTs' grown by the 'Annual Growth Rate.' The annual growth rates are in Appendix F.* **FDOT 1st Sufficiency Response: The example presented was based on the volumes as presented in Tables 21-E.1 and 21-E.3. FDOT notes that these tables have been revised and the original comment appears to have been addressed. As noted in previous comments, the use of minimum "K" and "D" factors is necessary for all scenarios on US 192 and the rest of the study network. No further response to this comment is necessary.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*
15	**N/A**	**Intersection Analysis**	**Original Comment: Given that other comments regarding trip distribution, pass-by volumes, and development of future intersection volumes will all have an impact on the intersection analysis - the FDOT will defer specific comments on the intersection impacts to the revised analysis at 1st Sufficiency. However, the following general comments were identified regarding the intersection analyses:** • **A maximum peak hour factor of 0.95 should be used for all intersections per the Q/LOS Handbook (page 68).** ***Applicant Response:*** *A maximum peak hour factor of 0.95 was used for all future intersection analyses.* • **Heavy vehicles and pedestrians should be included for all intersections in the analysis.** ***Applicant Response:*** *Heavy vehicles and pedestrians, as observed, were included in the HCS analyses.* • **Existing signal timings and phasing (based upon data from the maintaining agency, i.e. the actual signal timing sheets) shall be utilized under future conditions. If adjustments to the intersection timings or phasing are needed under the 2013 volume scenario, then an additional evaluation will be required to show the operations under the "improved" conditions. The project will be required to fund any proposed changes to signal timings or phasing as part of their mitigation.**

			Applicant Response: *The signal timings and phasing used in the intersection analyses are based on field observations which were collected over several cycles during peak hours. Because most signalized intersections analyzed are semi-actuated, it is appropriate to alter signal timings slightly to account for higher traffic volumes in future year analyses.* **FDOT 1st Sufficiency Response: Please see comment 15a regarding additional information on input of signal timing for HCS analysis.** • **All revisions to timing and phasing (for the purposes of mitigation) assumed in the analyses along FDOT facilities, including US 192, must be consistent with FDOT policies as well as the context of the surrounding roadway system. Odd cycle lengths, such as 98 or 157 seconds are generally not used and would be only applicable under fully actuated (and non-coordinated) operations. Along US 192, the signal operations are presumed to be coordinated with a common cycle length during the p.m. peak hour.** ***Applicant Response:*** *Signal phasing plans and cycle lengths provided by the counties are now included in Appendix L. The future HCS analyses were revised to reflect the cycle length provided by the counties.* **FDOT 1st Sufficiency Response: Please see comment 15a regarding additional information on input of signal timing for HCS analysis.** • **Arrival type 3 should be used for all exclusive turn lanes (since higher arrival types reflect improved platoon quality which is not applicable for the turn movements). Only the coordinated through lane groups (for example, the through movements along US 192) would have arrival types of 4.** ***Applicant Response:*** *The arrival type for exclusive turn lanes was changed to 3.* **FDOT 1st Sufficiency Response: No further comment on arrival type.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*

15a	N/A	Intersection Analysis	**Original Comment: Within coordinated signal systems, intersection cycle lengths should be consistent – even with actuated control. Please verify the signal cycle lengths being used based upon the time of day plans from the maintaining agency for any coordinated facilities. Actual signal timings from the maintaining agencies shall be used in the analysis and must be provided for review. Field measured timings may be shown for comparison, but should not be the primary source of timing data for the analysis.** **Please revise the existing conditions analysis and future conditions analysis to reflect the comments above. Table 21-A.3 (summary of 2008 LOS) will require updating to reflect any changes to the existing conditions analysis.** ***Applicant Response:*** *The signal cycle lengths were verified and the analyses were changed to reflect actual signal timings from the maintaining agencies. Copies of the actual signal timings from maintaining agencies are included in Appendix L.* *The existing and future conditions analyses were changed to reflect the comments. Table 21-A.3, Table 21-E.2, and Table 21-F.1 were changed to reflect the updated analyses.* **FDOT 1st Sufficiency Response: It is the preference of FDOT that intersection analysis is conducted using the maintaining agency's signal timing plans. It is understood that full actuated signals will have varying cycle lengths and green times. These intersections should be observed and a reasonable consistent signal timing be used based on the peak hour observations and cross-referenced to be within reason for the full actuated signal timings.** **For intersections with semi or fully actuated signals, the timing plans should be used as is. For semi-actuated signals, up to 4 seconds of green time may be moved from a minor street movement(s) to the mainline at the discretion of the analyst based on peak hour averages throughout the state. This accounts for early return to green on the coordinated mainline. While this variation in green times does fluctuate cycle by cycle based on traffic demand, in most coordinated systems mainline through movement splits can only increase by using side street green time. Green time of less than that shown in the timing plans should not be used. For any observed instance where the applicant feels the provided Osceola signal timings and associate green times are not representative of field conditions, please provide justification for using differing signal timing.** **For HCS analysis purposes, the through movements for semi-actuated signal should be analyzed as Protected, not Actuated. Please adjust the intersection analysis.**

			Please also verify that all intersection analysis reflect the yellow and all red times. FDOT reviewers noted a couple of locations, including US 192 at Kissimmee Park Road, US 192 at Pine Grove and US 192 at Narcoossee where the all-red time was omitted for some phases. Please note that where signal timing incorporates lead/lag left turn phasing, HCS will only apply the yellow and all-red time to the ending left-turn phase that ends and will appropriately apply the identified yellow and all-red time to the green phase for a through movement that continues into the next phase. The applicant may follow-up with FDOT reviewers if additional clarification is need on this topic. ***Applicant Response:*** *For semi- or fully actuated signals, the green times may vary based on the signal timing plans, not just with a variance of 4 seconds. The min and max greens represent the range of green times for the signal operation and the signal should be timed to provide for more efficient operations given the turning movement volumes. Overall cycle lengths are still observed.* *It is unclear why the through movements for semi-actuated signals should be coded as protected. If inductive loop detectors are present for the approach, then that lane group is actuated.* *HCS does not allow for 2-ring signal analysis like Synchro does. Therefore, overlap phases cannot be programmed accurately in HCS. Rather, the all-red phase for those movements are not shown and provide an accurate representation of a 2-ring signal phasing.* **FDOT 2nd Sufficiency Response: FDOT continues to have some concerns about how the signal timing is implemented in HCS for signals within the coordinated system along US 192. However, based upon a review of the significantly impacted intersections, it does not appear that additional refinement to the analysis will change the conclusions. Therefore, no further response to this comment is necessary.** ***Applicant Response:*** Comment noted. No further action has been taken.
16	**Table 21-F.1**	**Intersection Significance**	**Original Comment: Per the ECFRPC methodology, intersection significance is tested for each individual lane group at the intersection based upon a 5% of the lane group capacity (from an HCS analysis of existing conditions). The analysis presented by the applicant in Table 21-F.1 shows only the "adverse approach". Please expand the significance test to show project significance for each of the individual lane groups, such that the projects impact to each of the study intersections is more transparent.**

			Applicant Response: *Table 21-F.1 was revised to include the tests for adversity and intersection significance for intersections that contain both significant and adverse movements. An expanded version of this table which contains all study intersections is included in Appendix N.* **Additionally, project significance on unsignalized intersections cannot be determined using the ECFRPC methodology. A follow-up meeting with FDOT to discuss the calculation of project significance is recommended to make sure that all parties have a common understanding of how the intersection significance will be calculated.** **Applicant Response:** *Noted.* **FDOT 1st Sufficiency Response: No further comment.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*
17	**Table 21-F.1 and HCS Analysis**	**Intersections Analysis**	**Original Comment: In the summary of Intersection Significance in Table 21-F.1, US 192 at Pine Grove shows only the NB approach, which has no approach trips assigned to it. However the SB approach, which is carrying a significant number of project trips, is over-capacity with a LOS "F". Please revise the table to accurately reflect the project impacts.** ***Applicant Response:*** *The revised Table 21-F.1 now includes intersections which contain both significant and adverse movements. All intersection movements are shown in the table in Appendix N.* **For the evaluation of the signalized alternative at this intersection, the left-turn phasing for the mainline should be protected only and should utilize a reasonable cycle length that is consistent with FDOT policies and the upstream system in St. Cloud. A ninety second cycle length would be too short on US 192 in this area based upon feedback from FDOT traffic operations.** ***Applicant Response:*** *The eastbound and westbound left turns are protected only. The geometry of the northbound and southbound legs does allow for the permissive left movement. The cycle length for this intersection was increased to 100 seconds. This intersection would not become a part of a coordinated system as US 192/ CR 15, the nearest signalized intersection, is also not a part of a coordinated system.* **FDOT 1st Sufficiency Response: No further comment.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*

18	Table 21-F.2	Intersections Analysis	**Original Comment: In Table 21-F2, it is identified that signalization may be needed due to this project at US 192/Nova Road. The analysis should also evaluate the need for a second EB left turn lane and second receiving lane given that the project traffic will bring this movement to over 400 vehicles per hour. Any changes to the cycle length for future traffic conditions must utilize a reasonably cycle length that is consistent with FDOT policies and the upstream system in St. Cloud. A ninety second cycle length would be too short on US 192 in this area based upon feedback from FDOT traffic operations.** ***Applicant Response:*** *Per the updated trip generation and phase years, US 192/ Nova Rd. no longer requires a signal as a result of this project.* **FDOT 1st Sufficiency Response: FDOT is concerned that the trip distribution/assignment to the site may be underestimating the project's impact to the intersection of US 192/Nova Road due to a heavy assignment of trips to access points on Narcoossee Road. The trip assignment places only 22 inbound trips and 21 outbound trips traveling through the US 192/Nova Road intersection during the pm peak hour. Please review the trip assignment to this intersection and verify that the existing two-way stop control will adequately accommodate Phase 1 project traffic.** ***Applicant Response:*** *We believe that the model output for the future phase years is reasonable. In Phase 1, the project distribution to Nova Road is 21.16%. In Phase 2, the distribution to Nova Road is 23.94%. No further adjustments were made to increase these percentages.* **FDOT 2nd Sufficiency Response: It is acknowledged that slightly over 20% of the project trips are being assigned to the Nova Road site access; however, of those trips approximately 5.6% are being immediately dropped into TAZ 1095 and approximately 11.85% are then routed to US 192 via Pine Grove Road rather than Nova Road. The distribution through the study intersection ends up being reduces down 1.6%. FDOT had expected that their might be a higher percentage routed up Nova Road (given that it is one of the primary site access points) rather than sending nearly 80% of the trips through the site access on Narcoossee Road or up Pine Grove Road. In particular, given that there is a pod of residential homes immediately adjacent to Nova Road at the site access, it seems reasonable that Nova Road would be their most likely way in/out of the site for those homes. This would suggest a higher percentage using the intersection of Nova Road/US 192 since these trips will not just be traveling between Center Lake and Harmony.**

			Based upon a review of the two-way stop control analysis, there appears to be sufficient spare capacity for the major road (eastbound US 192) left-turn to be able to accommodate a higher percentage of site traffic without that movement operating adversely. However, additional left-turn demand would further decrease available capacity for the minor street left-turn and would hasten the need for a signal at this location. Given that the analysis is already showing the minor street failing, FDOT remains concerned about potential operations at this intersection. Please coordinate a meeting with FDOT planning staff to discuss impacts to this intersection. ***Applicant Response:*** The submitted project traffic distribution represents the output from the approved regional model. This model was only modified as appropriate to include the proposed project development and other significant projects identified in the approved methodology. The actual project traffic distribution will be determined at the Phase I buildout as part of the M&M process using data collected on traffic orientation. Upon completing the monitoring and modeling state, the applicant will coordinate with the agencies to negotiate an acceptable localized distribution.
19	**36**	**Transportation Improvements**	**Original Comment: The proposed transportation improvement at the intersection Ralph Miller Road / Narcoossee Road would place a signal approximately 300 ft from the existing signal at Rummel Road / Narcoossee Road. Additional coordination is required with the reviewing agencies regarding the applicability of signal spacing standards or to evaluate opportunities for intersection re-alignment. At a minimum, additional analysis is required to evaluate the potential interaction between these two signals – particularly related to queue storage.** ***Applicant Response:*** *Ralph Miller will be realigned to connect to with Rummel Road and all future intersection analyses have been analyzed with this assumption.* **FDOT 1st Sufficiency Response: If Ralph Miller Rd. will be re-aligned by 2015, then FDOT has no further comment.** ***Applicant Response:*** *Ralph Miller Road will be realigned to the existing Rummel Road intersection as part of the Phase 1 improvements. A copy of the draft agreement currently being negotiated with the County is attached (Exhibit 4).*
20	**21-5**	**Future Service Volume**	**Original Comment: Two new signals currently are proposed along US 192 (east of Narcoossee) as mitigation for Phase 1. The addition of these signals is likely to change the character of the roadway from Uninterrupted flow to an Arterial classification. This will result in a reduction in the service volumes on those segments and will need to be taken into consideration for future Phase 2 analyses.**

			Applicant Response: *Per the updated trip generation and phase years, only one signal is proposed along US 192 east of Narcoossee. The predicted future volumes for the roadway segments adjacent to the intersection at US 192/ Pine Grove will operate well under the existing service volume. It is not likely that the addition of this signal will cause the surrounding roadway segments to operate adversely.* **FDOT 1st Sufficiency Response: The future year 2020 segment analysis for US 192 between Narcoossee Rd. and Pine Grove Rd. should be based on a service volume of a 4 lane divided class 1 arterial. Please update this service volume on each future analysis table.** ***Applicant Response:*** *The service volume used for the segment of US 192 between Narcoossee and Pine Grove Road was taken from the Osceola County roadway network database and classifies the roadway as an uninterrupted flow highway. The service volume of 3,230 is correct for a 4-lane facility.* **FDOT 2nd Sufficiency Response: Per Comment 18, FDOT remains concerned that the analysis may be under-estimating the project impact to US 192/Nova Road intersection and that a signal may be needed at that location. Previous analysis indicated that an additional signal may also be needed at US 192/Pine Grove Road. Two additional signals along US 192 between Narcoossee Road and Pine Grove Road would change the character of the roadway into more of an arterial facility.** **FDOT was only requesting the change in service volume for the future Phase 2 conditions. Therefore, this will not affect the conclusions of the Phase 1 analysis. FDOT will recommend that this segment of US 192 be required to be studied as part of the Phase 2 M&M and the correct roadway class can be re-evaluated at that time. No further response is required at this time.** ***Applicant Response:*** The submitted project traffic distribution represents the output from the approved regional model. This model was only modified as appropriate to include the proposed project development. The actual project traffic distribution will be determined at the Phase I buildout during the monitoring and modeling stage. Upon completing the monitoring and modeling state, the applicant will coordinate with the agencies to negotiate an acceptable localized distribution, specifically concerning the intersection at US 192 and Pine Grove. The service volumes in Table 21-E.3 (b), the Phase 2 roadway segment table were updated accordingly to reflect a Class I four lane arterial. This table can be found in Section B of Exhibit 6.

21	Page 12 of ADA, Q1 Part 1	Pedestrian and Bicycle Facilities	**Original Comment: Under Question 1 of the ADA, the Center Lake DRI is identified as a "sustainable community" that will be "a seamless, walk-able community…" and that "All roads, paths and trails feed the Community Center…" Furthermore, as a wetland development on isolated uplands it will be, "linked to one another by a linear park along a tree lined connecting boulevard that includes a meandering pedestrian and bike trail network."** **FDOT will recommend that the development order recognize the DRI's commitment to bicycle/ pedestrian facilities and contain a condition requiring design guidelines for the pedestrian and bicycle facilities that would include requirements/ recognition for connections to external or adjacent bicycle/pedestrian facilities (including bike networks identified in the Osceola County Comprehensive plan). The design guidelines should also consider the use of canopies and shade trees along bicycle and pedestrian facilities, as well as provisions for bicycle parking at the village center, school and park sites. The development order should require commitments for the development to provide adequate bicycle parking facilities at the Community Center, elementary school, and at the parks or other potential trip generators within the community.** ***Applicant Response:*** *Noted.* **FDOT 1st Sufficiency Response: No further comment.** ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken.*
22		Multimodal Considerations	**Original Comment: The current DRI plan mentions an internal system of roadways, sidewalks and bicycle facilities for the purpose of reducing traffic impacts to surrounding facilities. These options are very limited in terms of providing more viable means of transportation other than the automobile. In order to provide consistency with the Comprehensive Plan goals of providing for multi-modal opportunities for new development, the developer should coordinate with LYNX to determine whether opportunities are available for providing transit service to the proposed DRI. Pedestrian and bicycle pathways should provide easy access to a bus transportation system.** ***Applicant Response:*** *The analysis was conducted such that it does not apply a trip reduction factor for bicycle and pedestrian facilities or for public transportation. Coordination with LYNX will occur when public transportation is implemented in this area of the county and an appropriate trip reduction factor will be applied in future analyses.*

			FDOT 1st Sufficiency Response: No further comment. ***Applicant Response:*** *This comment was addressed in the previous submittal. No further action has been taken*
23	**21-24**	**Distribution/ Modeling**	**NEW 1st Sufficiency Comment: FDOT is concerned with the short attenuation of project trips that is being applied. The model files provided by the applicant show that approximately 69% of the project's traffic is attenuated within a 4-mile radius of the site. Of the 40% of site generated traffic that travels beyond the 4-mile radius – over half of that traffic is shown to use Narcoossee Rd. towards SR 417. Please review the project attenuation versus average trip lengths for Osceola County.** **Please also verify that major regional attractors and all approved DRI's listed in the methodology document are included in the analysis. Based upon a review of the model files, it appears that some of the DRIs (such as Lake Nona and those in the Lake Toho area) have not been included in the modeling and may be affecting the trip distribution and trip lengths. The FDOT expects that all the approved developments listed in the methodology will be included in the modeling.** ***Applicant Response:*** *We recognize the results of the model that show 60% of the traffic is attenuated within 4 miles of the project site. Given the limited regional facilities in this area for northbound project trips to distribute on, the project distribution on Narcoossee appears reasonable.* *The approved methodology included as Appendix A lists the regional projects that were included in the model run.* **FDOT 2nd Sufficiency Response: Just as there are limited regional facilities in the area, there are also limited regional attractors in the area. Given that Center Lake DRI project is a heavily residential project, we would expect attractors such as Lake Nona or to major regional roadway facilities such as SR 417 or the Florida Turnpike. In particular, the trip distribution shows less than 7% of the project trips being captured by the Lake Nona employment center. Meanwhile, over 9% of the project trips are being captured by the Harmony DRI (which is also primarily residential development) and almost 10% of the project trips are being capture on the east side of Narcoossee Road, immediately north of the project site.** **A meeting between the applicant, FDOT, and the County is recommended to be able to review this issue and identify whether changes to the trip distribution would have any impact on the conditions of the Phase 1 analysis.**

			Applicant Response: The Phase II distribution will be re-examined during the monitoring and modeling stage. An origin-destination survey will be performed and will determine if there are longer trip lengths and if project traffic is indeed a larger percentage of project traffic attracted to areas such as Lake Nona. No changes to the distribution have been made at this time.
24	**Appendix E, Figures 1 and 2**	**Distribution/ Modeling**	**NEW 1st Sufficiency Comment: Please verify the accuracy of the ZDATA, particularly related to employment, for the TAZ 1093 as shown in Appendix Figures E-1, and E-2.** **The TAZ 1093 includes all the area on the north and east sides of East Lake Toho (up to Boggy Creek Rd on the north and Narcoossee Rd on the east). This large TAZ is represented in the model with two connectors – both of which are located in the vicinity of Jones Road. This connector location is not representative of the overall TAZ access and is likely misrepresenting impacts along Narcoossee and Boggy Creek Roads. Due to the current connector placement, approximately 10% of the Center Lake DRI traffic is being attenuated to this TAZ via a connector to the south of Jones Rd. This appears unreasonable given that this location serves only a small subdivision. In addition, the ZDATA in the applicant's model files includes an employment of roughly 4200 for TAZ 1093. This employment appears to have been added by the applicant; however, it is unclear where the employment numbers were derived. Please provide additional information regarding any changes made to the ZDATA for this or other TAZ's.** **Please verify any changes to the employment for TAZ 1093. In addition, please make any necessary adjustments to the TAZ connectors to better represent the assignment of Center Lake project trips to the residential, commercial, or employment activities within the TAZ.** ***Applicant Response:*** *No adjustments in zdata were made to TAZ 1093. Zdata for this TAZ was derived from interpolating the project phase years from the adopted model year sets.* **FDOT 2nd Sufficiency Response: Per the original comment, some of the TAZ zdata and the locations of the connectors are not providing an accurate picture of project trips at the local level. This is where engineering judgment must be used to provide reasonable results. For the example of TAZ 1093, the original comment describes how the TAZ represents a large area and that most of the land uses severed within that TAZ would be required to travel farther up Narcoossee Road rather than all be attenuated on the west side of Narcoossee Road the vicinity of the Jones Road intersection. This could result in additional**

			impacts at the intersection of Narcoossee Road/Boggy Creek Road. Given that these are County facilities, FDOT will defer to the County on whether or not they would like for this issue to be explored further. FDOT does not require any further response to this comment. ***Applicant Response:*** This comment was noted. A more accurate understanding of project traffic origins and destinations will be developed during the M&M stage.
25	**Appendix E, Figures 1 and 2**	**Distribution/ Modeling**	**NEW 1st Sufficiency Comment: Please verify that the access to the site will be available in the first phase to Narcoossee Road and Jones Rd. It appears that these connections require access across properties not owned by the applicant. Therefore, FDOT requests additional information on the arrangements that have been made to facilitate access across these parcels.** **Currently, the analysis for Phase 1 includes all "potential connections" for purposes of trip distribution and assignment. If these connections will not be in place during Phase 1, please remove the connections from the model and redistribute the site traffic to the existing connection points to better represent the actual site access configuration for each individual phase.** ***Applicant Response:*** *Center Lake DRI will extend to Narcoossee Road and connect with the existing Rummel Road intersection. Attached is a draft agreement currently being negotiated with Osceola County for realignment (Exhibit 4). The property owner also has ingress/egress rights to the property through an easement connecting to Jones Road. The connection to Jones Road is part of the County's Northeast District Conceptual Master Plan, which was approved for transmittal by the Board of County Commissioners on April 19, 2010. All other potential connections have been shown by the applicant to illustrate compliance with FLUE Policy 1.3.12: Mixed Use design characteristics that requires among other characteristics; "… a well connected street system…" and; "…a network of interconnected streets…". The applicant assumes no responsibility to enforce such policies on any properties outside the boundaries of this DRI. It is the responsibility of Osceola County to enforce the connectivity issue on development plans for adjacent parcels. The applicant acknowledges that Osceola County has already required such potential access to Jones Road by the approval for transmittal of the Conceptual Master Plan for the Northeast District (Mixed Use District 8).* **FDOT 2nd Sufficiency Response: It is recognized that access to Jones Road through properties outside the DRI may not be possible even in Phase 2. However, given that these "potential connections" are only included in the future Phase 2 analyses, FDOT does not require any further response to this comment.**

			FDOT will recommend that all access connections should be re-evaluated at the Phase 2 M&M. In addition, FDOT will recommend that the development order specifically include a condition requiring access for the project to Narcoossee Road (as is planned in the agreement provided by the applicant). Should the agreement fall through for some reason, the projects impacts would need to be re-evaluated given nearly 80% of the project traffic is assumed to access the DRI via Narcoossee Road. ***Applicant Response:*** Comment noted. No further action has been taken.
26	**Appendix F**	**Growth Rates**	**NEW 1st Sufficiency Comment: On sections of Narcoossee Road and US 192 (east of Mississippi Ave.) the model growth rate is showing growth to be in excess of 10% a year. Along both roadways, the analysis has generally utilized historical growth instead of considering the higher model growth rates.** **For US 192, there are a large number of DRI projects that have been approved within the vicinity of St. Cloud (including Harmony and the Lake Toho DRIs). Vested trips from these DRIs are not included in the historical growth patterns and the model growth rates appear to be better reflecting the inclusion of the approved DRI traffic. Please revise to use the model growth rates unless sufficient justification can be provided to verify that the historical growth is reasonable.** **For Narcoossee Road, the widening of the roadway will provide a high capacity direct link to SR 417, which will become an attractive route. In addition the change in character and capacity from the roadway widening may invalidate the historical growth rates due to prior limitations on capacity and corresponding operating speeds. Please review and revise the growth rates being applied to Narcoossee and provide additional justification for the growth rates that are being applied.** ***Applicant Response:*** *First, it must be considered that the methodology approved for the Center Lake DRI did not require the application of model growth rates if they were determined to be significantly inconsistent with historic trends. Second, the use of model growth rates is based on an interpolation of the land use and associated socio-economic factors that are included in the model. The model is therefore, a reflection of what may occur in any given year if the horizon year future land use actually comes to fruition. In many cases, the land use data in the models reflect the adopted condition, not the actual built or reasonable future year built condition. For example, land that has an "approval" for 4 units per acre in many cases has less than 3 units per acre constructed, and that ratio will not change in the foreseeable future. The same*

			applies to commercial/retail projects were entitlements are incorporated into the model but the full scale of the development is substantially less when constructed. Additionally, it is recognized in the development industry and by the Department that many "approved" DRI's never reach the full level of their approved development program. Common acceptance is that the actual built portions are between 70 and 75%. This would also result in an overstatement of the "growth" forecast from the model. *Finally, current and future conditions for growth are a direct result of the economic conditions within the region. Approval of development is not necessarily an indicator of future growth. The national recession we are involved in has been documented to have hit central Florida as hard or harder than almost anywhere else in the county. Information and findings from the top local economists (Dr. Sean Snaith, University of Central Florida and Henry "Hank" Fishkind, Fishkind and Associates) are on record indicating that Florida will not likely ever again see the growth that has been experienced in the past. In fact, recent years have shown the first "decline" in population for Florida in the last century. Additionally, there exists a substantial "reserve" of residential and a saturation of commercial/retail properties that will serve the near-term demand, postponing or "pushing" the completion of approved but undeveloped projects into the future and creating a "flat" or as some refer to it a "gravy boat" curve representing the future growth trend.* *All of these factors considered the approved land use and associated background traffic forecasts from the model cannot be assumed to be more accurate than historic trend, and if corrected to reflect the economic factors that are real, may actually show less growth then the historic trend. When you compare the forecasts for US 192 that are shown in the NED for 2025, to those shown in 2020 for the Center Lake ADA, the DRI forecasts are over 4,700 daily trips higher for a period 5 years prior. This is certainly an indication that the estimates made using the approved methodology are not indicating unreasonably low growth.* *Therefore, we believe that the information provided and used in the analyses is valid for conduct of the study.* **FDOT 2nd Sufficiency Response: FDOT recognizes that economic conditions over the near term have resulted in limited growth, particularly as new development activity has been stagnant. However, this does not take away the fact that a large amount of development has been approved in the St. Cloud area and remains unbuilt. The use of a simple historical growth rate does not adequately account for this approved development activity over the long-term. In particular, FDOT is concerned that the analysis for the segment of US 192 between Mississippi and Nova Road may still be underestimating the overall system**

			performance as the Lake Toho DRIs, Harmony, and other projects resume development activity. This four-lane section of US 192 has previously been identified as requiring widening, has undergone a PD & E study, and is currently in Final Design for the widening to six-lanes. Additional coordination between the applicant and the FDOT is needed regarding this segment of US 192. ***Applicant Response*:** Should development activity resume, the model growth rates which incorporate the approved developments in the St. Cloud area would be more realistic. However, as the revival of the development market cannot be accurately predicted, the actual growth which occurred during the construction of Phase 1 will be determined during the M&M stage.
27	**N/A**	**Existing Intersection Volumes – Peak Season Adjustment**	**NEW 1st Sufficiency Comment: New intersection counts were collected in November 2009 for the updated 1st Sufficiency analysis. To provide consistency with the segment analysis which evaluates the 100th highest hour, the existing intersections counts should be adjusted for peak season conditions. Please use the appropriate FDOT Peak Season Correction Factor to adjust the existing volumes and update the existing conditions intersection analysis. The peak-season adjusted existing volumes should also be the basis for developing the 2015 background volumes.** ***Applicant Response:*** *The existing volumes were adjusted by 1.03 to reflect the seasonal factor adjustment and the resulting volumes were used in the calculation of the future background volumes. The revised intersection analyses for Phase 1 reflect these.* **FDOT 2nd Sufficiency Response: No intersection volume calculations or other documentation was provided to be able to verify the revised intersection volumes used in the analysis. Given that the trip distribution/assignment was changed as well as the seasonal factor being applied, it is impossible for FDOT reviewers to be able to track/verify how changes in the intersection volumes were made.** **Please submit revised intersection turning movement calculations to allow FDOT reviewers to check the changes that have been made to the analysis.** ***Applicant Response:*** The revised intersection turning movement calculation as shown in the 'Future Background Intersection Turning Movement Volumes' and 'Future Background + Trips' spreadsheets are included with this submittal.

28	21-29 through 21-31	Intersection Volumes	**NEW 1st Sufficiency Comment: The intersection volumes used in the 2015 analysis are consistently much lower than the peak hour direction volumes presented in the segments table. Please adjust the intersection volumes presented in the segments table. Please adjust the intersection volumes to more closely resemble the peak hour peak direction volumes. The application of the peak season correction factor should help to provide better consistency, but additional adjustment may be necessary in some locations.** **It is the request of FDOT that all modifications to the intersection traffic counts be presented in tabular form to allow for tracking of where adjustments were needed. Please include in this table any seasonal adjustments, growth factors, and manual adjustments needed to more closely reflect the segment conditions. This additional data could easily be added to the table in Section H of the transportation appendix.** ***Applicant Response:*** *It is acknowledged that there are discrepancies between the roadway segment volumes and the approach volumes at many of the intersections used in the analysis. The basic process used to generate the future turning movement volumes was to first use the roadway segment approach volumes. If the comparison of the future segment volumes to existing intersection approach volumes yielded unreasonably high annual growth, then historical growth was used. The future intersection volumes are based on the reasonable growth of background traffic compared to actual existing volumes. The future segment volumes are derived from applying a planning minimum K and D factor that produces unreasonably high approach volumes.* **FDOT 2nd Sufficiency Response: Per FDOT's previous comment, we requested that the calculation of intersection volumes be provided to allow FDOT to see seasonal adjustments and growth rates applied, project trips, and any other necessary adjustments.** **FDOT noted a couple of issues with the intersection volumes that prompt us to continue to request to see the more detailed calculations. One example is at CR 15/Jones Road where the westbound minor street volume from Jones Road is similar to what is shown at 1st Sufficiency. With the revised distribution, there should be no project traffic assignment to the westbound approach at Jones Road during Phase 1. From 1st sufficiency, Exhibit 21.E.5-1 showed background volume of 41 vehicles on the westbound approach and a total traffic volume of 139 vehicles. The intersection analysis in the 2nd Sufficiency Response shows 138 vehicles on the westbound approach, which suggests that the project trip volumes have not been addressed on this approach. The operational analysis and identified improvements should be revisited for this intersection.**

			Another example is at the intersection of US 192 at Delaware. The new 2nd Sufficiency volumes shown in the HCS analysis for this intersection show an eastbound through volume of 2538 vehicles for Phase 1. The previous 1st sufficiency response showed volume of 1655 vehicles for the same movement. This is an increase of nearly 900 vehicles between the two analyses. Without seeing more detailed calculations, it is unclear why such a dramatic adjustment to the volumes was made at this location. **Please provide the intersection volume calculations for all study intersections so that FDOT can perform a similar review of the other intersection analyses.** ***Applicant Response:*** The revised intersection turning movement calculation as shown in the 'Future Background Intersection Turning Movement Volumes' and 'Future Background + Trips' spreadsheets are included with this submittal.
29	**21-29 through 21-31**	**Intersection Volumes**	**NEW 1st Sufficiency Comment: There appears to be some inconsistencies between the project trips identified in the segment analysis in Table 21-E.1 and the project trips assigned to the intersections on pages 21-29 through 21-31. Please review the segment and intersection trip assignment for consistency. It is recognized that there will be some variability as trips will be added/subtracted along the length of a segment. However, for the intersection of US 192/Old Hickory, the project trips assigned to this intersection appear to be higher than the trips assigned to the overall segment.** ***Applicant Response:*** *The intersection turning movement volumes and roadway segments have been reanalyzed based on other comments. Revised tables and figures are included with this submittal. Please see Exhibit 13a-13c, attached hereto.* **FDOT 2nd Sufficiency Response: Given that a revised segment analysis was not included in the 2nd sufficiency submittal, FDOT is not able to verify whether the original comment has been addressed. Please provide the revised segment analysis for both the 2015 and 2020 analysis years.** ***Applicant Response:*** The revised roadway segment analyses Tables 21-A.2 (b), 21-E.1 (b), and 21-E.3 (b) were included with this submittal as Section B in Exhibit 6.

30	Appendix I	Intersection Analysis	**NEW 1st Sufficiency Comment: At the intersection of Narcoossee Road and the new re-aligned Ralph Miller Road, please provide additional discussion on why permitted phasing is being used instead of protected left turns. Alternative lane configurations and phase arrangements may provide better operations for the approximately 165 eastbound left turns and 200 westbound left turns anticipated during Phase 1. Protected left-turn phasing should also be considered to serve the 200 southbound left-turning vehicles.** ***Applicant Response:*** *The intersection analysis for this intersection can be adjusted to provide for acceptable levels of service by providing a leading phase for the SB approach and allocating additional time to the E-W approaches. The EB and WB approaches do not require a change to protected phase and there is no need for a change in the lane configurations. Copies of the revised intersection analyses are included in PDF format, Exhibit 14, attached hereto.* **FDOT 2nd Sufficiency Response: Contrary to what is described in the applicant response, the analysis worksheets show that the lane configurations were indeed changed to provide an exclusive left-turn lane on the EB approach per the suggestion in the FDOT original comment. FDOT will defer to the County to coordinate with the applicant on the signal timing that gets implemented at this intersection. No further response to this comment is required.** ***Applicant Response:*** Comment noted. Coordination regarding the analysis of the intersection at CR 15 and the new re-aligned Ralph Miller Road with the County will occur.
31	Appendix J	Intersection Mitigations	**NEW 1st Sufficiency Comment: Additional coordination with FDOT Traffic Operations will be required to review and finalize the mitigation needs once analysis has been updated to reflect other comments regarding distribution and future intersection background traffic volume.** **At the intersection of US 192 and Narcoossee Rd., the use of a southbound overlap phase removes will likely require the removal of the northbound u-turn movement from that intersection. Verification of the u-turn demand and access implications need to be reviewed prior to approval of this mitigation.** **Please provide calculations for the cost of each identified improvement and the projects proportionate share of that cost. Cost estimates for improvements to FDOT facilities should be consistent with FDOT cost estimating practices and should include all items necessary for implementing the improvements**

			including drainage and utility impacts, physical improvements, improvements to existing signals, etc. Any additional ROW required to implement the improvement should also be identified. ***Applicant Response:*** *Costs for mitigating the impacts will be calculated and provided once the needed improvements have been identified.* **FDOT 2nd Sufficiency Response: FDOT requests that the applicant provide cost estimates for all proposed mitigation as requested in the previous round of review. Waiting until after 2nd sufficiency to provide costs limits the ability of the reviewing agencies to provide feedback on the costs which are a key part of the overall mitigation plan and corresponding agreements.** ***Applicant Response:*** Cost estimates for all proposed mitigation are included with this submittal as Section G in Exhibit 6.

Exhibit 1

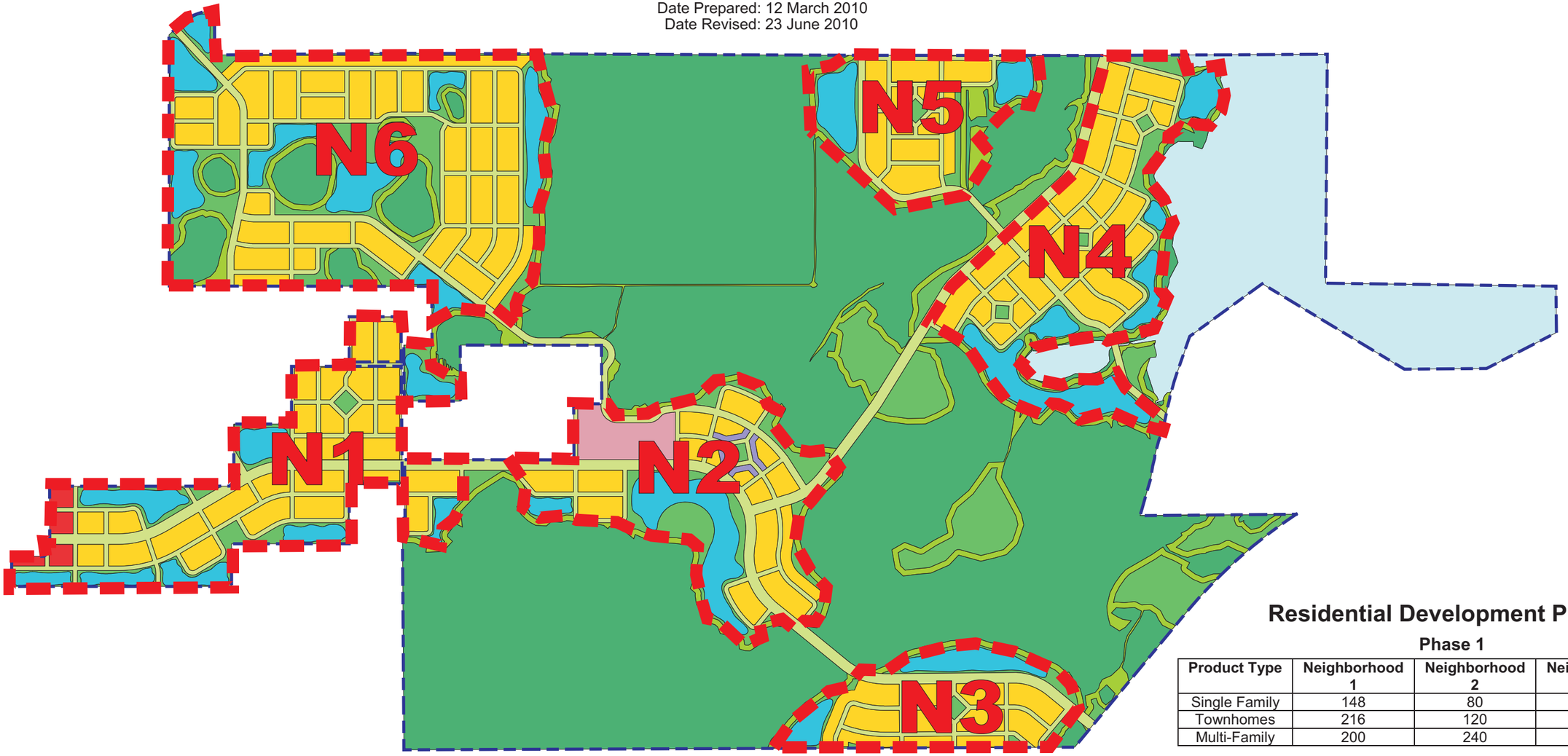
Revised Residential Density Program Exhibit

Center Lake DRI

Sections 27, 28, 29, 33 and 34, Township 25 South, Range 31 East
Osceola County, Florida

Revised Residential Density Program Exhibit

Date Prepared: 12 March 2010
Date Revised: 23 June 2010



Net Residential Density

Neighborhood	Net Residential Area	Single Family Detached	Single Family Attached Townhomes	Multi-Family	Total Residential Units	Net Residential Density
1	65.2 acres	148	216	200	564	8.65 du/ac
2	35.7 acres	80	120	240	440	12.32 du/ac
3	31.6 acres	72	106	0	178	5.63 du/ac
4	61.7 acres	232	311	332	875	14.18 du/ac
5	28.0 acres	110	120	200	430	15.36 du/ac
6	101.9 acres	386	300	200	886	8.69 du/ac
Total	324.1 acres	1028	1173	1172	3373	10.41 du/ac

Note:

This Exhibit has been prepared to evaluate a specific distribution of residential product type so that the proposed density program can be evaluated for compliance with the Osceola County Comprehensive Plan FLUE Policies governing the Mixed Use Districts. The actual development program and product type distribution may vary pending review and approval from Osceola County.

Residential Development Program

Phase 1

Product Type	Neighborhood 1	Neighborhood 2	Neighborhood 3	Total
Single Family	148	80	72	300
Townhomes	216	120	106	442
Multi-Family	200	240	0	440

Phase 2

Product Type	Neighborhood 4	Neighborhood 5	Neighborhood 6	Total
Single Family	232	110	386	728
Townhomes	311	120	300	731
Multi-Family	332	200	200	732

(Approximate)
0 600' 1200'
N

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Exhibit 2

Revised Map H – Concept Plan

Center Lake DRI

Sections 27, 28, 29, 33 and 34, Township 25 South, Range 31 East
Osceola County, Florida

Revised Map H
Concept Plan

Date Revised: 30 March 2010

Jones Rd

(Unpaved) Dirt Portion of Jones Road

Potential Connection

Potential Connection to Jones Rd

Potential Connection to Jones Rd

Sky Wind Court

Starline Drive

Sunlight Court

Narcoossee Rd

Pedestrian / Bicycle Path

Pedestrian / Bicycle Path

Ditch Impacts

Ditch Impacts

Impacted Wetland (W-9)

65' SDL (Safe Development Line)

Lake Center

Impacted Wetland (W-4)

Impacted Wetland (W-11)

Pedestrian / Bicycle Path

Twelve Oaks Road

Impacted Wetland (W-8E)

Impacted Wetland (W-20)

Impacted Wetland (W-11)

Hackney Road

Disston Drive

Hansom Road

Impacted Wetland (W-11)

Impacted Wetland (W-14)

Proposed Vacated R/W

Pedestrian / Bicycle Path

Elementary School

Impacted Wetland (W-18)

Potential Connection

Ralph Miller Road

Impacted Wetland (W-12)

Oak Shore Drive

Rummel Rd

Eagle Nest 660' F

Coon Lake

Harkley Runyan Road

Impacted Wetland (W-18)

Impacted Wetland (W-18)

Pine Grove Road

Potential Connection

Impacted Wetland (W-13)

Pedestrian / Bicycle Path

Impacted Wetland (W-15)

Nova Rd

Potential Connection

Legend

- Wetlands
- Wetland Buffers & Transition Zones
- Community Center
- Neighborhood Center
- Residential
- Elementary School
- Park and Rec Areas
- Water Management
- Framework Roads & Right of Ways
- Lands Below Safe Development Line and Submerged Lands
- Impacted Wetlands
- Pedestrian / Bicycle Path

Note: This plan is a preliminary Concept Plan only. As such, it is subject to modification pending environmental, engineering, and agency review.

(Approximate)

0 1400'

N

WHIDDEN and ASSOCIATES, INC.
LAND PLANNERS AND DEVELOPMENT CONSULTANTS

Exhibit 3

Revised Habitat Management Plan

CENTER LAKE
DEVELOPMENT OF REGIONAL IMPACT

HABITAT MANAGEMENT PLAN

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Prepared by:
Modica & Associates, Inc.
302 Mohawk Rd.
Clermont, FL 34715
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Prepared for:
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102 West Pineloch Street, Suite 10
Orlando, FL 32806-6133

Revised September 2010

CENTER LAKE
DEVELOPMENT OF REGIONAL IMPACT

HABITAT MANAGEMENT PLAN

EXECUTIVE SUMMARY

The Center Lake Development of Regional Impact (DRI) is a proposed mixed-use residential project situated on a 2,012.50-acre property generally located east of Narcoossee Road (SR 15), west of Nova Road (CR 532) and south of Jones Road. The property lies within Sections 27, 28, 29, 32, 33, 34 and 35 of Township 25 South, Range 31 East, in Osceola County, Florida (**Figure 1**). The property is surrounded by varying densities of residential uses, agricultural uses and commercial uses along the Narcoossee corridor.

Lake Center is located along the northeastern boundary of the Center Lake DRI project area. The extensive on-site wetlands are associated with Lake Center, which is part of the Alligator Chain of Lakes. This regional system is part of a "Priority Ecological Greenway" identified by the Florida Greenways and Trails Council that connects to the northeast with the headwaters of the Econlockhatchee River. Preservation and management habitat within this significant area is important for wildlife conservation and for water quality. The Center Lake DRI lies east of East Lake Tohopekaliga. Given the project's close proximity to this lake, this HMP was developed with consideration of the *Summary of Findings and Development Order Recommendations From the Lake Tohopekaliga Environmental Working Group* (Glatting 2006).

In preparation for the DRI review process, Modica & Associates, Inc. conducted numerous surveys throughout the Center Lake DRI property to document the presence of listed plant and wildlife species. Several species-specific surveys were conducted for protected wildlife species. Additionally, the jurisdictional wetland boundaries were established and reviewed by the South Florida Water Management District (SFWMD) and the U.S. Army Corps of Engineers (USACOE). The Center Lake DRI Concept Plan has been designed to avoid impacts to significant and unique natural resources, to protect and manage certain listed species, and to incorporate these unique characteristics into the master plan as amenities for the enjoyment and benefit of the community.

The Center Lake DRI is planned as a mixed-use community. The site plan has been designed with residential villages to be built on "islands" of development primarily in existing impacted areas of the property and surrounded by continuous, expansive conservation areas. Development of the Center Lake DRI Habitat Management Plan (HMP) is necessary to provide protection measures, monitoring guidelines and management techniques to preserve the ecological integrity and viability of the remaining on-site preservation areas and listed species of wildlife that inhabit, or have potential to inhabit these areas. The overall goal of the Center Lake HMP is to create a management

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tool to outline goals and objectives that will provide and maintain perpetual upland and wetland habitat for optimal use by wildlife.

The Center Lake DRI project site contains approximately 1,046.3± acres of wetlands, consisting of 1,041.2± acres of wetlands and 5.1± acres of surface waters. The 1,041.2± acres of wetlands are inclusive of approximately 121.40± acres of Lake Center that fall below the 64.0' N.G.V.D. sovereign submerged land line. The site development plan proposes conservation of approximately 1,036.2± acres of wetlands and surface waters, 113.96± acres of upland buffers, and 138.90± acres of lands associated with Parks, Recreation and Open Space (**Figure 2**). The undisturbed wetlands, upland buffers and many of the habitats associated with the Open Space will be managed for listed wildlife species as outlined in this HMP. This HMP has been developed to serve as the guidance for preservation, maintenance and management of the lands slated for conservation within the Center Lake DRI and for the wildlife located within these lands. All un-impacted wetlands, surface waters, and adjacent 25' upland buffers will be placed under conservation easement and managed for use by listed wildlife species, as outlined in this Habitat Management Plan (HMP).

The Center Lake DRI HMP is a binding management tool and subsequently will be incorporated into the Declaration of Covenants & Deed Restrictions of the Community Development District (CDD), the Master Property Owner's Association (MPOA) or the Homeowner's Association (HOA), whichever is developed for the property.

The Center Lake DRI HMP provides management goals and objectives for the conservation lands and provides species-specific conservation guidelines for the American bald eagle, Florida sandhill crane, little blue heron, Sherman's fox squirrel, gopher tortoise and its commensal species, American alligator and additional non-listed wildlife species. Specific conservation actions included within the HMP include mechanical and chemical management, monitoring & maintenance of conservation areas, educational outreach, conservation signage, and speed deterrent devices located along wetland road crossings.

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CENTER LAKE
DEVELOPMENT OF REGIONAL IMPACT

HABITAT MANAGEMENT PLAN

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1.0 INTRODUCTION / SITE CHARACTERISTICS

The 2,012.50-acre Center Lake Development of Regional Impact (DRI) is generally located east of Narcoossee Road (SR 15), west of Nova Road (CR 532) and south of Jones Road (**Figure 1**). The Center Lake DRI project site is a phased, master planned, mixed use community containing varying densities of residential development as well as commercial and institutional uses (**Figure 2**). The proposed community will promote long-term sustainable development by providing a master plan that considers interconnectivity, walkability and environmental preservation. The gross acreage of the project site reflects lands that lie below the 65.0 mean sea level (msl) elevation, which is designated as the Safe Development Line in accordance with Policy 1.2.7 within the Conservation Element of Osceola County's Comprehensive Plan. No development is proposed for lands that lie below this Safe Development Line; however, these lands may be used for passive recreation purposes associated with the Center Lake development.

The Center Lake DRI property contains a variety of land uses and vegetative communities including a major wetland slough, scattered herbaceous marshes, open pastureland, and limited, small areas of pine mesic oak and hardwood-conifer forests. Modica & Associates, Inc. conducted numerous site inspections over a period of several years to verify the pre-development land uses and to document the wildlife use of the property within the different community types. Documentation of wildlife observations were recorded during each site inspection, and several species-specific wildlife surveys were conducted throughout the Center Lake DRI property.

Several species of protected wildlife were documented within the Center Lake DRI project site during recent surveys and by historical documentation. One of the development goals of the Center Lake DRI is to preserve and manage unimpacted natural areas for optimal use by listed wildlife species. The target species for wildlife management include the Sherman's fox squirrel, gopher tortoise, American bald eagle, Florida sandhill crane, American alligator and little blue heron. Although not documented on the project site, additional target species for wildlife management include the southeastern American kestrel and wading birds. With proper management, suitable habitat within the project site may attract these species.

This Habitat Management Plan (HMP) has been developed to serve as guidance for the preservation, maintenance and management of conservation lands and open spaces within the Center Lake DRI project site and for the wildlife located within these lands. This HMP includes specific recommendations for habitat management for long-term sustainability of listed species located within the Center Lake DRI project site.

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Conservation and open space areas are depicted on the enclosed Habitat Management Plan Map (**Figure 3**). Conservation areas will be preserved and managed for wildlife use as outlined in this HMP. Conservation areas to remain on-site in the post-development condition include unimpacted wetlands and surface waters and undisturbed upland buffers surrounding the unimpacted wetlands. In addition to the conservation areas, 138.90± acres lands associated with Parks, Recreation and Open Space will remain following development. The applicant commits to preserving 50% of the areas identified as Parks and Recreation on Map H in their natural condition for passive recreation use (**Figure 2**). Many of these areas provide suitable habitat for the listed wildlife species. Of the remaining park area (active park), only 20% will be grassed and irrigated.

1.1 Community Types

In its pre-development condition, the Center Lake DRI project site contains of a variety of upland and wetland land uses and community types (**Figure 4**). On-site land uses and vegetative communities have been classified in accordance with the Florida Department of Transportation's *Florida Land Use, Cover and Forms Classification System, Level III* (FLUCFCS). A detailed description of each FLUCFCS community *contained within the limits of the conservation areas* addressed herein is provided below.

1.1.1 Uplands

Using data from aerial photography, published resources and by ground-truthing, the following land uses and vegetative communities have been documented within the limits of the conservation areas. Detailed descriptions of each vegetative community and land use are outlined below.

211 - Improved Pasture

In the pre-development site condition, this cover type is dominant on the Center Lake DRI property. It consists of agricultural land managed for the purpose of sustaining cattle. Dominant vegetative species include bahia grass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), dog fennel (*Eupatorium capillifolium)*, flattop goldenrod (*Euthamia minor*), prickly pear (*Opuntia humifusa*), pawpaw (*Asimina* spp.), rattlebox (*Sesbania* spp.) and tropical soda apple (*Solanum capsicoides*).

In the post-development condition, the improved pasture land use generally falls within the upland buffers to the protected wetlands, and within undisturbed open spaces. Following development and the removal of cattle, it is expected that shrubs will regenerate and become more dominant within these areas. These areas are expected to transition to the Upland Shrub and Brushland (FLUCFCS 320) vegetative community designation unless managed to create other types of habitat, or maintained as pasture to provide forage for sandhill cranes.

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414 – Pine Mesic Oak

In the post-development site condition, this vegetative community type typically occurs as an upland fringe habitat located between forested wetlands and pasture. This upland community type is characterized by laurel oak (*Quercus laurifolia*), live oak (*Quercus virginicus*), and slash pine (Pinus elliotii). Many areas appear to have been historically disturbed as evidenced by a dominance of invasive vegetation such as blackberry (*Rubus* sp.), muscadine vine (*Vitis* sp.), hairy indigo (*Indigofera hirsuta*), rattlebox and dog fennel in the groundcover.

In the post-development condition, a significant portion of this on-site vegetative community will remain undisturbed within the upland buffers of the preserved wetlands. This habitat community will provide cover and forage for a variety of wildlife species.

421 - Xeric Oak

In the pre-development site condition, a small area of disturbed xeric oak habitat was identified in the northeastern portion of the property. The majority of this disturbed community is included within the development plan; however, portions will remain undisturbed, within the upland buffers of the preserved wetlands. This habitat community will provide cover and forage for a variety of wildlife species. Canopy species include sand live oak (*Quercus virginiana var. geminata*), myrtle oak (*Q. myrtifolia*), laurel oak, slash pine and longleaf pine (*P. palustris*). The understory is generally comprised of dense assemblages of the aforementioned scrub oak species with a ground cover often found to support saw palmetto (*Serenoa repens*).

427 – Live Oak

In the pre-development site condition, an isolated live oak community is located in the eastern portion of the property. This upland community supports mature live oaks with a ground cover typically comprised of bahia grass, tropical soda apple, dog fennel, blackberry, and flattop goldenrod. In the post-development condition, portions of this habitat will be preserved to provide wetland buffering and continued native upland habitat support.

434 - Hardwood – Conifer Mixed

This land cover classification is located in the eastern portion of the project site. The canopy of this upland community is comprised predominately of live oak and laurel oak with scattered slash pine and longleaf pine. Less common hardwoods include black cherry (*Prunus serotina*) and persimmon (*Diospyros virginiana*). Understory and ground cover plants include but are not limited to: saw palmetto, beautyberry, bracken fern, and shiny blueberry. Vines include catbrier (*Smilax*

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auriculata), Virginia creeper (*Parthenocissus quinquefolia*) and muscadine grape (*Vitis rotundifolia*). Portions of this habitat will likewise be preserved to provide wetland buffering and continued native upland habitat support.

1.1.2 Wetlands and Surface Waters

South Florida Water Management District (SFWMD) issued Formal Wetland Determination (FWD) # 49-00009-F for this project. A total of 1,041.2 acres of wetlands and 5.1 acres of surface waters are located on the property (total = 1,046.3 acres of jurisdictional areas). These acreages are summarized in the below table.

Wetland I.D.	**Existing Acreage**
1	2.573
2	8.326
3	8.128
4	3.724
5	1.048
6	7.268
7	1.008
8 east	14.091
8 west	6.333
9	27.375
10	183.642
11	136.945
12	0.412
13	236.978
14	175.714
15	1.464
16	0.565
17	4.921
18	219.561
19	1.000
20	0.089
21	0.055
Wetland Subtotal	**1041.2**
Surface Water I.D.	**Existing Acreage**
1	0.160
2	0.457
3	0.408
4	0.613

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5	0.629
6	0.719
7	0.552
8A	0.436
8B	0.612
9	0.072
10	0.443
S.W. Subtotal	**5.1**
TOTAL	**1046.3**

The conceptual site plan proposes impact to 5.3± acres of wetlands and 4.8± acres of surface waters. The total acreage of wetlands and surface waters to remain on-site in the post development condition is 1,036.2± acres, or approximately 99% of the pre-development wetland acreage; this acreage is inclusive of 121.40± acres of Lake Center. All unimpacted jurisdictional wetlands and surface water areas will be preserved and managed in accordance with this HMP. Additionally, an undisturbed upland buffer of varying width and consisting of approximately 113.96± acres will be preserved surrounding the unimpacted jurisdictional areas to protect wildlife habitat and water quality and to provide continued upland habitat support.

The following sections provide a description of each wetland vegetative community type that will remain on-site in the post-development condition.

520 – Lake

Approximately 121.40± acres of the western and southern portions of Lake Center are included within the Center Lake DRI boundary and will remain undisturbed in the post-development condition. Areas included within this community classification are characterized by open water with varying densities of emergent aquatic plants such as spatterdock *(Nuphar luteum)* and fragrant water lily (*Nymphaea odorata*) within the shallow areas.

630 – Wetland Forested Mixed

The majority of the on-site wetland acreage is forested and contains a mixed canopy of hardwood and coniferous trees. Canopy species predominantly include pond pine (*Pinus serotina*), slash pine (*Pinus elliottii*), bald cypress, red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), and sweet bay magnolia (*Magnolia virginiana*). Dahoon holly (*Ilex cassine*), buttonbush (*Cephalanthus occidentalis*) and wax myrtle (*Myrica cerifera*) were the most commonly observed understory plants. The ground strata of this community was found to support Virginia chain fern (*Woodwardia virginica*), netted chain fern (*Woodwardia areolata*), cinnamon fern (*Osmunda cinnamomea*), royal fern

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(*Osmunda regalis*), marsh fern (*Thelypteris palustris*), muscadine grape (*Vitis rotundifolia*), Virginia creeper (*Parthenocissus quinquefolia*), blackberry (*Rubus betulifolia*), red root (*Lachnanthes caroliniana)*, and lizard's tail (*Saururus cernuus*).

641 – Freshwater Marsh

Several freshwater marsh wetlands are scattered throughout the Center Lake Ranch project site. Additionally, some portions of the main wetland slough that extends through the central portion of the property consist of freshwater marsh. These herbaceous wetlands contain a mix of the following species: soft rush (*Juncus effusus*), spike rush (*Eleocharis baldwinii*), lemon bacopa (*Bacopa caroliniana*), spadeleaf (*Centella asiatica*), blue maidencane (*Amphicarpum muehlenbergianum*), buttonbush (*Cephalanthus occidentalis*), highbush blueberry (*Vaccinium* corymbosum), bushy bluestem (*Andropogon glomeratus*), pennywort (*Hydrocotyle umbellata*), beaksedge (*Rhynchospora* spp.) and rattlebox (*Sesbania* spp.), pickerelweed (*Pontederia cordata*) and duck potato (*Sagittaria* spp.). The perimeters of these wetlands contain longleaf pine (*Pinus palustris*), wax myrtle (*Myrica cerifera*) and blackberry (*Rubus* spp.).

1.2 Listed Species Occurrence

Early in the ecological assessment process, a qualitative review of the Center Lake DRI project site was conducted to determine if the Center Lake property provides suitable habitat for species of wildlife that are listed as protected by the U.S. Fish and Wildlife Service (USFWS) or the Florida Fish and Wildlife Conservation Commission (FWC), and for species of plants that are listed as protected by state, federal or local regulations. Modica & Associates, Inc. conducted various qualitative surveys throughout the Center Lake DRI property beginning in year 2005 and continuing through 2009.

Available database records were used to identify historically documented wildlife use and plant occurrence in the vicinity. To assist in documenting potential protected species throughout the property, the Florida Natural Areas Inventory (FNAI) Tracking List for Osceola County was obtained and reviewed.

1.2.1 Listed Wildlife

Listed wildlife databases accessed included the USFWS *Online Eagle Nest Locator* and the FWC *Waterbird Colony Locator* website.

Using this conceptual information, listed species of wildlife with potential for presence were identified and site inspections were conducted to determine the need and extent of formal surveys for each particular species. Species-specific quantitative surveys were conducted for the gopher tortoise in May and June 2006

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and April 2009 and for sandhill cranes in 2007 and 2008. All site inspections were conducted using pedestrian and ATV transects. In addition to species-specific surveys, general wildlife surveys were conducted on numerous occasions throughout the years 2005 through 2009. The Wildlife Survey Map is provided as **Figure 5**. The following is a list of those species identified during the evaluation as well as any direct observations of evidence of a particular species' presence (i.e. tracks, burrows, scat etc.). The species indicated in bold type are listed as protected by the USFWS and/or the FWC.

BIRDS

American crow (*Corvus brachyrhynchos*)
Bald eagle (*Haliaeetus leucocephalus*)
Barred owl (*Strix varia*)
Black vulture (*Coragyps atratus*)
Blue jay (*Cyanocitta cristata*)
Brown thrasher (*Toxostoma rufum*)
Carolina wren (*Thryothorus ludovicianus*)
Cattle egret (*Bubulcus ibis*)
Common nighthawk (*Chordeiles minor*)
Eastern meadowlark (*Sturnella magna*)
Florida sandhill crane (*Grus canadensis pratensis*)
Great blue heron (*Ardea herodias*)
Great crested flycatcher (*Myiarchus crinitus*)
Great egret (*Ardea alba*)
Killdeer (*Charadrius vociferous*)
Little blue heron (*Egretta caerulea*)
Loggerhead shrike (*Lanais ludovicianus*)
Mourning dove (*Zenaida macroura*)
Northern bobwhite (*Colinus virginianus*)
Northern cardinal (*Cardinalis cardinalis*)
Northern mockingbird (*Mimus polyglottos*)
Red-bellied Woodpecker (*Melanerpes carolinus*)
Red-headed woodpecker (*Melanerpes erythrocephalus*)
Red-shouldered hawk (Buteo lineatus)
Red-tailed hawk (*Buteo jamaicensis*)
Swallow-tailed kite (*Elanoides forficatus*)
Turkey vulture (*Cathartes aura*)
Wild turkey (*Meleagris gallopavo*)

MAMMALS

Gray squirrel (*Sciurus carolinensis*)
Nine-banded armadillo (*Dasypus novemcinctus*)
Raccoon (*Procyon lotor*)
White-tailed deer (*Odocoileus virginianus*)
Wild boar (*Sus scrofa*)

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Sherman's Fox Squirrel *(Sciurus niger shermani)*

REPTILES & AMPHIBIANS
American Alligator *(Alligator mississippiensis*)
Black racer (*Coluber constrictor*)
Brown anole (*Anolis sagrei sagrei*)
Common garter snake (*Thamnophis sirtalis*)
Cricket frog (*Acris gryllis*)
Florida cooter (*Pseudemys floridana*)
Gopher tortoise (*Gopherus polyphemus*)
Green anole (*Anolis caroliniana*)
Green tree frog (*Hyla cinerea*)
Pig frog (*Rana grylio*)
Pygmy rattlesnake (*Sistrurus miliarius*)
Squirrel tree frog (*Hyla squirella*)

Six (6) species listed in the FWC's *Official Lists – Florida's Endangered Species, Threatened Species, and Species of Special Concern* (July 2009) were documented during our surveys. The occurrence of listed species is summarized in the below table.

Table 1. List of protected wildlife documented within the Center Lake DRI.

Scientific name	Common name	State status	Federal status	Typical Habitat
REPTILES & AMPHIBIANS				
Alligator mississippiensis	American Alligator			Lake, Swamp
Gopherus polyphemus	Gopher Tortoise	T	N	Sandhill, Scrub, Flatwoods, Pasture
MAMMALS				
Sciurus niger shermani	Sherman's Fox Squirrel	SSC	NL	Sandhill, Pine Flatwoods, Pasture
BIRDS				
Egretta caerulea and Eudocimus albus	Little Blue Heron and White Ibis	SSC	NL	Lake, Marsh, Swamp
Grus canadensis pratensis	Florida Sandhill Crane	T	NL	Marsh, Pasture
Haliaeetus leucocephalus	American Bald Eagle	T	NL	Lakes

NL=Not Listed; SSC=Species of Special Concern; T=Threatened; E=Endangered

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1.2.2 Listed Plants

There are different agencies within the state of Florida that maintain a list of protected plant species; each of these agencies has different criteria for listing. Modica & Associates, Inc. accessed the Florida Administrative Code (F.A.C.) Chapter 5B-40.0055 *Regulated Plant Index* as well as lists maintained by the USFWS, the Florida Department of Agriculture & Consumer Services (FDAC) Division of Forestry (DOF), and the FNAI tracking list to identify listed plant species with potential for occurrence on the Center Lake DRI project site. State regulations apply to harvesting protected plants and do not provide guidance or regulation on protection of plants related to development. The following protected plant species were documented within the Center Lake DRI project boundaries during general site inspections and wildlife surveys conducted by staff biologists with Modica & Associates, Inc.

PLANTS
Cinnamon fern (*Osmunda cinnamomea*)
Royal fern (*Osmunda regalis*)

Cinnamon fern and royal fern are both listed as "commercially exploited" (5B-40.005(c) F.A.C. These ferns are found in wetland habitats and were documented throughout many of the wetlands in the Center Lake DRI project site. The occurrences of listed plant species documented on the Center Lake DRI project site are listed in Table 2.

Table 2. List of protected plants documented within the Center Lake DRI.

Scientific name	Common name	State status	Federal status	Typical Habitat
PLANTS				
Osmunda cinnamomea	Cinnamon fern	CE	NL	Lake, Marsh, Swamp
Osmunda regalis	Royal fern	CE	NL	Lake, Marsh, Swamp

CE=Commercially Exploited, NL=Not Listed.

2.0 CONSERVATION GOALS & OBJECTIVES

The following goals outline the long-term intent to manage the Center Lake DRI conservation lands and the wildlife that occur therein. These goals and objectives will be reviewed annually as the HMP is implemented to ensure that the intent is still practical and necessary. Any modifications to the goals and objectives must be coordinated with

the FWC and other jurisdictional agencies, as appropriate. Modified goals and objectives may only be implemented with approval from FWC.

Goal 1: Protect the natural communities within the Center Lake DRI conservation lands.

Objectives: A. Develop and record a legal instrument such as a Conservation Easement to protect the conservation areas, after receipt of all State and Federal Permits.

Objectives: B. Implement the Habitat Management Plan.

Goal 2: Effectively manage the conservation lands to ensure sustainability of the native plants and animals naturally supported by the native habitats.

Objectives: A. Implement a monitoring program to document the quality of each of the community type within the conservation lands.

B. Monitor the presence of wildlife and the structural characteristics of vegetation and their habitats to ensure that the management objectives are adequate for the long-term survival of the target species.

C. Implement chemical and mechanical means to control or eradicate exotic vegetation listed in the Florida Exotic Pest Plant Council's *2007 List of Invasive Plant Species*, including but not limited to: cogon grass, tropical soda apple, Brazilian pepper, air potato.

D. Develop quantifiable vegetation management objectives for desired future conditions.

Goal 3: Protect and maintain hydrologic regimes.

Objectives: A. Conduct routine maintenance of drainage structures that provide connections between wetland crossings to ensure proper function.

Goal 4: Provide quality recreational opportunities within the conservation areas while maintaining the integrity of the natural communities and protection of wildlife.

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Objectives:

A. Maintain a system of hiking trails and/or boardwalks throughout the conservation lands.

B. Establish an interpretive and educational kiosk at the main entry points of any planned hiking trails through the conservation lands and signage at any dedicated wildlife crossing.

C. Provide additional interpretive signage and educational materials highlighting the natural community types and listed species of wildlife within the conservation lands.

D. Conduct routine safety inspections and maintenance inspections to ensure trails, boardwalks and signage are in good condition and correct deficiencies as needed.

3.0 LIFE HISTORY OF LISTED WILDLIFE SPECIES

As previously mentioned, baseline wildlife surveys conducted throughout the Center Lake DRI project site documented the presence of six (6) species of protected wildlife. The protected status and life history information on the American alligator, Sherman's fox squirrel, American bald eagle, Florida sandhill crane, little blue heron, gopher tortoise and gopher tortoise commensals are detailed below. Information on the protected status and life history information on the southeastern American kestrel and wading birds are also included as these species have potential for occurrence on the Center Lake DRI property. Conservation recommendations or requirements specific to each of these species are also provided, as applicable. Based on the prevailing USFWS and FWC regulations, no specific management activities are required for the American bald eagle, American alligator and little blue heron. However, the HMP has been developed to provide provisions for conservation, enhancement, and maintenance of habitats used by each of these species. Should future changed site conditions or regulations warrant the need for additional species-specific management activities, the Center Lake DRI HMP can be amended as applicable.

3.1 American Alligator

The American Alligator (*Alligator mississippiensis*) is listed by the FWC as a "species of special concern" and by the USFWS as "threatened", primarily due to the similarity in appearance to the federally-listed American crocodile *(Crocodylus acutus)*, which is listed as "endangered" by the USFWS. American alligators occur throughout the southeastern United States with the western limits reaching into eastern Texas, and the northern limits reaching along the eastern coastline of North Carolina (FWC, 2009a). Female alligators rarely exceed a length of 9-feet, while male alligators may be as large as 14-feet. Alligators are considered opportunistic feeders, eating easily accessible food items ranging from small amphibians and fish to snakes and birds (FWC, 2009a).

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3.1.1 Documented Presence

American alligators were observed in wetland and open water habitat areas on the project site during quantitative and qualitative field assessments. This species has been observed within the open water habitat associated with Lake Center. This species is known to occur throughout the Alligator Chain of Lakes and the associated floodplain wetlands, and therefore a population of this species likely inhabits the Center Lake DRI conservation areas.

3.1.2 Threat Assessment

Protection of the American alligator is afforded by the FWC, primarily due to the similarity in appearance to the federally listed American crocodile. Threats to the species include destruction of habitat, poaching for their hides, and pollution of their native habitats.

3.2 Sherman's Fox Squirrel

The Sherman's fox squirrel (*Sciurus niger shermani*) is listed by the FWC as a "species of special concern" and is regulated by Chapter 68A-27.005 F.A.C. There are three subspecies of the fox squirrel in Florida. Fox squirrels range throughout the eastern United States; the Sherman's fox squirrel is the only sub-species of fox squirrel that occurs in central Florida. The Sherman's fox squirrel can be found throughout peninsular Florida with the exception of the southwestern counties of the panhandle. The home range of the Sherman's fox squirrel is about 75 acres. The fox squirrel's primary habitat is the longleaf pine, turkey oak, live oak, sandhill, and flatwood communities (FNAI, 2001). Fox squirrels depend on pine seeds as a major food source during the summer, and rely on acorns for the remainder of the year. Seasonal variation and low diversity of food and abundance of food resources contributes to the large home range of the fox squirrel (Kantola and Humphrey, 1990).

Nesting is typically conducted in oak and pine trees and is constructed of leaves and Spanish moss. There are typically two breeding seasons for the fox squirrel, winter and summer. The average litter size ranges between 2-4 individuals, with the winter litter typically being smaller than the summer litter (FNAI, 2001).

3.2.1 Documented Presence

There is currently no specific survey protocol for the Sherman's fox squirrel. However, several sightings of this species were documented, generally within the eastern portion of the property. The documented squirrel sightings occurred along one of the forested edges of the linear ditches in the northeastern pasture, along the forested edge of the wetlands associated with Lake Center, and within the

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forested uplands adjacent to wetland W-13 in the southeastern portion of the property (**Figure 5**). Each of these sightings occurred in habitat that contains mixed hardwoods, pines and oaks.

3.2.2 Threat Assessment

The greatest threat to the Sherman's fox squirrel is loss of habitat and degradation of habitat. This loss of habitat can be the result of development, logging and other clear-cutting agricultural activities. The habitat degradation can be attributed to lack of land management and invasion of nuisance and exotic vegetation, each of which alters the vegetation structure of the habitat. Loss of habitat due to development can isolate populations and prevent dispersal and distribution.

Competition with the eastern gray squirrel may also serve as a threat or provide negative impact to Sherman's fox squirrels in developed communities. Sexton (1990) reports that fox squirrels prefer more open forests, while gray squirrels tend to inhabit extensive forests with heavy undergrowth. Habitat fragmentation, regardless of origin (i.e. development or agricultural use), can promote coexistence and subsequently competitive interaction between species. Nupp and Swihart (2001) determined that habitat fragmentation is the primary component influencing the presence or absence of any particular species, with interspecific interactions present as a secondary influence. They further conclude that interspecific interactions are largely a function of "the landscape in which they co-occur."

3.3 American Bald Eagle

The American bald eagle *(Haliaetus leucocephalus)* was officially delisted by the USFWS on July 9, 2007 (Federal Register Volume 72, No. 130). However, the bald eagle is still protected through the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). These laws and/or regulations prohibit, cumulatively, harassing, disturbing, harming, molesting, pursuing this species or destroying its nests. Additionally, the USFWS has prepared *National Bald Eagle Management Guidelines* (May 2007) to provide guidance to developers with properties containing bald eagle nests. These revised regulations provide protection to an active bald eagle nest at a given radius, based on whether the active nest is located within a forested system or in an open area such as pasture. Nests within a forested system will require a 330-foot protection zone and nests within open areas will require a 660-foot protection zone.

American bald eagles historically ranged throughout the contiguous United States and Alaska. A severe decline in the bald eagle population occurred in the lower 48 states between the 1870's and the 1970's. Currently, the largest breeding populations are found in Alaska and Canada. Other significant bald eagle populations occur in Florida, the

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Pacific Northwest, the Greater Yellowstone area, the Great Lakes states and the Chesapeake Bay region (USFWS, 2007). Migration may be more common among younger eagles. By April, Florida's eagles begin to move north, following the coastline through Georgia, the Carolinas, and Virginia.

Bald eagles usually nest in tall, healthy pine trees near coastlines, rivers, large lakes and streams. Most of the nests in Florida are within one mile of the coast or a permanent body of water. Bald eagles are opportunistic feeders. While preferring fish, they will eat many kinds of live prey, as well as carrion, and even frequent garbage dumps. Nests are found in mangrove swamps, the shoreline of lakes and rivers, pine flatwoods, hardwood swamps, and open prairies and pastureland with scattered tall trees (USFWS, 2007). Eagles are strongly attached to their nesting area and will often rebuild in the same tree or another tree nearby if the original nest is lost to a storm. Eagles mate for life, but a new mate will be sought should one of the pair die. Two or three eggs are laid during the nesting season, which is usually from October 1 to May 15; incubation is about 32 days.

3.3.1 Documented Presence

One active eagle nest was documented within the Center Lake DRI project boundaries. This nest was observed by Modica & Associates, Inc. during our preliminary site surveys beginning in 2005; this nest has also been documented as active by the FWC since 2005 and is identified as Eagle Nest **OS-106** on the FWC's *Online Eagle Nest Locator* database. The nest is located in the south-central portion of the property, along the northern edge of wetland W-13 (**Figure 5**). The FWC database was last updated during the 2009 nesting season, and also shows the nest as active during each nesting season beginning in 2005.

3.3.2 Threat Assessment

Bald eagles are sensitive to human activities, particularly during the breeding season. Disturbance from human activities can prevent successful breeding and can also prevent proper feeding. Bald eagles prefer particular roost sites based on their proximity to food source and shelter. Destruction or obstruction of roosting areas has a negative affect on bald eagles (USFWS, 2007).

3.4 Florida Sandhill Crane

The Florida Sandhill Crane (*Grus canadensis pratensis*) is listed as a "threatened" species by the FWC. This species occurs in peninsular Florida from the Everglades north to southern Georgia (Charlton and Ware counties) in and around the Okefenokee Swamp (Bennett 1989, Nesbitt and Williams 1990). Florida is home to two subspecies of Sandhill cranes, with the Florida sandhill crane (G. c. *pratensis*) being a non-migratory, year-round resident. The similar migratory greater sandhill crane (G. c. *tabida*), winters in Florida, typically arriving in November and December, and migrates to the Great Lakes region during March and April for nesting (FWC 2009b). Sandhill cranes are

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monogamous; they breed during the late winter and early spring and construct nests on mats of vegetation in shallow wetlands and water bodies (FWC 2009b). Nesting season generally occurs between January and April, with the average laying date between late February and early Mary (Stys 1997).

3.4.1 Documented Presence

The Florida sandhill crane was observed foraging within the pastures of the Center Lake DRI property during several investigations. Three potential nest sites were also documented during the 2007 sandhill crane nest survey conducted by Modica & Associates, Inc. (**Figure 5**). The Center Lake DRI property contains extensive freshwater marsh habitat, which provides potential nesting habitat for this species. The Florida sandhill crane typically constructs its nest within shallow wetland areas dominated by herbaceous vegetation, especially pickerelweed and maidencane. There are numerous herbaceous marshes on site that are suitable for nesting. Nesting season typically occurs between January and August of any given year. No nests were documented during the 2008 or the 2009 nesting seasons. However, Sandhill crane pairs have been observed on-site foraging.

3.4.2 Threat Assessment

Sandhill cranes are vulnerable to man-made hazards such as powerlines, fences and vehicular collisions. Additional threats include loss and degradation of suitable nesting habitat, nest predation, flooding, and abandonment due to disturbances.

3.5 Little Blue Heron

The Little Blue Heron (*Egretta caerulea*) receives protection from the FWC as "species of special concern". This small wading bird inhabits a variety of freshwater and estuarine habitats in the southeastern United States. The little blue heron is a medium-sized heron identified by its dark, dusky blue color and its dark bill (Cornell, 2009). The little blue heron typically feeds on small fish, amphibians and aquatic invertebrates while the white ibis typically feeds on insects (Cornell 2009).

3.5.1 Documented Presence

The little blue heron was observed within several of the wetland communities during our site inspections, typically within the forested and herbaceous wetlands and along the Lake Center shoreline. However, no nesting colonies (rookeries) have been documented within the Center Lake DRI wetlands. Further, the FWC's *Waterbird Colony Locator* website did not reveal any wading bird colonies within the project vicinity.

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3.5.2 Threat Assessment

Primary threats include alteration of natural hydroperiods in wetlands used for foraging and exposure to pesticides and heavy metal contaminations. Illegal killings may also occur since this species regularly forages at commercial fish farms and hatcheries (FNAI, 2001).

3.6 Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is listed by the FWC as a "threatened" species and is regulated by Chapter 68A-27.004 F.A.C. The FWC has adopted a *Gopher Tortoise Management Plan* (September 2007), which is supplemented by the *Gopher Tortoise Permitting Guidelines* (April 2009). Together, these documents provide rules for protecting the tortoise and guidelines for permitting development on properties that contain gopher tortoises.

The gopher tortoise ranges throughout the entire state of Florida with the exception of the Everglades and the Keys. The tortoise also occurs within the lower Southeastern Coastal Plain including coastal South Carolina southward through the southern reaches of Georgia, Alabama, Mississippi and southeastern Louisiana (Auffenberg and Franz, 1982). Gopher tortoises commonly inhabit upland habitats with well-drained sandy soils associated with xeric pine-oak hammock, scrub, pine flatwoods, pastures and citrus groves. The diet of a gopher tortoise typically consists of broad-leaf grasses, wiregrass, wild fruits and other low-lying plants, particularly those in the legume family (Macdonald, 1986). The tortoise digs a burrow underground for refuge. A tortoise burrow is 15-feet in length and 6-feet in depth, on average (Hansen, 1963). Each tortoise may dig several burrows within its home range. Tortoises normally mate in April and May. Several weeks after mating, the female tortoise will lay an average of six eggs within the apron of the burrow. The incubation period is approximately 80-90 days, but varies geographically (Cox, et. al., 1987).

3.6.1 Documented Presence

A total of 87 viable gopher tortoise burrows have been identified on the Center Lake DRI property (**Figure 5**). The original DRI project site was surveyed for this species in May and June of 2006. The subsequently acquired ±134 acre western portion of the DRI site was surveyed in April 2009.

Please note that gopher tortoise survey transects did not cover 100% of the on-site suitable gopher tortoise habitat. However, a project-wide burrow count was extrapolated based on the partial site survey in order to calculate the estimated gopher tortoise population. To achieve this, optimal and suboptimal gopher tortoise habitat acreages were calculated in ArcGIS based on notes from field observations, aerial photographic interpretation, and mapped soils data. Optimal

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habitat generally included areas mapped as FLUCFCS codes 110, 211, 224, 311, and 421; suboptimal habitat includes areas mapped as FLUCFCS codes 211, 414, 427, 434, and 814 (**Figure 4**). Additionally, the acreage of each gopher tortoise habitat type (optimal vs. suboptimal) included within the gopher tortoise survey was calculated in ArcGIS by offsetting a 25 foot buffer on the GPS tracks recorded during the actual survey event (total survey transect width of 50 feet). The survey results were then summed by gopher tortoise habitat type and an estimated burrow count for each habitat type was extrapolated based on survey percentage. The estimated burrow count for each habitat type was summed to obtain an estimated burrow count for the overall project site. The following table presents these data and the estimated site wide burrow count.

Table 3. Tabulation of calculated project-wide gopher tortoise burrow count, estimated based on survey data collected by Modica & Associates, Inc. in 2006 and 2009.

	Optimal Habitat	**Suboptimal Habitat**
Habitat Acreage	221 ac	693 ac
Acreage Surveyed	164 ac	205 ac
Percent of Habitat Surveyed	74%	30%
# of Burrows Observed	80	7
Extrapolated Total # of Burrows	108	23
Estimated Site-Wide Burrow Count	**131 burrows**	

Our calculations estimated that there are 131 burrows within the Center Lake DRI site. This equates to a population density of 0.14 tortoises per acre of suitable habitat. In accordance with the new *Gopher Tortoise Permitting Guidelines* issued by the FWC in April 2009, the anticipated number of tortoises within a project site should be estimated by multiplying the total number of viable burrows by a conversion factor of 0.50. For the Center Lake DRI project site, this results in an estimated gopher tortoise population of approximately 65-66 tortoises.

No other listed species of flora or fauna were observed on the acquisition parcel. Additionally, no listed species of flora or fauna beyond those previously reported for the main parcel were documented during the various site inspections conducted in year 2009.

3.6.2 Commensal Species

The gopher tortoise is considered a keystone species for the habitat it occupies, as the tortoise's burrow is used by many other species of wildlife including, but not limited to, the Eastern indigo snake (*Drymarchon corais couperi*), gopher frog (*Rana capito*) and Florida mouse (*Podomys floridanus*). The eastern indigo snake is listed by the FWC as a "threatened" species and the gopher frog and the Florida mouse are listed by the FWC as "species of special concern". These species are protected by state regulations relating to protected species, specifically Chapter

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68A-27.004 F.A.C. Although not observed or documented during preliminary surveys, there is a reasonable likelihood that each of these species is present within the Center Lake DRI project site.

3.6.3 Threat Assessment

The greatest threat to the gopher tortoise and its commensal species is loss of habitat. Land development is typically pursued within the higher topographic elevations, which is also the preferred habitat for the gopher tortoise. Habitat fragmentation and isolation of populations is also a cause for population decline. The Upper Respiratory Tract Disease (URTS) also poses a threat to the longevity of the life span, and is highly contagious. The threats to gopher tortoises are also considered threats to the commensal species as they are dependent on the tortoise burrows for survival.

3.7 Potential for Other Listed Species of Wildlife

The Center Lake DRI project site provides suitable habitat for several other listed species of wildlife. The Florida Natural Areas Inventory (FNAI) Species Occurrence database listed by County was reviewed to determine which wildlife species have potential for occurrence in Osceola County. Although not documented on the Center Lake DRI project site during any of the site inspections conducted by Modica & Associates, Inc., the following species have potential for occurrence on-site.

3.7.1 Southeastern American Kestrel

The Southeastern American kestrel *(Falco sparverius paulus)* is the smallest falcon in the United States and is listed by the FWC as a "threatened" species. The kestrel is regulated through the U.S. Migratory Bird Treaty Act and by Chapter 68A-27.004 F.A.C. which prohibits the taking of birds, nests or eggs. The Southeastern American kestrel is a non-migratory resident subspecies of the American kestrel (*F. s. sparverius*). The American kestrel ranges throughout North America and is considered a northern migrant that occurs in Florida during the winter months, but does not nest in Florida. It is difficult to distinguish the two species on the basis of coloration and marking. The breeding range of the southeastern American kestrel (*F. s. paulus*) extends from southern portions of Louisiana, Mississippi, Alabama, Georgia, and South Carolina, and all of Florida except the most southern counties (Stys 1993).

The southeastern American kestrel prefers open habitats including pastures, open longleaf pine-turkey oak and Sandhill communities, grasslands, and open sites within suburban and residential areas. Kestrels require open land for their hunting activities. Common prey includes insects, small rodents, reptiles, and even small birds (Stys 1993). Kestrels are secondary cavity nesters and typically use abandoned nest cavities of woodpeckers. The majority of kestrel nests are in the

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cavities of dead trees with an unobstructed view of the surrounding habitat (FNAI 2001). However, kestrels have also been documented to nest in man-made nest boxes. Nesting activities, including courtship, typically begin at the end of January. Three to five eggs are laid in mid-March to May with incubation lasting 29-31 days (Stys 1993).

The presence of extensive open pastures and relatively open woodlands within the Center Lake DRI project site provides habitat for this species. As no observations of kestrels have been documented during the numerous onsite inspections within the ranch, no formal surveys for this species have been conducted.

The post-development condition of the Center Lake DRI project site may contain suitable habitat for the southeastern American kestrel. The proposed open spaces and parks will provide potential foraging opportunities for kestrels and forested areas may provide nesting habitat.

3.7.2 Wading Birds

Due to the extensive herbaceous marshes, forested wetlands and frontage on Center Lake, the potential for presence of both listed and non-listed wading birds is high within the Center Lake DRI project. Species that are likely to occur on-site include, but are not limited to: wood stork (*Mycteria americana*), white ibis (*Eudocimus albus*), great egret (*Ardea alba*) and great blue heron (*Ardea herodias*). Additionally, the stormwater ponds planned for development throughout the project site will provide forage opportunity for these species.

4.0 CONSERVATION ACTIONS

The species of wildlife covered in this HMP are listed as endangered, threatened or species of special concern by the FWC and the USFWS and are protected by state and federal regulations. The preservation of large tracts of wetlands, as proposed in the Center Lake DRI project, will be beneficial to each of the species covered in this HMP, as well as other native, non-listed species of wildlife. The following table provides a summary of the native community types that will be preserved as part of the Center Lake DRI project.

Table 4. Center Lake DRI Conservation Areas

Conservation Land	Acreage
Jurisdictional Wetlands and Surface Waters	1,036.2
Upland Buffers	113.96
Other Upland Conservation Lands	33.64
Total Conservation Land	**1,183.8**

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4.1 Conservation Land

Unimpacted wetlands and adjacents 25' upland buffers will be placed under conservation easement in perpetuity, conveyed to Osceola County and, as applicable, other co-grantee entities with the capacity and capability of conserving the lands and resources contained within the easement area. The exact extent and acreage of these conservation areas will be determined and conservation easements will be recorded during the SFWMD Environmental Resource Permitting process.

An educational plan will be prepared, identifying the manner in which future residents of the Center Lake DRI will be informed about the restrictions associated with habitat management and conservation areas. Information about the Habitat and Conservation Management Plan shall be provided to each resident purchasing or leasing a home within the development at the time of closing or execution of the lease.

No development will be allowed within the conservation areas, although limited boardwalks and passive recreation may be permissible as well as vegetative management activities and maintenance to any of the existing surface waters/ditches that are associated with the drainage system.

The conservation actions described below are intended to ensure long-term sustainability of the on-site populations of those species. The proposed management practices are consistent with the requirements and long-term goals for the protection and maintenance of habitat communities found within the on-site conservation areas, to the best of our knowledge.

4.2 Species-Specific Management & Conservation Actions

The following information is provided for particular wildlife species documented within the project site for which certain management actions may benefit the continued presence and use of the conservation lands within the Center Lake DRI. Recommended conservation actions are provided to ensure long-term sustainability of the habitats known to support these species.

4.2.1 American Alligator Management Plan

State regulations restrict the taking of active American alligator nests without a permit. No alligator nests have been documented within the development footprint and therefore regulatory action is not anticipated for this species. However, it is recommended that any alligator nests observed during conservation land monitoring events be documented using GPS technology and described within the appropriate annual monitoring reports. The status of any new nest

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identified during routine ongoing monitoring efforts will be updated in each monitoring report for the duration of the monitoring period (see Section 5.0).

It is likely that American alligators will inhabit stormwater ponds as well as natural wetland systems throughout the project in the post-development condition. Signage will be posted to warn residents and visitors of the potential presence of alligators, and to prohibit feeding of alligators. In the event that a resident alligator may become a nuisance, any concerned resident or property owner will be directed to contact the **FWC Nuisance Alligator Hotline (866-392-4286)**. Additionally, the FWC's *A Guide to Living with Alligators* brochure will become part of the educational materials to be provided to residents and property owners (**Exhibit 1**).

4.2.2 Sherman's Fox Squirrel Management Plan

Kantola and Humphreys (1990) report that the best habitats for the Sherman's fox squirrel are likely the edges of longleaf pine savannas and live oak forests. These habitats provide for seasonal food sources.

Conservation lands and open space will be maintained in the post-development condition for use by this species. Figure 6 depicts a simplified version of Map H which categorizes post-development land uses as "Conservation Areas" and "Parks and Rec Areas". Those "Conservation Areas" and "Parks and Rec Areas" located landward of the wetland boundaries are most likely to provide habitat for this species in the post-development condition.

The applicant commits to preserving 50% of the Parks and Rec Areas in their natural condition, to be used for passive recreation purposes. Of the remaining Park and Rec Areas (active park), only 20% will be grassed and irrigated. Native vegetation, including pine and oak species favored by the Sherman's Fox Squirrel, will be incorporated into the landscape plan of all active park areas to further bolster post-development habitat quality. Hostetler and Drake (2009) report that using native plantings in neighborhood open spaces and in urban areas serves to attract native wildlife. Further, the use of native plantings in neighborhoods that are in close proximity to native natural areas are particularly more successful in attracting native wildlife (Hostetler and Knowles-Yanez, 2003). By planting native trees (i.e. oaks, red maples, wax myrtles) and using native grasses for landscaping within the parks, these areas are expected to attract native birds and other wildlife, including the Sherman's Fox Squirrel.

The Upland Management Areas (UMAs) are also expected to provide on-site habitat for use by this species following development. It is a management goal to maintain these areas in a more pasture-like setting with a low density of pines to encourage forage by Sandhill cranes. These areas should also attract use and forage by the fox squirrel, which prefer an open canopy habitat. By managing the

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preferred suitable habitat for the fox squirrel within the project site, use and existence of this species within the project site is expected to continue.

Considering the real threat of interspecies competition, it is possible through land management to maintain suitable habitat within the Center Lake DRI for each the fox squirrel and the gray squirrel. By maintaining both open, upland forests and a more contiguous forest with more substantial undergrowth, suitable forage and nesting habitat can be provided for each species on the project site.

4.2.3 American Bald Eagle Management Plan

Protection of Eagle Nest OS-106 has been provided in accordance with *National Bald Eagle Management Guidelines* (USFWS, 2007) and with the *Bald Eagle Management Plan* (FWC, 2008). The nest lies within a relatively open area and therefore the 660-foot protection zone has been planned for this nest (Figure 3). No development is proposed within the 330-foot protection zone of this nest. In accordance with the *National Bald Eagle Management Guidelines* (USFWS, 2007), external construction and landscaping within 660 feet of the nest will be conducted outside of the breeding season (September through May). Any such activities proposed between 330 feet and 660 feet will require coordination with the FWC and the USFWS; monitoring may be required.

Any bald eagle nests identified on-site in the future will be protected in accordance with the *National Bald Eagle Management Guidelines* (USFWS, 2007) and with the *Bald Eagle Management Plan* (FWC, 2008).

4.2.3.1 Retention of Suitable Nesting Habitat

In development design, efforts were made to preserve stands of mature pine and cypress trees, which provide suitable nesting habitat for this species. The Center Lake DRI project is unique in that it requires very minimal tree removal to facilitate development. The vast majority of the onsite uplands were historically cleared for the creation of pasture and agricultural lands; development is primarily limited to the historically cleared areas. Conversely, the expansive wetland areas, which have been less intensively subject to human disturbances, are being preserved and managed as part of the development design.

The majority of the onsite suitable bald eagle nesting trees are located within the 1036.2 acres of wetlands that are being preserved as part of the site design. Furthermore, the majority of the intact forested upland areas that contain suitable or potential future nesting habitat are earmarked for Conservation or Parks and Recreation. The applicant commits to preserving 50% of the Parks and Recreation areas in their natural

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condition for passive recreation use (**Figure 2**). Many of these areas will provide suitable bald eagle nesting habitat. Of the remaining park area (active park), only 20% will be grassed and irrigated.

There are numerous large slash pine and pond pine trees scattered throughout the forest wetland communities, upland buffers, and to a lesser extent within the passive recreational areas. The existing trees will provide adequate nesting habitat for the bald eagle in the post-development condition. Natural pine recruitment is occurring in these locations and will provide a future source of nesting trees for the bald eagles. In addition to the existing pine trees that will be preserved, the applicant commits to incorporate native pine tree species in the landscape program, in order to further increase onsite nesting potential for this species.

4.2.3.2 Pine Planting

As mentioned above, very little pine tree clearing will be necessary to facilitate site development, as the development area primarily consists of historically cleared pasture and agricultural lands. The applicant commits to incorporate native pine tree species in the landscape program, in order to further increase onsite nesting potential for the bald eagle. However, a specific restoration plan for longleaf pine should not be required because the development will not significantly reduce existing bald eagle nesting habitat.

4.2.3.3 Nest Protection and Maintenance of Stormwater Pond

Maintenance of the stormwater pond planned between the 330-foot and the 660-foot buffer zone of Eagle Nest OS-106 shall be conducted in accordance with the restrictions for **Category F – Non-Motorized Recreation and Human Entry** of the *National Bald Eagle Management Guidelines* (USFWS, 2007). The Guidelines state the following, with regard to the permissible extent of Category F activities within vicinity of a bald eagle nest:

> "No buffer is necessary around nest sites outside the breeding season. If the activity will be visible or highly audible from the nest, maintain a 330-foot buffer during the breeding season, particularly where eagles are unaccustomed to such activity."

As the habitat surrounding Eagle Nest OS-106 is relatively open, stormwater pond maintenance activities will be visible to the nest. Accordingly, any maintenance activities for the stormwater pond planned

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to occur during the breeding season (September through May) are strictly prohibited from occurring within the 330-foot buffer.

4.2.3.4 Nest Monitoring and Success Criteria

The status of nesting activity at Eagle Nest OS-106 will be documented annually and will be reported in accordance with the requirements of Section 5.0 below. Surveys to document new bald eagle nests will be conducted during conservation land monitoring events. Any new nests will be documented using GPS technology and described within the appropriate annual monitoring reports. The status of any new nest identified will be updated in each monitoring report for the duration of the monitoring period.

Because bald eagles construct multiple nests, an inactive nest year will not necessarily be indicative of management failure. Successful management of the site for bald eagle nesting habitat may be determined based on the continued use of the site by this species or the continued existence of suitable onsite nesting habitat, as defined in the *National Bald Eagle Management Guidelines* (USFWS 2007).

4.2.4 Florida Sandhill Crane Management Plan

The Center Lake DRI conceptual plan provides for preservation of the majority of the freshwater marsh systems within the property. Additional protection of nesting habitat is afforded through the planned preservation of expanded upland buffers to these wetlands. The Habitat Management Plan Map (**Figure 3**) depicts that extensive open space and stormwater ponds are proposed along the boundaries of the upland buffers to many of the wetlands. These proposed post-development land uses will provide added buffer and protection to potential on-site nesting habitat for sandhill cranes. In addition to the 113.96± acres of upland buffers, the project design includes 138.90± acres of upland open space within the Parks & Recreational land use designations. This upland habitat will provide significant forage areas for this species in the post-development condition, ensuring the long-term protection and sustainability of this species within the Center Lake DRI project.

4.2.4.1 Management for Forage Habitat

Seasonal mowing will be conducted within Upland Management Areas UMA-1, UMA-2A and UMA-2B to maintain significant forage habitat for sandhill cranes. These UMAs currently exist as improved pasture communities and will be targeted for maintenance as improved pasture or another similar grassy open space use to promote the continued existence of suitable foraging habitat for this species in the post-development

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condition. Wildlife crossing signage will be erected at the roadway crossing that bisects UMA-2A and UMA-2B. Reduced speed limits and speed bumps may also be employed in this area; please refer to Section 4.4 of this HMP for details on these conservation elements.

4.2.4.2 Nest Monitoring

Sandhill crane nest surveys will be conducted in conjunction with the conservation land monitoring events. Any sandhill crane nests observed on the Center Lake DRI project site during these monitoring events shall be documented using GPS technology and will be described within the annual monitoring report. The status of any nest identified should be updated in each monitoring report for the duration of the monitoring requirements.

As recommended by Stys (1997), provisions for buffers around any documented sandhill crane nests that may be subject to disturbance during the breeding season will be provided. If any active nests are documented, construction related disturbances should not be conducted within a 250-foot "Flushing Zone" surrounding the nest until the nest has fledged. This will reduce the potential for mortality due to nest abandonment.

4.2.5 Little Blue Heron Management Plan

Given the significant acreage of wetland habitat that will remain in the post-development condition, the proposed project is not expected to adversely affect any listed wading birds that have been documented on-site and no conservation actions are required. However, it is recommended that any wading bird rookeries observed on the Center Lake DRI project site during future conservation land monitoring events be documented using GPS technology and described within the annual monitoring report. The status of any new rookeries should be updated in each monitoring report for the duration of the monitoring requirements.

4.2.6 Gopher Tortoise Management Plan

The FWC *Gopher Tortoise Permitting Guidelines* (April 2009) require land development projects that will affect gopher tortoise populations to pursue on-site or off-site relocation, and require mitigation fees to be paid to the FWC based on the relocation option chosen and the number of tortoises to be relocated. The Guidelines require that a 15% survey be conducted no more than 90 days prior to submittal of the relocation permit application, and that a 100% survey be conducted immediately prior to initiating the relocation efforts.

In accordance with FWC regulations, gopher tortoises located within the footprint of the Center Lake DRI development site must be relocated to an on-site or off-

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site recipient area, following receipt of the appropriate permits and completion of the required surveys. The FWC *Gopher Tortoise Permitting Guidelines* (Revised April 2009) require gopher tortoise recipient sites to comprise a minimum of 40 acres of contiguous suitable uplands. No habitat areas of sufficient acreage meeting the habitat suitability requirements of the FWC will remain on-site in the post-development condition. Therefore, the gopher tortoises located within the footprint of development will be relocated from the development site to an offsite certified recipient area following receipt of the appropriate permits and under the direction of an FWC certified Authorized Agent, in accordance with FWC guidelines.

As indicated above, it is estimated that a total of 65-66 tortoises will need to be relocated from the Center Lake DRI project site in order to facilitate development. It is important to note that gopher tortoises located within the preserved upland buffers and other open space areas that are outside of the footprint of development will not require relocation. The presence of this species within the upland preservation area is vital to the structure of the unique ecosystem, as their burrows are used by numerous commensal species. Therefore, relocation is not recommended unless the burrows will be impacted by development.

4.2.7 Southeastern American Kestrel Management Plan

Kestrel nest boxes may be established to provide perching and nesting locations for the falcons. The most appropriate place for nest boxes would be upland management areas UMA-1, UMA-2A and UMA-2B as these areas will be maintained as open, improved pasture communities for sandhill crane foraging.

Nest boxes will be constructed as described in the FWC's Technical Report No. 13 (**Exhibit 2**). The nest boxes will be placed at a height of 7 meters, and will be located on poles, snags or live trees in close proximity to a roost tree, if present. The nest box opening will face a southerly to easterly direction, and the entrance will be unobstructed with a clear flight path. Additionally, each box will be placed more than 50 meters from any forest edge. Nest boxes will be cleaned and repaired at least once a year, just prior to the kestrel-nesting season (December). Boxes shall be visually checked in April and May to determine if they are being used by other species (i.e. starlings) and shall be cleaned if such use is observed. Additional observations may be conducted during other regular monitoring events to be conducted for wetlands and other land management activities.

4.2.8 Wading Bird Management Plan

No specific conservation actions are recommended for the potential wading birds that may occur on-site. Maintenance of the stormwater ponds and preservation and maintenance of the wetland habitats as provided in accordance with

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regulatory requirements will be sufficient to ensure protection and sustainability of suitable habitat for wading birds in the post-development condition.

4.3 Adaptive Land Management

Adaptive management is a key component to any long term habitat management project. Adaptive Management allows for improvement of resource management by learning from documented management outcomes and by enabling modifications to management techniques when deemed appropriate based on emerging scientific knowledge and the monitoring results of the management plan being implemented. Adaptive management practices may be used, as necessary, to ensure that conservation areas located within the Center Lake DRI project site continue to provide suitable habitat for protected wildlife species.

4.4 Habitat Replacement Following Disaster

Onsite preservation areas consist of herbaceous wetlands, forested wetlands, herbaceous uplands (former pasture), and forested uplands. In an effort to retain these characteristics in the post-development condition, 50% of the areas identified as Parks and Recreation on Map H will be preserved in their natural condition and used for passive recreation. Of the remaining park area (active park), only 20% will be grassed and irrigated. Native vegetation, including native pine specimens which provide suitable bald eagle habitat, will be incorporated into the landscape plan to further bolster post-development habitat quality.

In the event of a natural disaster such as a hurricane, fire, or a tornado the only areas that are likely to require restoration would be the forested uplands and landscaped areas. Herbaceous uplands and wetlands are able to recover quickly from such disasters due to their ability to recruit vegetative cover over a short period of time. The onsite forested wetlands are not expected to require post-disaster action to remove or restore fallen specimens. Attempting to remove fallen or dead trees from these expansive forested wetland systems would be more damaging than allowing the systems to go through the natural process of decay and recruitment process. The onsite forested wetlands presently exhibit strong natural regeneration and, based on the expansive acreage of contiguous onsite and offsite forested habitat, would be expected to naturally recruit tree specimens in relatively short order. An example of native habitat resilience was demonstrated following the 2004-2006 period when several hurricanes hit Central Florida and severely damaged forested wetland communities. Some evidence of the effects of the 2004-2006 hurricane seasons can be seen within the onsite forested wetlands today, evidenced by fallen and decaying tree specimens in areas throughout the wetland. Onsite forested wetlands show substantial sign of recovery through the natural recruitment of numerous hydric hardwood species.

Areas of native landscaping are expected to require attention following natural disaster, which may include removal, restoration, or replanting. The process would consist of

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removing all upland trees that have been knocked down by winds, or killed by fire or disease. The same tree species would be planted in the same location or close proximity due to the remaining root structure from the destroyed tree. The planting would occur on a 1:1 basis. The size of the plant material will depend on several factors such as the number of trees destroyed, the number of trees remaining, the type of tree and the surrounding community. The plant material will range from 3 gallon to 25 gallon containerized specimens. Damaged trees would be assessed on a case-by-case basis to determine whether restoration or removal is necessary. The nature and extent of post-disaster habitat replacement or restoration efforts will be determined on a case-by-case basis, and will be specifically addressed when necessary within the monitoring and reporting processes discussed in Section 5.0 below.

4.5 Educational Materials

The Center Lake DRI project area and adjacent public lands provide habitat for several listed wildlife species. The Center Lake DRI site plan involves preservation of significant acreage of both wetland and upland communities that provide habitat for these listed species. The long-term success of the HMP is dependent on education of the residents and public. From the construction workers to the future residents, a series of educational efforts must be undertaken to provide information on the basic natural history of the protected wildlife in the area and the associated regulatory protections and permits.

Wildlife preserves and conservation areas are generally accepted by the residents and public as an amenity and public asset for the community, especially if they can use and enjoy them. Educational materials will be developed in a manner to encourage people at all levels to be aware of the potential wildlife presence and to protect the resources in written pamphlets and flyers, and on signs. The materials will include contact information for the FWC and any other responsible party potentially designated by the CDD/POA in case of wildlife interactions or if someone is breaking the law regarding protection of wildlife. Specific educational materials will be developed and provided to residents and property owners to warn against feeding of Florida sandhill cranes. Signage will be placed at appropriate locations to alert residents and property owners of the potential presence of this species. Speed deterrent devices such as speed humps and lowered speed limits on the secondary residential roads will be implemented to prevent automobile collisions with this species.

All educational materials will be developed with the assistance of the FWC and any other regulatory agency or conservation organization that may be appropriate for each aspect of the materials.

4.6 Conservation Signage

The primary purpose of conservation signs and displays is to inform the general public about the status of the conservation lands and to outline acceptable and unacceptable actions and activities in and around the preserves and associated protected wildlife. The

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secondary purpose of the signs is to educate the homeowners about the purpose of the preservation areas and protected wildlife and to encourage their positive support for conservation. The developer and its consultant with the assistance of the FWC will design educational signage describing the listed status of each of the wildlife species detailed within this HMP.

Appropriate signs will be erected throughout the project site, specifically at the following locations: the boundaries of the Scrub Preserve, along the wetland preservation areas. The signs will identify the areas as preservation and will identify the potential presence of wildlife.

4.7 Wildlife Crossings & Habitat Connectivity

Several roads are proposed to cross through wetland areas to facilitate access to upland development parcels (**Figure 3**). Each of these road crossings will exhibit speed deterrent devices such as posted reduced speed limits and/or speed bumps. Additionally, signage will be posted in these locations to alert drivers to the potential presence of wildlife crossing. Such efforts are anticipated to reduce vehicular mortality of wildlife. Under-road wildlife crossings will be provided through use of appropriately sized culverts. These culverts will also provide for hydrologic connectivity of the wetland through which the road crosses. During engineering design and the Environmental Resource Permitting (ERP) process, each of these crossings will be evaluated with specific consideration for wildlife use. Where appropriate, additional "dry-crossing" culverts may be recommended in addition to the culverts planned for hydrologic connectivity. These dry-culvert crossings will be designed for installation above the seasonal high water elevations to allow for use by small mammals and reptiles, etc. that may not use the wet culverts.

The Center Lake DRI conceptual plan has been designed to accommodate post-development habitat connectivity within the site as well as between the site and offsite habitat areas. The Habitat Management Plan Map (**Figure 3**) depicts many wildlife corridors and habitat connectivity areas that will facilitate on-site and regional wildlife migration. Wetlands 9, 10, 13, 14, 17 and 18 are connected to offsite wetland habitat areas via uninterrupted natural wildlife corridors. Placement of the on-site wetlands under conservation easement will ensure maintenance of these corridors in perpetuity.

Additionally, the applicant commits to incorporating appropriately sized box culverts or other such measures within the roadway crossings that bisect the expansive wetland slough located through the center of the property, in order to ensure connectivity of the habitat and wildlife movement through the site. Specifically, such measures will be incorporated into design of the roadways which bisect Wetlands 13 & 18, Wetlands 18 & 11, Wetlands 11 & 9 and Wetlands 8-west & 8-east. Each roadway crossing will be evaluated separately during site design to determine what type of structure is most appropriate for the size and expanse of the roadway crossing. For example, smaller, secondary roadways that bisect less expansive wetlands may use smaller culverts to

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maintain hydrology, with at-grade wildlife crossings and speed deterrent devices (i.e. speed bumps, reduced speed limits and wildlife crossing signage) to facilitate connectivity. Conversely, primary roadways that entail a larger, more significant linear crossing may use large box culverts or bridging as appropriate to facilitate connectivity.

Recent discussions between Modica & Associates, Inc. staff and Dr. Daniel Smith (professor, University of Central Florida and private consultant to many FDOT transportation projects) indicate that 8-foot pre-cast box culverts have been successfully used on State Road 46 for wildlife crossing structures. The specific design elements of each wetland crossing for the Center Lake project will consider hydrologic connectivity as well as biological concerns such as noise and lighting. Wildlife crossing signage and reduced speed limits may also be employed at appropriate wetland and wildlife corridor crossings.

The applicant acknowledges that the on-site wetland systems provide significant wildlife habitat and connectivity with off-site wildlife corridors that have been identified by conservation groups and regulatory agencies. The site plan allows for conservation of 99% of the on-site wetlands, with additional preservation of significant upland habitat contiguous with the expansive wetland preservation acreage. A mosaic of upland and wetland preservation will continue to provide significant habitat for both wetland and upland-dependent species in the post-development condition. Planning for appropriate wildlife crossings as discussed above should provide reasonable assurance that the project will preserve the significant wildlife corridors within the Center Lake DRI project site in the post-development condition.

The wetlands within these on-site corridors are protected by upland buffers and stormwater ponds, and all proposed crossings will include appropriate signage and wildlife crossings. These conservation measures will ensure protection and sustainability of wildlife and their habitat within the project site.

4.8 Restrictive Use of Fertilizers

Fertilizer use within residential, landscaped and common areas within the Center Lake DRI will be restricted through development of a program that is consistent with the Florida Yards and Neighborhood Program. This program will be incorporated and approved as part of the first Planned Development application and its provisions included, where appropriate, in the CDD, Homowner's or Master Property Owner's Association Covenants, Conditions and Restrictions.

4.9 Smoke Management

Prescribed burning is not anticipated for the onsite conservation areas at this time. However, in the event that any portion of the Center Lake DRI is incorporated into a controlled burn smoke impact area, the following actions will be taken:

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a) Contracts for sale of lands in area to be affected by smoke shall specify that:

   i. Smoke from prescribed fire is anticipated to occur, and
   ii. The buyer or purchaser waives his/her right to challenge, object, sue or otherwise interfere with the conduct or results of a prescribed burn as may relate to smoke, provided the burn is managed consistently with best management practices.

b) Institute a protocol for informing individuals that purchase property or live and work within smoke sensitive planning zones that they will be exposed to smoke;

c) Institute measures to educate the public about the use of fire and their role in the fire management program, including consideration of road placement and design, signage, "firewise" landscaping, natural buffer and open space management and emergency access points;

d) Cooperate with the County Fire Department and provide a summary of these efforts in the biennial report.

4.10 Landscaping and Green Design

4.10.1 Landscaping / Irrigation

Native, drought tolerant vegetation will be utilized throughout the Center Lake DRI in order to reduce maintenance and irrigation needs and to retain wildlife habitat.

There are phases of construction that will be completed prior to re-use irrigation systems being installed on the property. Stormwater will be used as an irrigation source prior to re-use irrigation becoming available. Certain areas will be designated as holding ponds for this purpose. Stormwater management facilities will discharge to the holding ponds which will store water to be used for irrigation. Back-up wells may be necessary to accommodate any short fall, and will be used and permitted in accordance with SFWMD requirements.

4.10.2 Green Design

The use of innovative stormwater treatment such Low Impact Design (LID) and creative Best Management Practices (BMP) on the Center Lake Site will be considered during the final design and permitting phase of the project. Stormwater BMPs that include rain gardens, bio-filter swales, stormwater harvesting, porous pavers and pavement, will be considered depending on the final site plan, soil conditions, and the requirements set forth by the SFWMD and the Smartcode pending adoption by Osceola County. Furthermore, construction

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design will comply with the Osceola County Smartcode and the Osceola County Building Code, as applicable at the time of permitting.

4.11 Water Quality and Quantity

Stormwater management design will undergo engineering review by the SFWMD as part of the ERP process, and will be subject to the treatment and attenuation volume requirements for the Okeechobee basin and TMDL standards for the Kissimmee basin that are in place at the time of application submittal. As part of the ERP process, a program to restrict fertilizer use in accordance with the Florida Yards and Neighborhood program will be reviewed. The permitted project will comply with any SFWMD requirements for establishing baseline conditions and monitoring water quality; any resulting data shall be included within the monitoring report to be prepared and submitted as presented in Section 5.0 below.

5.0 CONSERVATION AREA MONITORING & MAINTENANCE PLAN

The status of the conservation actions outlined within Section 4.0 above will be determined by implementing a monitoring plan. Additionally, the continued success of any conservation action requires the implementation of a maintenance plan. The monitoring plan will document the wildlife use and habitat quality of the conservation lands. The maintenance plan will be used to control the habitat quality by implementing chemical and mechanical resources as applicable.

5.1 Vegetative Monitoring Plan

Monitoring of the Center Lake DRI conservation lands will be required by the SFWMD and the USACOE permits as part of the wetland impact mitigation plan. While specific details of the mitigation monitoring plan will be determined during the wetland permitting process, it is likely that monitoring will consist of both qualitative and quantitative components. During each monitoring event, the following general information will be provided: methodology or analytical techniques, date of sampling event, person conducting the sampling event and results of the monitoring event including photographs, qualitative summary of vegetative cover, wildlife observed, percent cover of nuisance and exotic species, hydrologic notes and recommended maintenance activities.

Qualitative vegetation monitoring will be conducted to assess the overall quality and health of each of the community types within the conservation lands. The condition of each strata of vegetation, wildlife use observations and the general health of the habitat will be evaluated and documented. This evaluation will be conducted by establishing representative monitoring transects within each of the community types of the conservation lands. The location and length of each transect will be established during the first monitoring event and will be approved by the appropriate regulatory agency. The following qualitative observations will be made within each community type:

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dominant vegetation within each strata, presence and spread of nuisance and exotic vegetation and wildlife observations. These observations will be recorded on field data sheets prepared for each transect within each community type.

5.1.1 Vegetative Monitoring Success Criteria

Success criteria for the vegetative monitoring program will be determined by the SFWMD during the permitting process. Generally, success criteria include benchmarks for desirable and non-desirable vegetative cover and total vegetative cover.

5.2 Wildlife Monitoring Plan

A wildlife monitoring program will be incorporated into the monitoring plan submitted to the SFWMD as part of the ERP process to document the presence of wildlife use, including listed species, within the conservation lands. General wildlife observations will be documented while conducting vegetative monitoring efforts within each of the conservation areas. Wildlife observations will be listed in the monitoring reports. Specifically, the presence or absence of those wildlife species documented onsite in the pre-development condition (American alligator, Sherman's fox squirrel, American bald eagle, Florida sandhill crane, little blue heron, and gopher tortoise) will be noted, along with the location of each documented occurrence. Quantitative population surveys will not be included within the wildlife monitoring plan; rather the objective will be to document the presence or absence of these protected species onsite in the post-development condition, as well as the presence of other listed species of wildlife that were not documented onsite in the pre-development condition. ..

5.2.1 Wildlife Monitoring Success Criteria

The success of the wildlife management activities set forth herein will be determined based on the results of the wildlife monitoring activities. Wildlife management will be considered successful when all protected species documented onsite in the pre-development condition are also documented during the monitoring events.

If previously documented wildlife species are not observed during a particular monitoring event, efforts will be made to determine the reason for the absence of the species. Some species have specific habitat requirements that may not be met as a result of climatic or seasonal variations and therefore the absence of a species one year may not necessarily be indicative of a failure in wildlife management. For example, Florida sandhill crane nest habitat selection is strongly influenced by water regimes and vegetative composition, which are highly variable over time based on rainfall amounts (Stys 1997). Similarly, bald eagle pairs often build more than one nest and may not breed at the same nest location each year (USFWS 2008). When the absence of previously documented wildlife species

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cannot be attributed to climatic / seasonal variations or behavioral characteristics, or when a particular species is documented to be absent for multiple consecutive monitoring years, the habitat characteristics will be reassessed to determine whether the conservation areas are being properly managed for the absent species. Management techniques will be adapted as necessary in response to the monitoring data.

5.3 Maintenance Plan

A maintenance program will be implemented for the conservation lands within the Center Lake DRI project area. Maintenance of nuisance and exotic vegetation will be conducted as required by the SFWMD permit to ensure the integrity and viability of the conservation land. This will increase the probability of the continued presence of suitable habitat for those listed wildlife species documented onsite in the pre-development condition. As a standard condition, the SFWMD permit will require that maintenance be conducted to ensure that invasive exotic vegetation (as defined by the Florida Exotic Pest Plant Council) will not exceed 10% within any one community type in perpetuity.

5.4 Monitoring Duration

Generally, SFWMD monitoring is required annually for a period of five (5) years. In order to ensure that the conservation areas continue to provide suitable habitat conditions following termination of the SFWMD monitoring period, monitoring of the Center Lake DRI conservation areas will occur in accordance with SFWMD permit conditions on an annual schedule for a period of five (5) years and once every five (5) years thereafter.

5.5 Reporting

The results of each monitoring event will be summarized in an Annual Monitoring Report to be submitted by December 31st of each respective year, or as required by the SFWMD permit. During the SFWMD required monitoring period, reports will be submitted to SFWMD, ACOE, ECFRPC, the CDD or MPOA, and any other agency that may request a copy. Following termination of the SFWMD 5-year annual monitoring period, reporting will continue once every 5-years with submittal to the ECFRPC and the CDD or MPOA, for the purpose of review and recommendation per the criteria outline in the HMP requirements.

6.0 OWNERSHIP & MANAGEMENT RESPONSIBILITY

The Center Lake DRI Application for Development Approval (ADA) is currently under review by the Central Florida Regional Planning Council. Ownership and management of the DRI will eventually become the responsibility of the Center Lake DRI Community Development District (CDD) or Master Property Owner's Association (MPOA). Until such time as the CDD or MPOA has been formed and becomes operational, the responsibility of monitoring and maintenance activities will remain with the Applicant.

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Once the CDD or MPOA becomes operational, management and maintenance responsibilities will be transferred from the Applicant to the CDD/MPOA.
It is the responsibility of the Applicant to incorporate by reference and attach as an appendix, this Center Lake DRI HMP into the Declaration of Covenants, Conditions & Restrictions or other community covenant as applicable. Furthermore, there must be specific language within these documents to require adequate fee assessments to provide the economic structure to perpetually support and implement the management activities outlined in this HMP.

The CDD/MPOA, as having financial responsibility for the monitoring and maintenance of the on-site conservation areas, will be responsible for selecting and retaining an environmental consultant(s) to conduct the Recommended Conservation Actions as detailed in Section 4.0 above. The environmental consultant shall be responsible for recommending any maintenance activities, informing each regulatory agency of needed activities, and coordinating the needed activities. The management and maintenance of the conservation areas will be carried out in accordance with this HMP and with the conditions of the conservation easement(s) that may be recorded over all or portions of the conservation areas in the future.

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DRAFT

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DRAFT

FIGURES

DRI Boundary

Center Lake DRI

Habitat Management Plan
Figure 1 - Location Map/USGS Topographic Map - Narcoossee Quadrangle
Sections 27, 28, 29, 33 and 34, T25S, R31E
Osceola County, Florida

2,000 1,000 0 2,000 Feet

Modica & Associates, Inc.
Environmental Planning, Design & Permitting

302 Mohawk Road
Minneola, Florida 34715
Phone: 352-394-2000
Fax: 352-394-1159
Email: environmental@modica.cc

Center Lake DRI

Sections 27, 28, 29, 33 and 34, Township 25 South, Range 31 East
Osceola County, Florida

Map H
Concept Plan

Figure 2

Date Prepared: 11 January, 2010

Jones Rd

Potential Connection

Potential Connection to Jones Rd

Potential Connection to Jones Rd

Sky Wind Court

Starline Drive

Sunlight Court

Narcoossee Rd

Impacted Wetland (W-4)

Impacted Wetland (W-9)

Impacted Wetland (W-11)

59' SDL (Safe Development Line)

Lake Center

Twelve Oaks Road

Impacted Wetland (W-20)

Impacted Wetland (W-8E)

Impacted Wetland (W-11)

Hackney Road

Disston Drive

Hansom Road

Impacted Wetland (W-14)

Impacted Wetland (W-1)

Impacted Wetland (W-18)

Elementary School

Potential Connection

Propose Vacated R/W

Ralph Miller Road

Impacted Wetland (W-12)

Eagle Nest 660'

Oak Shore Drive

Coon Lake

Rummel Rd

Potential Connection

Harkley Runyan Road

Impacted Wetland (W-16)

Impacted Wetland (W-10)

Impacted Wetland (W-13)

Impacted Wetland (W-15)

Pine Grove Road

Potential Connection

Nova Rd

Legend

- Wetlands
- Wetland Buffers & Transition Zones
- Community Center
- Neighborhood Center
- Residential
- Elementary School
- Park and Rec Areas
- Water Management
- Framework Roads & Right of Ways
- Lands Below Safe Development Line and Submerged Lands
- Impacted Wetlands

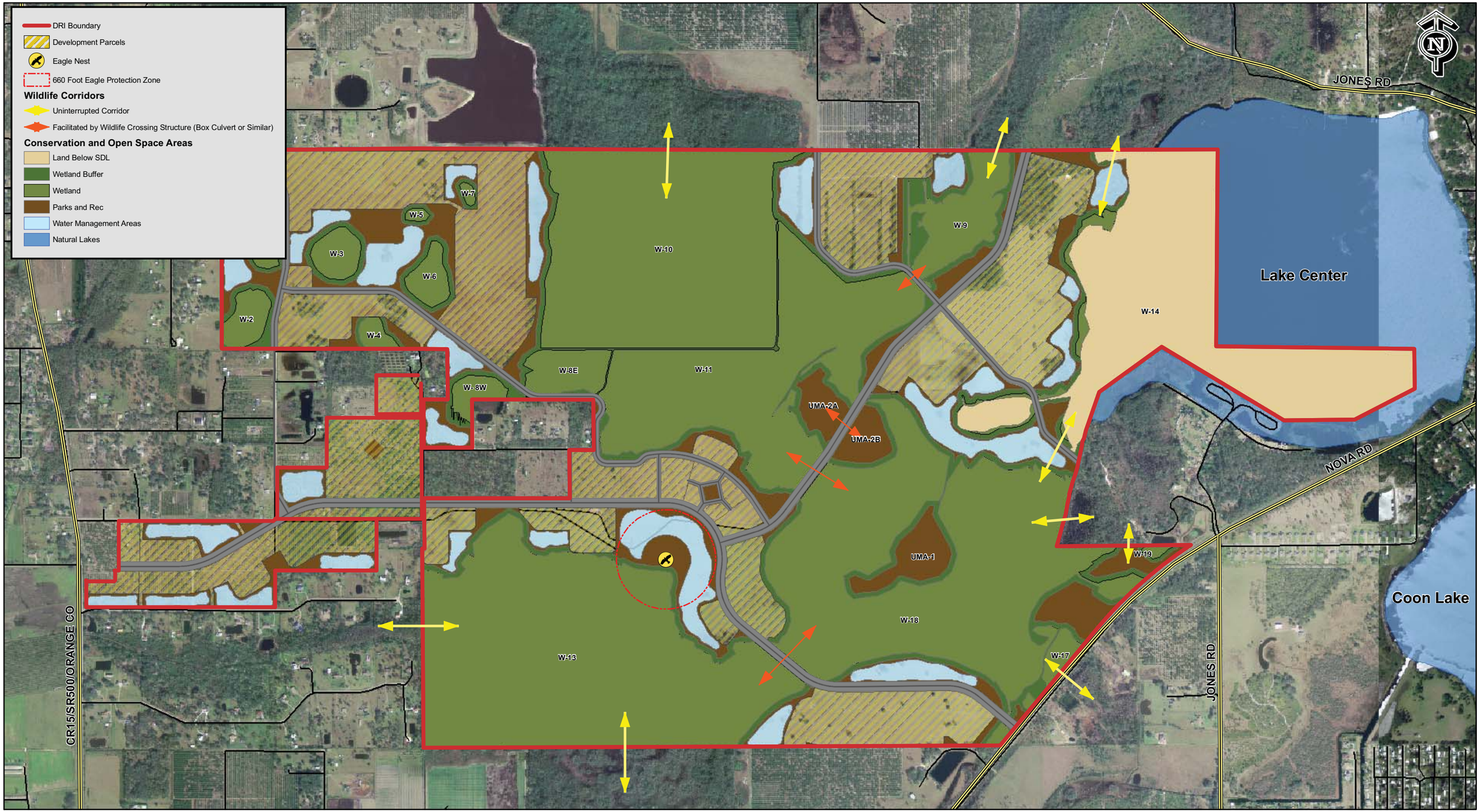
Note: This plan is a preliminary Concept Plan only. As such, it is subject to modification pending environmental, engineering, and agency review.

(Approximate)

0 1400'

N

Rj WHIDDEN and ASSOCIATES, INC.
LAND PLANNERS AND DEVELOPMENT CONSULTANTS



Center Lake DRI

Habitat Management Plan
Figure 3 - Habitat Management Plan Map
Sections 27, 28, 29, 33 and 34, T25S, R31E
Osceola County, Florida

1,250 625 0 1,250 Feet

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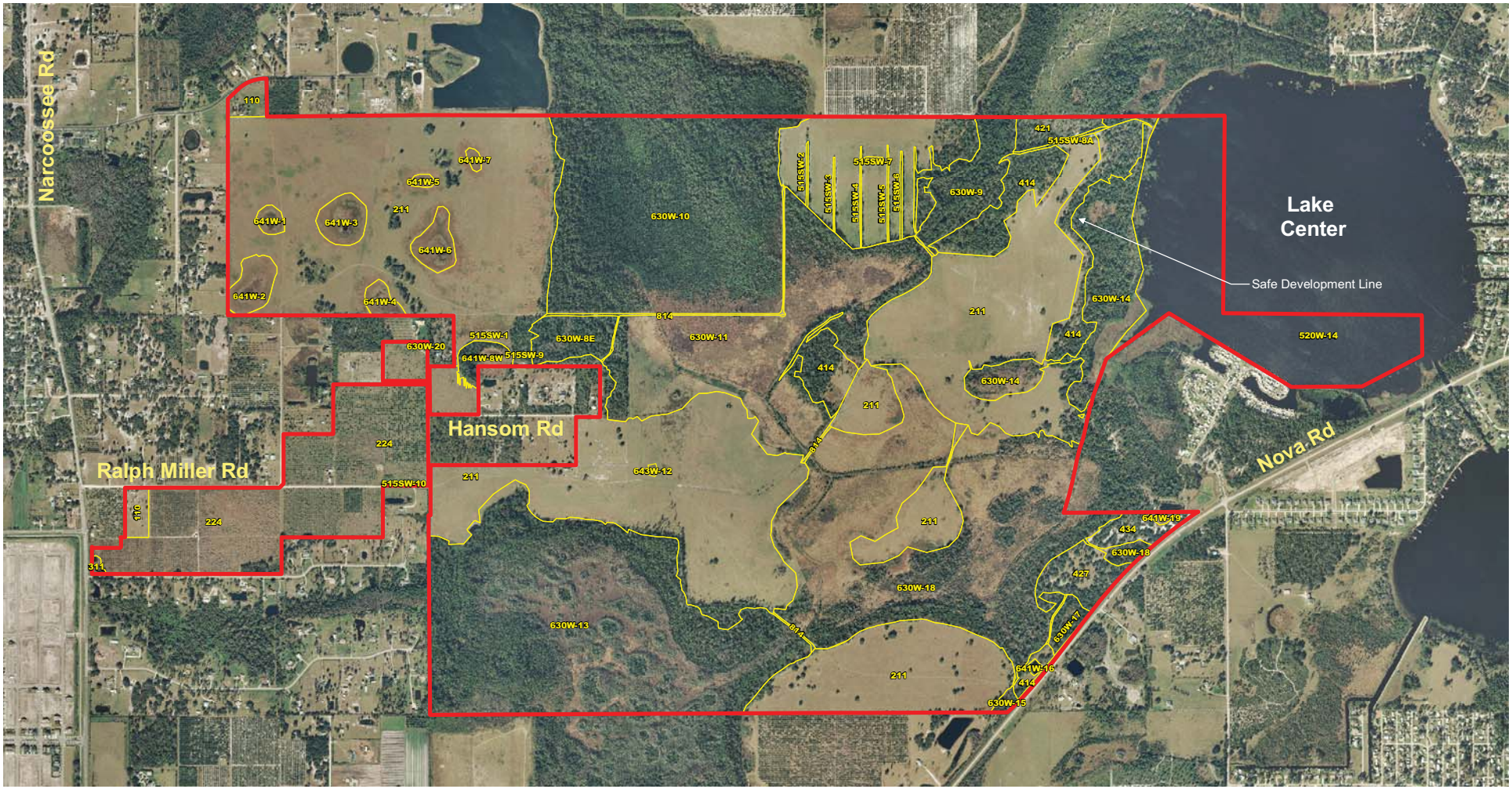
Center Lake DRI

Sections 27-29, 33, 34, Township 25 South, Range 31 East
Osceola County, Florida

Map F
Vegetative Associations

Figure 4



DRI Boundary

Land Use Legend

110 - Residential, Low Density
211 - Improved Pastures
224 - Abbandoned Citrus
311 - Herbaceous
414 - Pine Mesic Oak
421 - Xeric Oak
427- Live Oak
434 - Hardwood Coniferous Mixed
515 - Ditch
520 - Lake
630 - Wetland Forested Mixed
641 Freshwater Marsh
643 - Wet Prairie
814 - Field Roads

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Note: All FLUCCS information hereon has been provided by Modica & Associates, in Shapefile Format.

0 2,000 Feet

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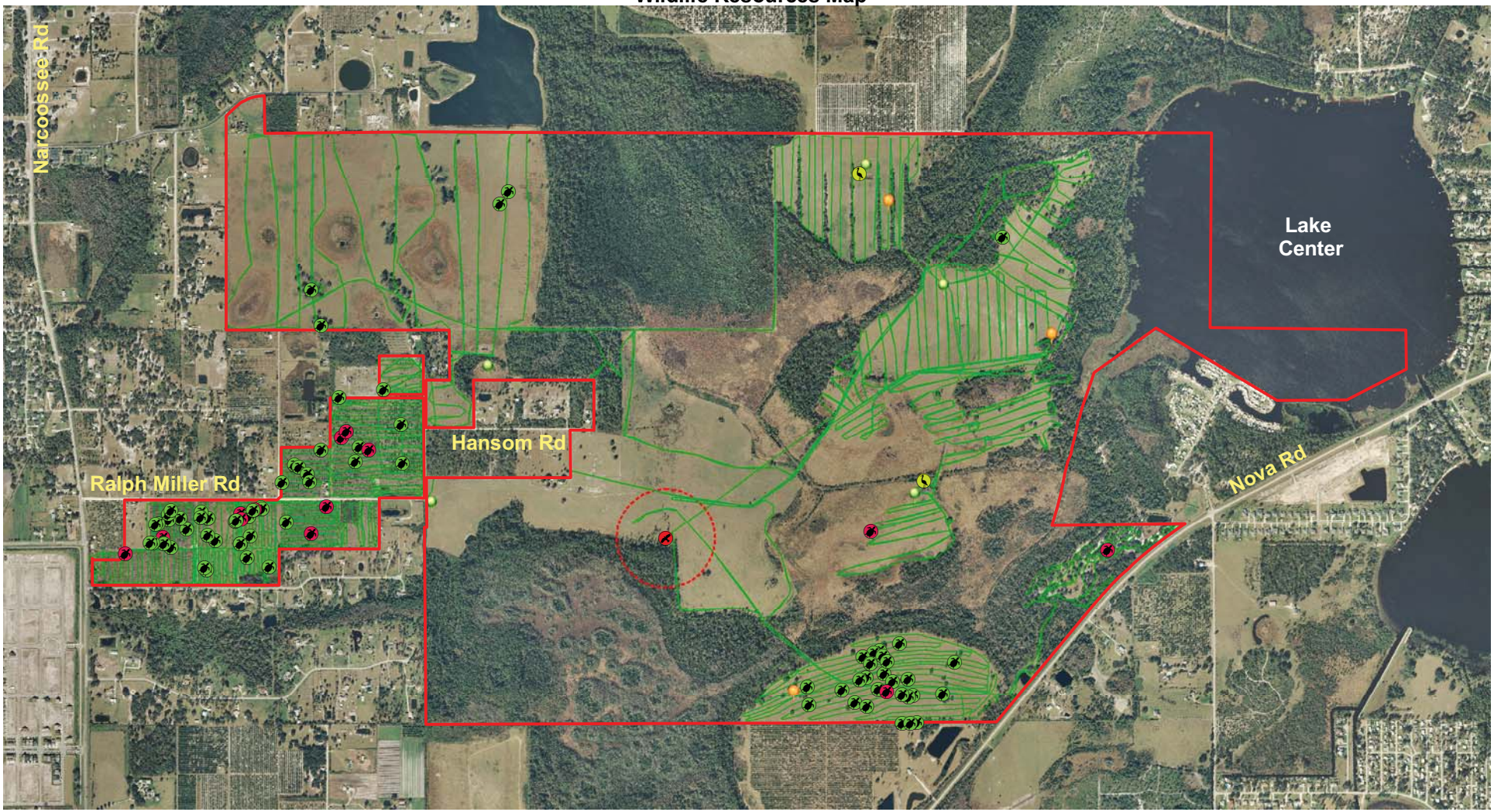
LAND PLANNERS AND DEVELOPMENT CONSULTANTS

Center Lake DRI

Sections 27-29, 33, 34, Township 25 South, Range 31 East
Osceola County, Florida

Map G
Wildlife Resources Map

Figure 5



DRI Boundary

Wildlife Legend

- Eagle Nest
- 660ft Eagle Protection Zone
- Wildlife Survey Transects
- SandHill Crane (Potential Nests, 2007 Survey)

Gopher Tortoise Burrows

status

- Active
- Inactive

Wildlife Observations

Wildlife

- Fox Squirrel
- Sandhill Crane

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Note: All Wildlife information hereon has been provided by Modica & Associates, in Shape File Format.

0 2,000 Feet

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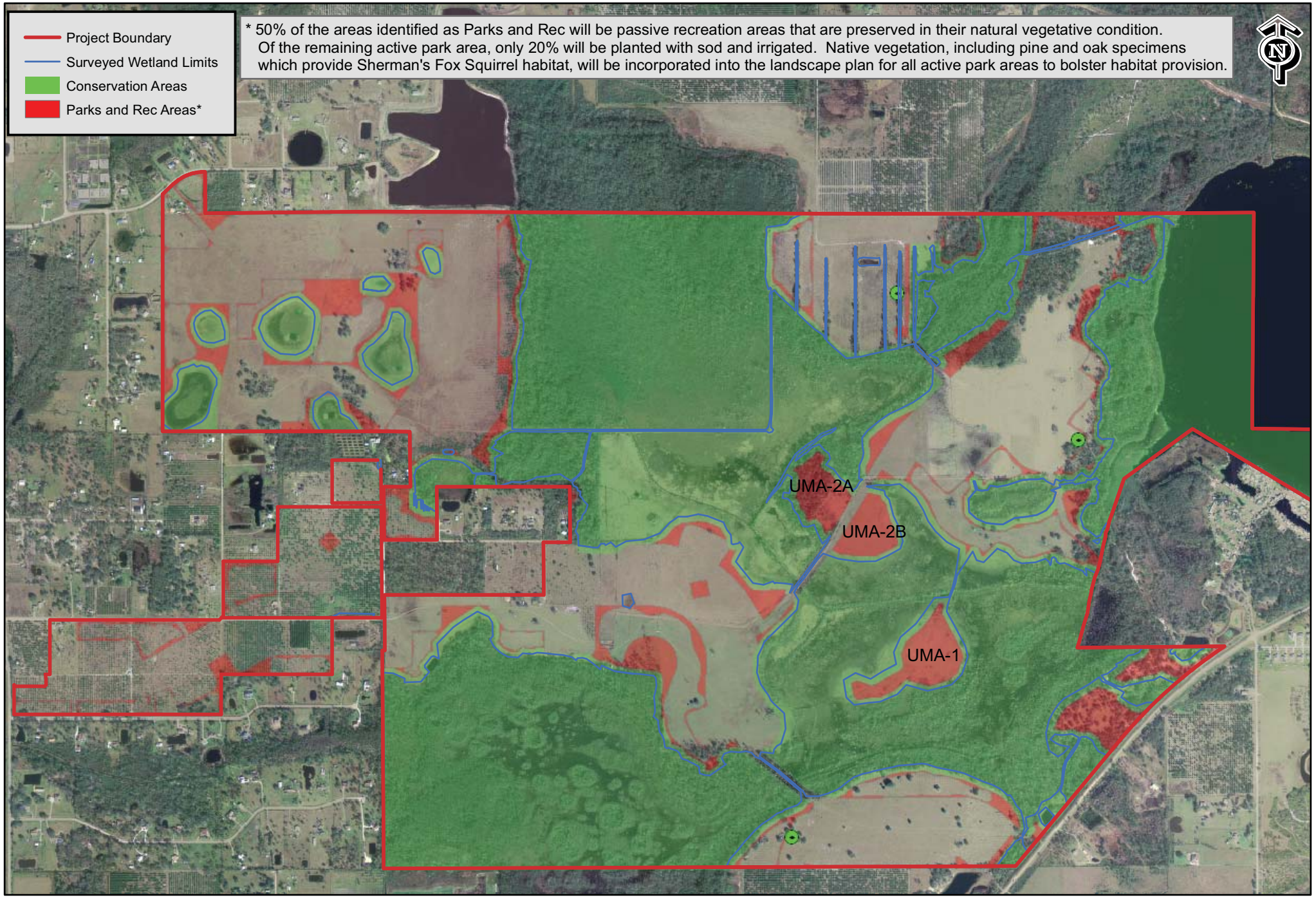

Center Lake Ranch

Habitat Management Plan

Figure 6 - Post Development Fox Squirrel Habitat

1,500 750 0 1,500 Feet

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EXHIBITS

Living with alligators

In Florida, increasing numbers of people living and recreating near water have led to a steady rise in the number of alligator-related complaints. Although the majority of these complaints relate to alligators occurring in locations where they simply aren't wanted, a small number tragically involve bites to people. The FWC removes more than 7,000 nuisance alligators per year. Through removal of these alligators and increased public awareness, the rate of alligator bites has remained constant despite the increased potential for alligator-human interaction.

Alligators are an important part of Florida's heritage and play a valuable role in the ecology of our state's wetlands. A better understanding of these facts and a broader knowledge of alligator behavior will help ensure that people and alligators can continue to coexist.

Visit MyFWC.com/gators for more information about alligators and the latest statistics.

Tim Donovan

Call 1-866-FWC-GATOR (392-4286) to report nuisance alligators.

Janice Plain

Call 1-866-FWC-GATOR (392-4286) to report nuisance alligators.

Regional offices
Northwest Region, Panama City
850-265-3676

North Central Region, Lake City
386-758-0525

Northeast Region, Ocala
352-732-1225

Southwest Region, Lakeland
863-648-3200

South Region, West Palm Beach
561-625-5122

The FWC prohibits discrimination by race, color, nationality, age, sex or handicap. If you believe you have been discriminated against in any program, activity or facility of this agency, write to: Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600; or to: Office of Human Relations, USFWS, Department of Interior, Washington, D.C. 20240.

100K 08/08

printed on recycled paper

A guide to living with

Alligators

Jamie Feddersen

Florida Fish and Wildlife Conservation Commission
MyFWC.com

Lizabeth West

Do not swim outside of posted swimming areas or in waters that may be inhabited by alligators.

About alligators

Alligators have inhabited Florida's marshes, swamps, rivers and lakes for many centuries. Meanwhile, Florida has experienced tremendous human population growth, with hundreds of people moving into the state daily. Many new residents seek waterfront homes, resulting in increased interactions between people and alligators, which are found in all 67 counties.

Although many Floridians have learned to coexist with alligators, the potential for conflict always exists. Because of their predatory nature and large size (up to 14 feet in length and weighing as much as 1,000 pounds), alligators sometimes target pets and livestock as prey. Unfortunately, people are occasionally bitten, and in rare instances, killed by large alligators. Since 1948, more than 300 unprovoked bites to people have been documented in Florida, with at least 22 resulting in deaths.

Over the past 10 years, the Florida Fish and Wildlife Conservation Commission (FWC) has received an average of more than 16,000 alligator-related complaints per year. Most of these complaints deal with alligators occurring in places such as backyard ponds, canals, ditches and streams, but other conflicts occur in garages, pools and in golf course ponds. In many cases, if left alone, alligators will eventually retreat to more-preferred, isolated areas away from people.

Safety tips

■ If you encounter an alligator over four feet in length that poses a threat to humans or property, call 1-866-FWC-GATOR (392-4286). The FWC will evaluate your complaint and, if necessary, send a contracted nuisance alligator trapper to remove it.

■ Be aware of the possibility of alligator attacks when in or near fresh or brackish waterbodies. Attacks may occur when people do not pay close enough attention to their surroundings when working or recreating near water.

■ Closely supervise children when they are playing in or around water. Never allow small children to play unsupervised near water.

■ Do not swim outside of posted swimming areas or in waters that might be inhabited by large alligators.

■ Alligators are most active between dusk and dawn. Therefore, swim only during daylight hours.

■ Leave alligators alone. State law prohibits killing, harassing or possessing alligators.

■ Never feed or entice alligators – it's dangerous and illegal. When fed, alligators overcome their natural wariness and learn to associate people with food.

■ Inform others that feeding alligators is illegal and creates problems for others who want to use the water for recreational purposes.

■ Dispose of fish scraps in garbage cans at boat ramps and fish camps. Do not throw them in the water. Although you are not intentionally feeding alligators when you do this, the end result can be the same.

Tim Donovan

A young alligator wanders onto a porch in a residential neighborhood.

■ Don't allow pets to swim, exercise or drink in or near waters that may contain alligators or in designated swimming areas. Dogs are more susceptible to being targeted than people, because dogs resemble the natural prey of alligators.

■ Never remove an alligator from its natural habitat or accept one as a pet. It is illegal and dangerous to do so. Handling even small alligators can result in injury.

■ Observe and photograph alligators only from a distance. Remember, they're an important part of Florida's natural history as well as an integral component of freshwater ecosystems.

■ Seek immediate medical attention if bitten by an alligator. Alligator bites can result in serious infection.

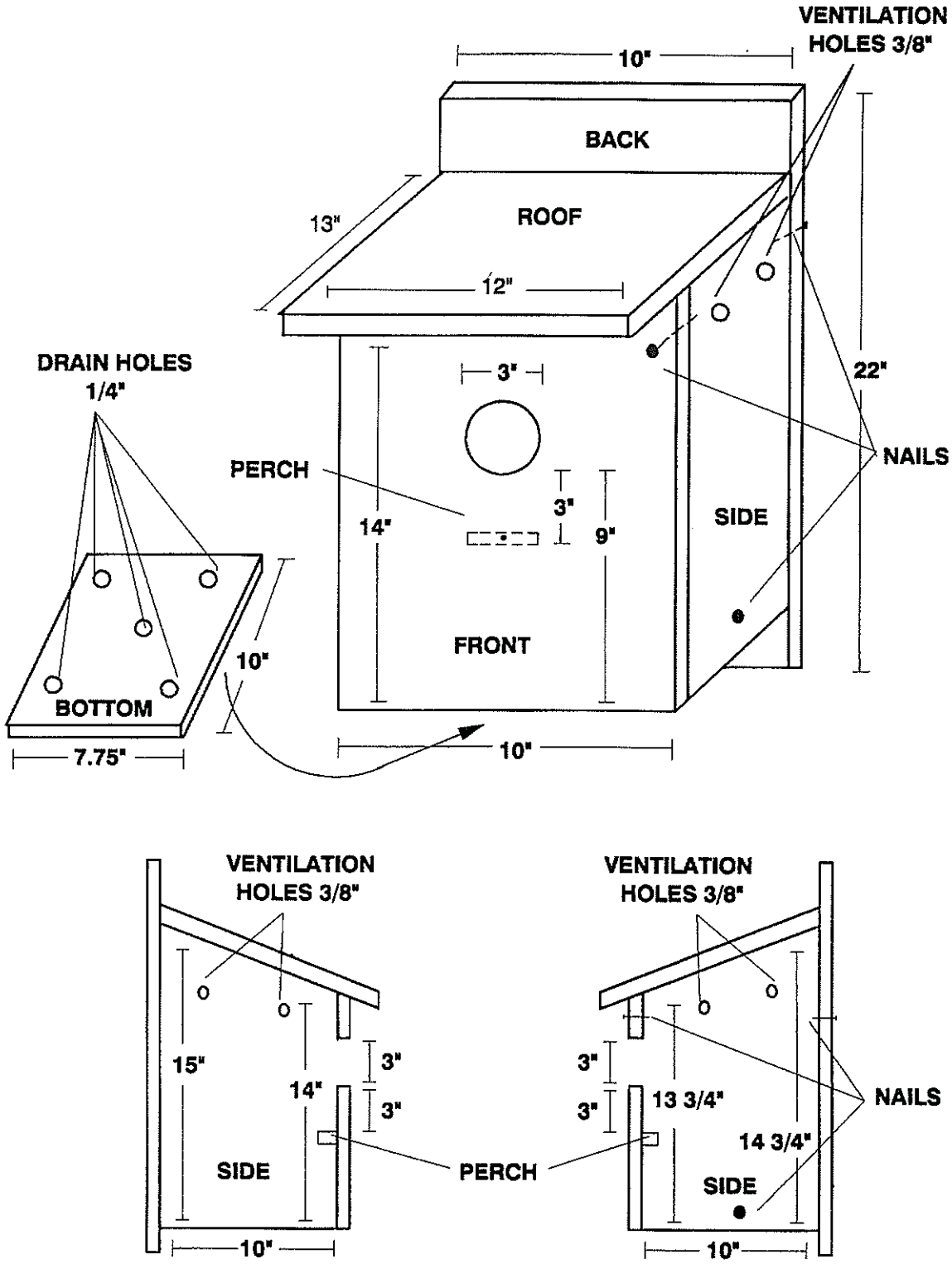

Figure 13. Kestrel nest box design. Half of the entrance cut-out is used for an inside perch, attached with a screw. Two nails at the top of one side panel act as hinges to swing the side open for cleaning. A single nail is used at the bottom to secure the side shut. Use 1 inch thick wood for construction.

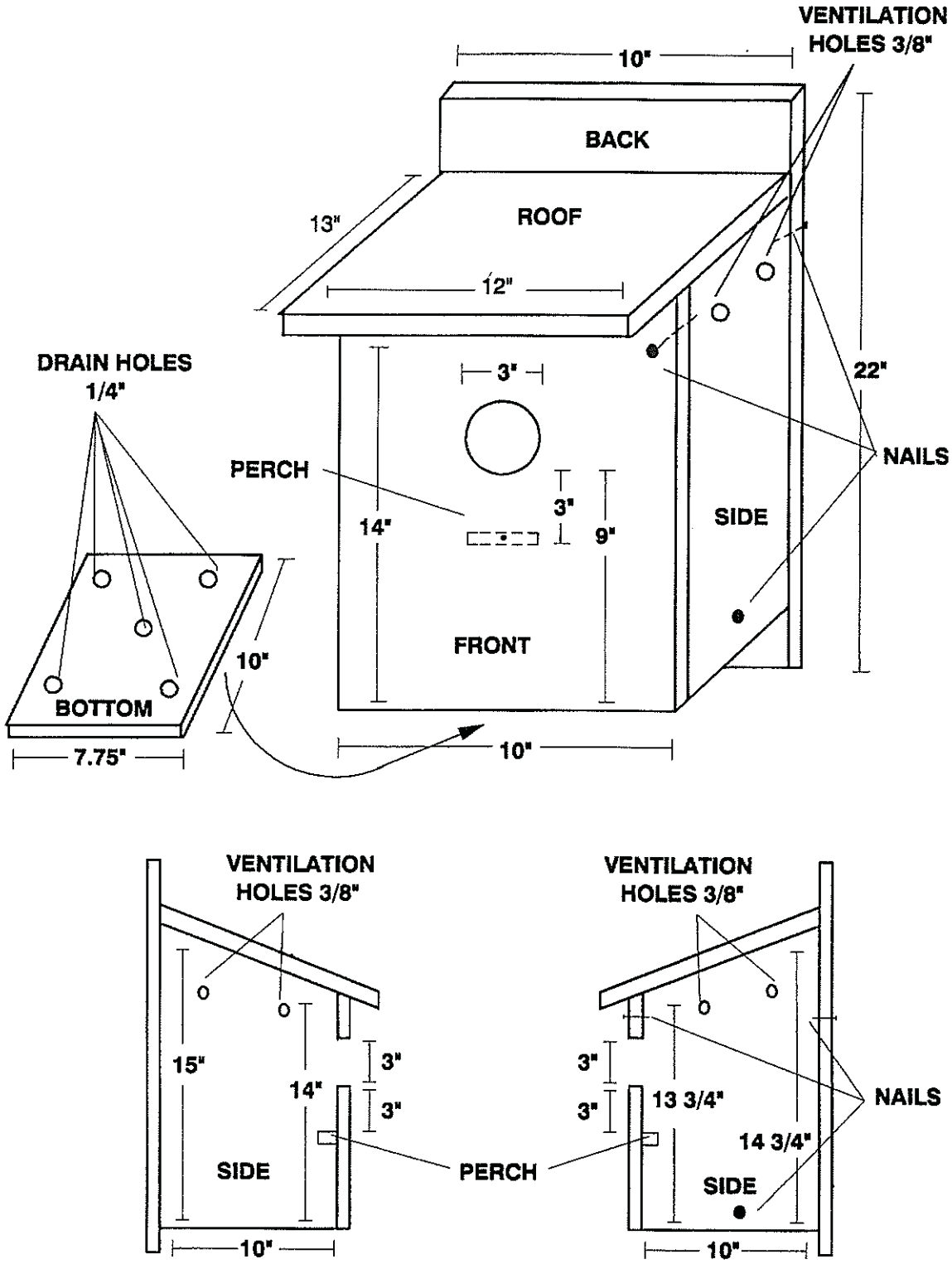

Figure 13. Kestrel nest box design. Half of the entrance cut-out is used for an inside perch, attached with a screw. Two nails at the top of one side panel act as hinges to swing the side open for cleaning. A single nail is used at the bottom to secure the side shut. Use 1 inch thick wood for construction.

Exhibit 4

Revised ADA Question 12 D

Question 12 - Vegetation and Wildlife

A. Identify the dominant species and other unusual or unique features of the plant communities on Map F. Identify and describe the amount of all plant communities that will be preserved in a natural state following development on Map H.

Additional vegetative communities and agricultural land uses, classified using the *Florida Land Use Cover & Forms Classification System* (FLUCFCS), were identified within the 134.1 acre recently acquired parcel in the eastern portion of the DRI boundary. A total of fourteen (14) land use types are now mapped within the Center Lake DRI project limits. The following provides a general description all land uses and vegetative communities mapped within the DRI boundaries, including the recently acquired parcel.

110 – Residential Low Density

There are two single-family, rural residential lots on the project site, one in the northwestern corner and a second in the southwest corner of the site. The northwest residential site has a mobile home and several secondary structures including a storage shed and a work shed. The property has some ornamental landscaping. The pasture associated with the residential lot has been occupied by horses. The residential tract within the southwestern portion of the property comprises 4 acres, and contains two residential structures and a garage. Scattered remnant citrus specimens and ornamental species are present throughout the southwestern residential parcel.

211 – Improved Pasture

This cover type consists of agricultural land managed for the purpose of sustaining cattle. The primary vegetation within this vegetative community consists of bahia grass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), dog fennel (*Eupatorium capillifolium)*, flattop goldenrod (*Euthamia minor*), prickly pear (*Opuntia humifusa*), pawpaw (*Asimina* spp.), rattlebox (*Sesbania* spp.) and tropical soda apple (*Solanum capsicoides*). This community is the dominant upland habitat on-site. The northeast portion of the pasture was historically used for crops, including strawberries. A series of shallow ditches extend north to south through this portion of the pasture and appear to have been used for site drainage and/or irrigation.

Development is proposed within the improved pasture areas of the project site. Small portions of this community type may remain in the post-development condition within upland buffers to preserved wetlands.

224 – Abandoned Citrus

The majority of the recently acquired western tract consists of fallow agricultural land previously utilized for the cultivation of citrus (*Citrus* spp.). In some areas, citrus specimens remain in planted rows; in other areas, the specimens have been removed. In addition to remnant citrus, vegetative composition included an assortment of recently mowed grasses, forbs, and shrubs, such as bahia grass, beautyberry (*Callicarpa americana*), beggar-ticks (*Bidens alba*), Bermuda grass (*Cynodon dactylon*), blackberry (*Rubus* sp.) camphorweed (*Heterotheca subaxillaris*), crabgrass (*Digitaria spp.*), creeping cucumber (*Melothria pendula*), dog fennel (*Eupatorium capillifolium*), grapevine (*Vitis rotundifolia*), hairy indigo (*Indigofera hirsuta*), lantana (*Lantana camara*), Mexican clover (*Richardia brasiliensis*), passion flower (*Passiflora incarnata*), pokeweed (*Phytolacca americana*), ragweed (*Ambrosia artesimiifolia*), and sand spur (*Cenchrus incertus*). Where present, trees included black cherry (*Prunus serotina*), cabbage palm (*Sabal palmetto*), camphor tree (*Cinnamomum camphora*), and laurel oak (*Quercus laurifolia).*

311 – Herbaceous

An herbaceous vegetative community is located in the southwestern corner of the recently acquired western tract. Vegetation predominantly includes bahia grass, blackberry, Bermuda grass, dog fennel, lantana, and pokeweed. Some live oak specimens are included within the delineation of this vegetative community.

414 – Pine Mesic Oak

This community type typically occurs as an upland fringe habitat between forested wetlands and pasture. This upland community type is characterized by a variety oaks and pines and has been disturbed as evidenced with the presence of blackberry, muscadine vine, hairy indigo, rattlebox and dog fennel in the groundcover.

421 – Xeric Oak

A small area of native xeric oak habitat remains in the northeastern portion of the property. This vegetative community is characterized by dense scrub oaks and other associated vegetation. Canopy species common to this community include sand live oak (*Quercus virginiana var. geminata*), myrtle oak (*Q. myrtifolia*), laurel oak (*Q. laurifolia*), slash pine (*Pinus elliottii*) and longleaf pine (*P. palustris*). The understory is generally comprised of dense assemblages of the aforementioned scrub oak species with a ground cover often found to support saw palmetto (*Serenoa repens*).

427 – Live Oak

An isolated live oak community is located in the eastern portion of the property. The upland community supports mature live oaks with a ground cover typically comprised of bahia grass, tropical soda apple, dog fennel, and flattop goldenrod.

434 – Hardwood Coniferous Mixed

This land cover classification is located in the eastern portion of the project site. The canopy of this upland community is comprised predominately of live oak and laurel oak with scattered slash pine and longleaf pine. Less common hardwoods include black cherry (*Prunus serotina*) and persimmon (*Diospyros virginiana*). Understory and ground cover plants include but are not limited to: saw palmetto, beautyberry, bracken fern, and shiny blueberry. Vines include catbrier (*Smilax auriculata*), Virginia creeper (*Parthenocissus quinquefolia*) and muscadine grape (*Vitis rotundifolia*).

515 – Ditch

A network of ditches is present within the improved pasture area in the northern portion of the site. Additional ditches are located in various locations throughout the project site, some of which facilitate a hydrologic connection between wetland systems. A roadside ditch was identified along Ralph Miller Road, within the recently acquired western parcel.

520 – Lake

The western and southern portions of Lake Center are included within the Center Lake DRI boundary. Areas included within this community classification are characterized by open water with varying densities of emergent aquatic plants such as spatterdock *(Nuphar luteum)* and fragrant water lily (*Nymphaea odorata*) within the shallow areas.

630 – Wetland Forested Mixed

The majority of the on-site wetland acreage is forested and contains a mixed canopy of hardwood and coniferous trees. Canopy species predominantly include pond pine (*Pinus serotina*), slash pine (*Pinus elliottii*), bald cypress, red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), and sweet bay magnolia (*Magnolia virginiana*). Dahoon holly (*Ilex cassine*), buttonbush (*Cephalanthus occidentalis*) and wax myrtle (*Myrica cerifera*) were the most commonly observed understory plants. The ground strata of this community was found to support Virginia chain fern (*Woodwardia virginica*), netted chain fern (*Woodwardia aerolata*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), marsh fern (*Thelypteris palustris*), muscadine grape (*Vitis rotundifolia*), Virginia creeper (*Parthenocissus quinquefolia*), blackberry (*Rubus betulifolius*), red root (*Lachnanthes caroliniana)*, and lizard's tail (*Saururus cernuus*).

641-Freshwater Marsh

Several freshwater marsh wetlands are scattered throughout the Center Lake Ranch project site. Additionally, some portions of the main wetland slough that extends through the central portion of the property consist of freshwater marsh. These herbaceous wetlands contain a mix of the following species: soft rush (*Juncus effusus*), spike rush (*Eleocharis baldwinii*), lemon bacopa (*Bacopa caroliniana*), spadeleaf (*Centella asiatica*), blue maidencane (*Amphicarpum muehlenbergianum*), buttonbush (*Cephalanthus occidentalis*), highbush blueberry (*Vaccinium* corymbosum), bushy bluestem (*Andropogon glomeratus*), pennywort (*Hydrocotyle umbellata*), beaksedge (*Rhynchospora* spp.) and rattlebox (*Sesbania* spp.). The perimeters of these wetlands contain longleaf pine (*Pinus palustris*), wax myrtle (*Myrica cerifera*) and blackberry (*Rubus* spp.).

643 – Wet Prairie

An isolated wetland is located within the improved pasture area in the west-central portion of the property. This wetland exhibits much of the same characteristics as the freshwater marshes, but tends to have a shorter period of inundation and contains a more grassy vegetative composition. Vegetation primarily includes blue maidencane, soft rush, spike rush, bushy bluestem and beaksedge.

814 – Field Roads

Several field roads are present within the DRI boundaries. Many of these roads facilitate access between upland areas. The Progress Energy easement is included within this land use designation. This easement runs east/west and north/south through the property.

The proposed site plan preserves almost 99% of the on-site wetlands. The majority of the development will be within the areas classified as pasture. Portions of the Pine Mesic Oak, Live Oak and other natural upland community types will be preserved in the post-development condition within planned community parks and along upland buffers to the wetlands.

B. Discuss what survey methods were used to determine the absence or presence of state or federally listed wildlife and plants. (Sampling methodology should be agreed to by the regional planning council and other reviewing agencies at pre-application conference stage). State actual sampling times and dates, and discuss any factors that may have influenced the results of the sampling effort. Show on

Map G the location of all transects, trap grids, or other sampling stations used to determine the on-site status of state or federally listed wildlife and plant resources.

Modica & Associates, Inc. conducted surveys of the 134.1 acre acquisition parcel on March 6th and April 15th of 2009. On those dates, a qualitative review of the site was conducted to determine if any wildlife species using the property are listed as protected by the U.S. Fish and Wildlife Service (USFWS) or the Florida Fish and Wildlife Conservation Commission (FFWCC). Additionally, surveys were conducted for protected plant species. Vehicular and pedestrian transects were executed to visually inspect approximately 85% of the acquisition parcel.

Survey methods for the original main parcel of the DRI were provided in our previous submittal. Modica & Associates, Inc. biologists conducted additional inspections of the main parcel on various occasions during 2008 as part of an updated sandhill crane survey and 2009, primarily to facilitate agency review and approval of the onsite jurisdictional wetland boundaries. During 2009 no formal wildlife surveys were conducted, however approximately two weeks were spent on site as part of the Formal Jurisdictional Determination during which time wildlife observations occurred.

C. List all state or federally listed wildlife and plant resources that were observed on the site and show location on Map G. Given the plant communities on-site, list any additional state or federally listed wildlife and plant resources expected to occur on the site and show the location of suitable habitat on Map G. Additionally, address any unique wildlife and plant resources, such as colonial bird nesting sites and migrating bird concentration areas. For species that are either observed or expected to utilize the site, discuss the known or expected location and population size on-site, existence (and extent, if known) of adjacent, contiguous habitat off-site, and any special habitat requirements of the species.

Wildlife surveys of the recently acquired ±134 acre parcel were conducted by Modica & Associates, Inc. on March 5th and April 16th of 2009. These surveys documented the presence of one (1) listed species of wildlife; gopher tortoise (*Gopherus polyphemus*) burrows were identified throughout much of the acquisition parcel. The following provides a revised account of the estimated gopher tortoise population within the overall Center Lake DRI project site, including the ±134 acre additional parcel. Revised survey results are depicted on Map G.

A total of 87 viable gopher tortoise burrows have been identified on the Center Lake DRI property. The original DRI project site was surveyed for this species in May and June of 2006. The recently acquired ±134 acre western parcel was surveyed in April 2009.

Please note that gopher tortoise survey transects did not cover 100% of the onsite suitable gopher tortoise habitat. However, a project-wide burrow count was extrapolated based on the partial site survey in order to calculate the estimated gopher tortoise population. To achieve this, optimal and suboptimal gopher tortoise habitat acreages were calculated in ArcGIS based on notes from field observations, aerial photographic interpretation, and mapped soils data. Optimal habitat generally included areas mapped as FLUCFCS codes 110, 211, 224, 311, and 421; suboptimal habitat includes areas mapped as FLUCFCS codes 211, 414, 427, 434, and 814 (Map F). Additionally, the acreage of each gopher tortoise habitat type (optimal vs. suboptimal) included within the gopher tortoise survey was calculated in ArcGIS by offsetting a 25 foot buffer on the GPS tracks recorded during the actual survey event (total survey transect width of 50 feet). Burrow counts were summed for each habitat type and data were extrapolated based on

survey percentage to obtain an estimated burrow count for the overall project site. The following table presents these data and the estimated site wide burrow count.

Table 1. Tabulation of calculated project-wide gopher tortoise burrow count, estimated based on survey data collected by Modica & Associates, Inc. in 2006 and 2009.

	Optimal Habitat	Suboptimal Habitat
Habitat Acreage	221 ac	693 ac
Acreage Surveyed	164 ac	205 ac
Percent of Habitat Surveyed	74%	30%
# of Burrows Observed	80	7
Extrapolated Total # of Burrows	108	23
Estimated Total Burrow Count	131 burrows	

Our calculations estimated that there are 131 burrows within the Center Lake DRI site. This equates to a population density of 0.14 tortoises per acre of suitable habitat. In accordance with the new *Gopher Tortoise Permitting Guidelines* issued by the FFWCC in April 2009, the anticipated number of tortoises within a project site should be estimated by multiplying the total number of viable burrows by a conversion factor of 0.50. For the Center Lake DRI project site, this results in an estimated gopher tortoise population of approximately 65-66 tortoises.

No other listed species of flora or fauna were observed on the acquisition parcel. Additionally, no listed species of flora or fauna beyond those previously reported for the main parcel were documented during the various site inspections conducted in year 2008 and 2009.

D. Indicate what impact development of the site will pose to affected state or federally listed wildlife and plant resources.

The project has been designed to avoid impact to protected wildlife species to the greatest extent possible. Approximately 99% of the onsite sensitive wetland habitats are being avoided by development; unavoidable impacts are limited to wetland areas which exhibit reduced functional quality. A total of 1,036.2 acres of unimpacted wetlands will be placed under conservation easement for the benefit of listed wildlife and plant resources in the post-development condition. Additional benefits will be provided through preservation of expanded upland buffer areas which adjoin the undisturbed wetland areas.

Some impact to habitats utilized by the gopher tortoise, fox squirrel, and sandhill crane habitat are unavoidable. Efforts have been taken to minimize these impacts to the greatest extent possible and to mitigate impacts such that the proposed project will not adversely affect these species. In addition to the habitat provided within the expanded upland buffer preservation areas, and additional 138.90 acres of the onsite uplands will remain as Park and Recreational areas in the post-development condition. Of that acreage, 50% will be preserved for passive recreational use in order to retain habitat for protected gopher tortoises, sandhill cranes and fox squirrels. Of the remaining acreage, only 20% will consist of irrigated sod (Active Park). Landscaping within all active park areas will consist of native vegetative species, to further bolster wildlife habitat provision.

Additional efforts to avoid and/or mitigate impacts to onsite listed wildlife species are summarized below, as well as within Section 4.0 of the Habitat Management Plan prepared for this development.

Gopher Tortoise

Some occupied gopher tortoise habitat will remain undisturbed in the post-development condition, mostly associated with undisturbed wetland buffers and passive use Park and Recreational areas. FFWCC regulations allow for relocation of gopher tortoises from lands slated for development within the occupied habitat areas and following receipt of the appropriate permits and in accordance with permit conditions. Prior to commencement of development, the Developer shall obtain all necessary permits from the Florida Fish & Wildlife Conservation Commission (FFWCC) to address impacts to on-site gopher tortoise habitat. The permit applications shall be for relocation of tortoises to a long-term protected offsite recipient area and shall be consistent with the FFWCC's Gopher Tortoise Permitting Guidelines. The relocation effort may be permitted in phases as development and construction will proceed in phases. As a result of the proposed habitat conservation and gopher tortoise relocation efforts, this project is not expected to result in adverse impacts to this species.

Florida Sandhill Crane

The Center Lake DRI conceptual plan provides for 1036.2 acres of wetland / surface water preservation, much of which consists of freshwater marsh and wet prairie habitats that will provide suitable nesting habitat for this species in the post-development condition. Wetland impacts will be minimized to the greatest extent possible and will be concentrated, where possible, in historically disturbed or altered wetland areas that provide suboptimal nesting habitat for this species. Additional protection of nesting habitat is afforded through the planned preservation of expanded upland buffers to these wetlands.

Florida sandhill cranes forage in grass-dominated urban and undeveloped land uses such as prairie land, pasture, sod farms, golf course roughs, lawns, utility easements, and surface water management areas. The Center Lake DRI conceptual plan provides for 138.9 acres of Park and Recreational, 135.9 acres of Water Management, and 113.96 acres of upland buffer areas that will provide continued foraging habitat for this species in the post-development condition. Additionally, it is expected that sandhill cranes will additionally forage within lawns and utility right-of-way areas, as they commonly observed to do within developed areas that are near suitable nesting habitat. The Habitat Management Plan sets forth specific provisions for managing onsite uplands to provide continued foraging habitat for this species.

Sherman's Fox Squirrel

The planned preservation of native forested communities within the Parks and Recreational and preservation areas will provide continued on-site habitat for use by this species following development. Additionally, pine trees will be planted within landscaped areas throughout the project site to further bolster post-development habitat. Much of the forested habitat along the eastern property will be preserved within the planned open space and within the upland buffers to wetlands.

E. Discuss what measures are proposed to be taken to mitigate impacts to state and federally listed wildlife and plant resources. If protection is proposed to occur on-site, describe what legal instrument will be used to protect the site, and what management actions will be taken to maintain habitat value. If protection is proposed to occur off-site, identify the proposed amount and type of lands to be mitigated as well as whether mitigation would be through a regional mitigation land bank, by acquisition of lands that adjoin existing public holdings, or by other means.

Regarding the impacts to the gopher tortoise, the applicant will relocate the tortoises to an approved recipient site. The current criteria call for any approved recipient site to have a conservation easement that highly restricts any activities which could impact the lands. This easement runs in perpetuity. No direct impacts to state and federally listed wildlife and plant species are proposed, with the exception of the relocation of the state-listed gopher tortoise in accordance with FFWCC regulations.

Exhibit 5

Revised Table 10-B-1

Center Lake

Development of Regional Impact

Revised Table 10-B-1
Existing and Proposed Land Use Comparison

FLUCCS CODE	LAND USE CATEGORY	EXISTING Acres(1)	PROPOSED Acres (2)	DIFFERENCE
Lands Above the Safe Development Line				
110	Residential, Low Density	9.8	322.8	+313.0
140	Commercial Community &	-0-	5.5	+5.5
140	Neighborhood Centers	-0-	6.1	+6.1
166	Water Management Tracts	-0-	135.9	+135.9
170	Institutional	-0-	12.8	+12.8
180	Parks, Recreation, and Open Space(3)	-0-	138.9	+138.9
211	Improved Pastures (4)	725.2	83.2	-642.0
224	Abandoned Citrus Grove	129.8	-0-	-129.8
311	Herbaceous	0.7	-0-	-0.7
414	Pine Mesic Oak	61.1	37.2	-23.9
421	Xeric Oak	8.3	3.7	-4.6
427	Live Oak	15.0	15.0	-0-
434	Hardwood Coniferous Mixed	8.5	8.5	-0-
515	Ditch	5.1	0.3	-4.8
630	Wetland Forested Mixed	831.5	826.7	-4.8
641	Freshwater Marsh	40.0	39.9	-0.1
643	Wet Prairie	0.4	-0-	-0.4
814	Roads and Right of Ways	3.9	202.8	+198.9
Sub Totals:		**1839.3**	**1839.3**	**-0-**

Lands Below the Safe Development Line				
211	Improved Pastures (4)	1.3	1.3	-0-
414	Pine Mesic Oak	2.5	2.5	-0-
421	Xeric Oak	0.1	0.1	-0-
515	Ditch	0.04	0.04	-0-
520	Lake	121.4	121.4	-0-
630	Wetland Forested Mixed	47.9	47.9	-0-
641	Freshwater Marsh	0.05	0.05	-0-
Sub Totals:		**173.2**	**173.2**	**-0-**

Totals:	**2012.5**	**2012.5**	**-0-**

Source: Rj Whidden and Associates, Inc. and Modica & Associates, Inc.

(1) Pre-Development Stage

(2) Post Development Stage

(3) Park acreage includes neighborhood and community parks exclusive of park lands within the Community Center and Neighborhood Center. Approximately 37 acres of natural communities located with proposed parks have been accounted for within the respective natural community category.

(4) Improved pasture lands to remain reflect lands adjacent to wetlands to be included in buffers and lands below the safe development line. These areas will be allowed to re-vegetate to their natural communities.

Exhibit 6

Transportation Appendix

Exhibit 6 Table of Contents

Table 21-A.2 (a)

SUMMARY OF EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Center Lake Ranch DRI

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Daily Volume	Peak-Hour Ser. Vol. @ Std.	Peak-Hour Ser. Vol. @ Std.	PM Peak-Hour Directional Volumes NB/EB	PM Peak-Hour Directional Volumes SB/WB	LOS	Capacity	K- Factor*	D- Factor	Count Date	Count Source	Count Station	Peak Dir.
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	2U	Urban Collector	E	20,500	1,860	1,860	1,179	477	D	681	0.081	0.712	2009	FDOT	7044	NB
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	27,787	1,860	1,860	864	1,467	C	393	0.084	0.629	2008	Orange	7040	SB
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	21,801	1,860	1,860	870	1,147	B	713	0.093	0.569	2008	Orange	6030	SB
	SR 417 - Tyson Road/Lake Nona Road C	2U	Principal Arterial	D	18,144	860	860	809	837	F	23	0.091	0.509	2008	Orange	6029	SB
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	2U	Principal Arterial	D	16,857	860	860	1,124	460	F	(264)	0.094	0.710	2008	Orange	7041	NB
	Lake Nona Road E - Boggy Creek Rd East	2U	Principal Arterial	D	16,857	860	860	1,124	460	F	(264)	0.094	0.710	2008	Orange	7041	NB
	Boggy Creek Rd E - Jones Rd	2U	Principal Arterial	D	11,900	860	860	366	711	F	149	0.091	0.660	2009	FDOT	7045	SB
	Jones Rd - Rummel Rd	2U	Principal Arterial	D	13,600	1,130	1,130	501	664	D	466	0.086	0.570	2009	FDOT	7044	SB
	Rummel Rd - 10th St	2U	Principal Arterial	D	15,800	860	860	620	758	D	102	0.087	0.550	2009	FDOT	7043	SB
	10th St - US 192-441	2U	Principal Arterial	D	16,109	860	860	656	740	D	120	0.087	0.530	2008	Osceola	589	SB
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	8,482	760	760	302	434	C	326	0.087	0.590	2008	Osceola	416	SB
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	11,760	760	760	831	356	F	(71)	0.101	0.700	2007	Osceola	417	EB
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.094	0.630	2006	Osceola	516	EB
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.094	0.630	2006	Osceola	516	EB
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.094	0.630	2006	Osceola	516	EB
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.094	0.630	2006	Osceola	516	EB
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.094	0.630	2006	Osceola	516	EB
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	2,900	1,130	1,130	155	99	B	975	0.088	0.610	2009	FDOT	7041	EB
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	976	730	730	40	59	A	671	0.101	0.600	2008	Osceola	545	WB
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	1,350	530	530	83	63	C	447	0.109	0.570	2009	FDOT	7074	EB
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	1,250	1,120	1,120	45	68	C	1,052	0.091	0.600	2009	FDOT	7039	SB
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	3,000	760	760	206	169	C	554	0.125	0.550	2009	FDOT	7003	EB
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	48,000	2,680	2,570	1,786	1,584	C	894	0.070	0.530	2009	FDOT	0147	EB
	OBT - Michigan Ave.	6LD	Principal Arterial	D	48,000	2,940	2,790	1,882	1,363	C	1,058	0.068	0.580	2009	FDOT	5017	EB
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	60,000	2,940	2,790	2,550	2,172	C	390	0.079	0.540	2009	FDOT	0145	EB
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	42,500	2,940	2,790	1,584	1,404	B	1,356	0.070	0.530	2009	FDOT	0007	EB
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	45,500	1,960	1,860	1,689	1,623	C	271	0.073	0.510	2009	FDOT	0300	EB
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	44,000	1,960	1,860	1,415	1,876	F	84	0.075	0.570	2009	FDOT	0105	WB
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	39,000	2,940	2,790	1,663	1,254	B	1,277	0.075	0.570	2009	FDOT	5021	EB
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	28,500	1,960	1,860	1,110	1,025	B	850	0.075	0.520	2009	FDOT	0155	EB
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	22,000	3,320	3,230	948	715	B	2,372	0.076	0.570	2009	FDOT	0255	EB
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	17,600	3,320	3,230	775	716	A	2,545	0.085	0.520	2009	FDOT	0302	EB
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	11,800	3,320	3,230	520	480	A	2,800	0.085	0.520	2009	FDOT	0304	EB

* Existing K-factors from Osceola County Database. Future year analyses will account for minimum K-factors from the FDOT LOS Handbook for all segments other than US 192.

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

Table 21-E.1 (a)

SUMMARY OF ROADWAY SEGMENT CAPACITY

CENTER LAKE DRI, PHASE 1 YEAR 2015

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Peak-Hour Svc. Vol. @ Std.	Existing Background AADT	Annual Growth Rate	2015 Background Volume	K- Factor	D- Factor	Project Distribution	PM Peak-Hour Directional Volumes						LOS	Project as % of Total Traffic	Project as % of Service Volume		Significant?		Adverse?		Sig. & Adv?	
												Background		Project		Total						Peak	Off-pk	Peak	Off-pk	Peak	Off-pk
												NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB										
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	4LD	Urban Collector	E	1,860	20,500	4.02%	25,447	0.09	0.71	0.17%	1,631	660	1	1	1,632	661	B	0.09%	0.05%	0.05%	No	No	No	No	No	No
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	1,860	27,787	6.31%	40,067	0.09	0.63	5.79%	1,337	2,269	40	42	1,377	2,311	F	2.22%	2.26%	2.15%	No	No	Yes	No	No	No
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	1,860	21,801	9.48%	36,261	0.09	0.57	6.59%	1,447	1,908	45	48	1,492	1,956	C	2.70%	2.58%	2.42%	No	No	Yes	No	No	No
	SR 417 - Tyson Road/Lake Nona Road C	6LD	Principal Arterial	D	2,790	18,144	3.25%	22,271	0.09	0.52	13.11%	970	1,050	90	96	1,060	1,146	B	8.43%	3.44%	3.23%	No	No	No	No	No	No
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	6LD	Principal Arterial	D	2,790	16,857	6.93%	25,030	0.09	0.71	17.62%	1,670	683	122	129	1,792	812	B	9.64%	4.37%	4.62%	No	No	No	No	No	No
	Lake Nona Road E - Boggy Creek Rd East	6LD	Principal Arterial	D	2,790	16,857	6.93%	25,030	0.09	0.71	21.04%	1,670	683	145	154	1,815	837	B	11.28%	5.20%	5.52%	Yes	Yes	No	No	No	No
	Boggy Creek Rd E - Jones Rd	4LD	Principal Arterial	D	1,860	11,900	4.95%	15,436	0.09	0.66	25.93%	475	922	179	190	654	1,112	C	20.90%	10.22%	9.62%	Yes	Yes	No	No	No	No
	Jones Rd - Rummel Rd	4LD	Principal Arterial	D	3,230	13,600	6.26%	18,706	0.09	0.57	24.52%	724	960	169	180	893	1,140	B	17.17%	5.57%	5.23%	Yes	Yes	No	No	No	No
	Rummel Rd - 10th St	4LD	Principal Arterial	D	1,860	15,800	4.34%	19,914	0.09	0.55	27.95%	807	986	205	193	1,012	1,179	B	18.17%	10.38%	11.02%	Yes	Yes	No	No	No	No
	10th St - US 192-441	4LD	Principal Arterial	D	1,860	16,109	2.10%	18,480	0.09	0.53	23.85%	782	881	175	165	957	1,046	B	16.97%	8.87%	9.41%	Yes	Yes	No	No	No	No
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	760	8,482	5.72%	11,881	0.09	0.59	1.21%	438	631	8	9	446	640	D	1.56%	1.18%	1.05%	No	No	No	No	No	No
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	760	11,760	8.03%	19,316	0.10	0.70	4.00%	1,364	585	28	29	1,392	614	F	2.84%	3.68%	3.82%	No	No	Yes	No	No	No
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	760	7,981	4.50%	11,216	0.09	0.63	3.93%	666	391	29	27	695	418	D	5.03%	3.82%	3.55%	No	No	No	No	No	No
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	760	7,981	7.30%	13,222	0.09	0.63	4.36%	785	461	32	30	817	491	D	4.74%	4.21%	3.95%	No	No	Yes	No	No	No
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	760	7,981	3.82%	10,723	0.09	0.63	4.76%	636	374	35	33	671	407	D	6.31%	4.61%	4.34%	No	No	No	No	No	No
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	760	7,981	3.82%	10,723	0.09	0.63	5.16%	636	374	38	36	674	410	D	6.83%	5.00%	4.74%	Yes	No	No	No	No	No
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	760	7,981	3.82%	10,723	0.09	0.63	8.02%	636	374	59	55	695	429	D	10.14%	7.76%	7.24%	Yes	Yes	No	No	No	No
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	1,130	2,900	4.39%	3,664	0.09	0.61	8.13%	201	129	60	56	261	185	B	26.02%	5.31%	4.96%	Yes	No	No	No	No	No
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	730	976	2.00%	1,113	0.10	0.60	2.12%	45	68	15	16	60	84	A	21.55%	2.19%	2.05%	No	No	No	No	No	No
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	530	1,350	2.00%	1,512	0.11	0.57	13.72%	94	71	101	95	195	166	C	54.44%	19.06%	17.92%	Yes	Yes	No	No	No	No
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	1,120	1,250	6.54%	1,741	0.09	0.60	4.30%	63	95	31	30	94	125	C	27.91%	2.68%	2.77%	No	No	No	No	No	No
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	760	3,000	3.50%	3,630	0.13	0.55	11.33%	250	204	83	78	333	282	C	26.19%	10.92%	10.26%	Yes	Yes	No	No	No	No
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	2,680	48,000	3.81%	58,974	0.07	0.53	2.65%	2,194	1,946	19	18	2,213	1,964	E	0.89%	0.71%	0.67%	No	No	No	No	No	No
	OBT - Michigan Ave.	6LD	Principal Arterial	D	2,940	48,000	4.31%	60,404	0.07	0.58	4.17%	2,368	1,715	31	29	2,399	1,744	B	1.45%	1.05%	0.99%	No	No	No	No	No	No
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	2,940	60,000	4.95%	77,831	0.08	0.54	4.45%	3,308	2,818	33	31	3,341	2,849	F	1.03%	1.12%	1.05%	No	No	Yes	No	No	No
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	2,940	42,500	7.04%	60,439	0.07	0.53	5.68%	2,252	1,997	42	39	2,294	2,036	C	1.87%	1.43%	1.33%	No	No	No	No	No	No
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	1,960	45,500	2.25%	51,654	0.07	0.51	6.80%	1,918	1,843	50	47	1,968	1,890	F	2.51%	2.55%	2.40%	No	No	Yes	No	No	No
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	1,960	44,000	2.28%	50,009	0.07	0.57	8.98%	1,608	2,132	66	62	1,674	2,194	F	3.31%	3.16%	3.37%	No	No	Yes	No	No	No
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	2,940	39,000	2.45%	44,728	0.07	0.57	13.30%	1,907	1,439	98	92	2,005	1,531	C	5.37%	3.33%	3.13%	No	No	No	No	No	No
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	1,960	28,500	4.40%	36,023	0.07	0.52	19.47%	1,403	1,295	143	134	1,546	1,429	B	9.31%	7.30%	6.84%	Yes	Yes	No	No	No	No
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	3,320	22,000	5.10%	28,737	0.08	0.57	3.45%	1,238	934	25	24	1,263	958	B	2.21%	0.75%	0.72%	No	No	No	No	No	No
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	3,320	17,600	5.10%	22,990	0.08	0.52	0.51%	1,013	935	4	4	1,017	939	B	0.41%	0.12%	0.12%	No	No	No	No	No	No
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	3,320	11,800	5.10%	15,414	0.08	0.52	11.53%	679	627	80	85	759	712	B	11.22%	2.41%	2.56%	No	No	No	No	No	No

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

Table 21-E.3 (a)

SUMMARY OF ROADWAY SEGMENT CAPACITY

CENTER LAKE DRI, PHASE 2 YEAR 2020

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Peak-Hour Svc. Vol. @ Std.	Existing Background AADT	Annual Growth Rate	2020 Background Volume	K- Factor	D- Factor	Project Distribution	PM Peak-Hour Directional Volumes						LOS	Project as % of Total Traffic	Project as % of Service Volume		Significant?		Adverse?		Sig. & Adv?	
												Background		Project		Total						Peak	Off-pk	Peak	Off-pk	Peak	Off-pk
												NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB										
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	4LD	Urban Collector	E	1,860	20,500	4.37%	30,363	0.090	0.712	0.16%	1,946	787	2	3	1,948	790	C	0.18%	0.11%	0.16%	No	No	Yes	No	No	No
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	1,860	27,787	9.13%	58,234	0.090	0.629	5.15%	1,943	3,298	71	91	2,014	3,389	F	3.00%	4.89%	3.82%	No	No	Yes	Yes	No	No
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	1,860	21,801	3.22%	30,214	0.093	0.569	6.38%	1,205	1,589	88	113	1,293	1,702	C	6.71%	6.08%	4.73%	Yes	No	No	No	No	No
	SR 417 - Tyson Road/Lake Nona Road C	6LD	Principal Arterial	D	2,790	18,144	4.97%	28,961	0.091	0.520	17.37%	1,261	1,366	240	309	1,501	1,675	B	17.29%	11.08%	8.60%	Yes	Yes	No	No	No	No
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	6LD	Principal Arterial	D	2,790	16,857	11.23%	39,571	0.094	0.710	22.63%	2,639	1,080	313	402	2,952	1,482	D	16.12%	11.22%	14.41%	Yes	Yes	Yes	No	Yes	No
	Lake Nona Road E - Boggy Creek Rd East	6LD	Principal Arterial	D	2,790	16,857	11.23%	39,571	0.094	0.710	26.52%	2,639	1,080	367	471	3,006	1,551	F	18.39%	13.15%	16.88%	Yes	Yes	Yes	No	Yes	No
	Boggy Creek Rd E - Jones Rd	4LD	Principal Arterial	D	1,860	11,900	5.61%	19,248	0.091	0.660	30.30%	592	1,150	419	538	1,011	1,688	D	35.46%	28.92%	22.53%	Yes	Yes	No	No	No	No
	Jones Rd - Rummel Rd	4LD	Principal Arterial	D	3,230	13,600	6.68%	23,586	0.090	0.570	29.26%	913	1,210	405	520	1,318	1,730	C	30.35%	16.10%	12.54%	Yes	Yes	No	No	No	No
	Rummel Rd - 10th St	4LD	Principal Arterial	D	1,860	15,800	5.01%	24,500	0.090	0.550	17.76%	992	1,213	316	246	1,308	1,459	B	20.31%	13.23%	16.99%	Yes	Yes	No	No	No	No
	10th St - US 192-441	4LD	Principal Arterial	D	1,860	16,109	5.52%	26,787	0.090	0.530	14.38%	1,133	1,278	255	199	1,388	1,477	B	15.85%	10.70%	13.71%	Yes	Yes	No	No	No	No
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	760	8,482	3.07%	11,608	0.090	0.590	1.17%	428	616	16	21	444	637	D	3.42%	2.76%	2.11%	No	No	No	No	No	No
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	760	11,760	4.18%	18,157	0.101	0.700	2.77%	1,282	550	38	49	1,320	599	F	4.53%	5.00%	6.45%	Yes	Yes	Yes	No	Yes	No
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	760	7,981	2.12%	10,348	0.094	0.630	1.86%	614	361	33	26	647	387	D	5.71%	4.34%	3.42%	No	No	No	No	No	No
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	760	7,981	3.05%	11,392	0.094	0.630	2.06%	676	397	37	28	713	425	D	5.71%	4.87%	3.68%	No	No	No	No	No	No
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	760	7,981	2.63%	10,919	0.094	0.630	2.49%	648	381	44	34	692	415	D	7.05%	5.79%	4.47%	Yes	No	No	No	No	No
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	760	7,981	2.63%	10,919	0.094	0.630	2.65%	648	381	47	37	695	418	D	7.55%	6.18%	4.87%	Yes	No	No	No	No	No
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	760	7,981	2.63%	10,919	0.094	0.630	4.39%	648	381	78	61	726	442	D	11.91%	10.26%	8.03%	Yes	Yes	No	No	No	No
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	1,130	2,900	2.30%	3,632	0.090	0.610	13.39%	199	127	238	185	437	312	C	56.41%	21.06%	16.37%	Yes	Yes	No	No	No	No
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	730	976	2.00%	1,210	0.101	0.600	2.69%	49	74	37	48	86	122	A	40.93%	6.58%	5.07%	Yes	Yes	No	No	No	No
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	530	1,350	2.00%	1,647	0.109	0.570	13.85%	102	77	246	192	348	269	D	71.02%	46.42%	36.23%	Yes	Yes	No	No	No	No
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	1,120	1,250	7.00%	2,212	0.091	0.600	3.28%	80	120	58	45	138	165	C	33.97%	4.02%	5.18%	No	Yes	No	No	No	No
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	760	3,000	3.33%	4,100	0.125	0.550	7.44%	282	231	132	103	414	334	D	31.44%	17.37%	13.55%	Yes	Yes	No	No	No	No
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	2,680	48,000	4.09%	69,574	0.070	0.530	2.23%	2,589	2,296	40	31	2,629	2,327	F	1.43%	1.49%	1.16%	No	No	No	No	No	No
	OBT - Michigan Ave.	6LD	Principal Arterial	D	2,940	48,000	4.72%	72,908	0.068	0.580	3.32%	2,859	2,070	59	46	2,918	2,116	F	2.09%	2.01%	1.56%	No	No	No	No	No	No
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	2,940	60,000	5.21%	94,394	0.079	0.540	3.41%	4,012	3,417	61	47	4,073	3,464	F	1.43%	2.07%	1.60%	No	No	Yes	Yes	No	No
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	2,940	42,500	2.54%	54,369	0.070	0.530	4.90%	2,026	1,796	87	68	2,113	1,864	F	3.90%	2.96%	2.31%	No	No	No	No	No	No
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	1,960	45,500	4.33%	67,151	0.073	0.510	6.52%	2,493	2,395	116	90	2,609	2,485	F	4.04%	5.92%	4.59%	Yes	No	Yes	Yes	Yes	No
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	1,960	44,000	4.33%	64,937	0.075	0.570	9.03%	2,089	2,769	161	125	2,250	2,894	F	5.56%	6.38%	8.21%	Yes	Yes	Yes	Yes	Yes	Yes
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	2,940	39,000	2.60%	50,174	0.075	0.570	13.56%	2,139	1,614	241	188	2,380	1,802	F	10.26%	8.20%	6.39%	Yes	Yes	No	No	No	No
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	1,960	28,500	9.34%	57,778	0.075	0.520	19.48%	2,250	2,077	346	269	2,596	2,346	B	12.44%	17.65%	13.72%	Yes	Yes	Yes	Yes	Yes	Yes
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	1,960	22,000	5.14%	34,450	0.076	0.570	13.83%	1,485	1,120	246	191	1,731	1,311	C	14.37%	12.55%	9.74%	Yes	Yes	No	No	No	No
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	1,960	17,600	5.14%	27,560	0.085	0.520	0.42%	1,214	1,120	6	8	1,220	1,128	C	0.60%	0.31%	0.41%	No	No	No	No	No	No
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	1,960	11,800	5.14%	18,478	0.085	0.520	5.46%	814	751	75	97	889	848	B	9.90%	3.83%	4.95%	No	No	No	No	No	No

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

Table 21-A.2 (b)

SUMMARY OF EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Center Lake Ranch DRI

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Daily Volume	Peak-Hour Ser. Vol. @ Std.	Peak-Hour Ser. Vol. @ Std.	PM Peak-Hour Directional Volumes NB/EB	PM Peak-Hour Directional Volumes SB/WB	LOS	Capacity	K- Factor*	D- Factor	Count Date	Count Source	Count Station	Peak Dir.
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	2U	Urban Collector	E	20,500	1,860	1,860	959	886	D	901	0.0900	0.5200	2009	FDOT	7044	NB
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	27,787	1,860	1,860	864	1,467	C	393	0.0839	0.6292	2008	Orange	7040	SB
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	21,801	1,860	1,860	870	1,147	B	713	0.0925	0.5687	2008	Orange	6030	SB
	SR 417 - Tyson Road/Lake Nona Road C	2U	Principal Arterial	D	18,144	860	860	809	837	F	23	0.0907	0.5087	2008	Orange	6029	SB
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	2U	Principal Arterial	D	16,857	860	860	1,124	460	F	(264)	0.0940	0.7096	2008	Orange	7041	NB
	Lake Nona Road E - Boggy Creek Rd East	2U	Principal Arterial	D	16,857	860	860	1,124	460	F	(264)	0.0940	0.7096	2008	Orange	7041	NB
	Boggy Creek Rd E - Jones Rd	2U	Principal Arterial	D	11,900	860	860	514	557	F	303	0.0900	0.5200	2009	FDOT	7045	SB
	Jones Rd - Rummel Rd	2U	Principal Arterial	D	13,600	1,130	1,130	588	636	D	494	0.0900	0.5200	2009	FDOT	7044	SB
	Rummel Rd - 10th St	2U	Principal Arterial	D	15,800	860	860	683	739	D	121	0.0900	0.5200	2009	FDOT	7043	SB
	10th St - US 192-441	2U	Principal Arterial	D	16,109	860	860	656	740	D	120	0.0867	0.5300	2008	Osceola	589	SB
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	8,482	760	760	302	434	C	326	0.0867	0.5900	2008	Osceola	416	SB
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	11,760	760	760	831	356	F	(71)	0.1009	0.7000	2007	Osceola	417	EB
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.0942	0.6300	2006	Osceola	516	EB
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.0942	0.6300	2006	Osceola	516	EB
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.0942	0.6300	2006	Osceola	516	EB
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.0942	0.6300	2006	Osceola	516	EB
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	7,981	760	760	474	278	C	286	0.0942	0.6300	2006	Osceola	516	EB
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	2,900	1,130	1,130	136	125	B	994	0.0900	0.5200	2009	FDOT	7041	EB
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	976	730	730	40	59	A	671	0.1014	0.6000	2008	Osceola	545	WB
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	1,350	530	530	63	58	C	467	0.0900	0.5200	2009	FDOT	7074	EB
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	1,250	1,120	1,120	54	59	C	1,062	0.0900	0.5200	2009	FDOT	7039	SB
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	3,000	760	760	140	130	C	620	0.0900	0.5200	2009	FDOT	7003	EB
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	48,000	2,680	2,570	2,246	2,074	C	434	0.0900	0.5200	2009	FDOT	0147	EB
	OBT - Michigan Ave.	6LD	Principal Arterial	D	48,000	2,940	2,790	2,246	2,074	C	694	0.0900	0.5200	2009	FDOT	5017	EB
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	60,000	2,940	2,790	2,808	2,592	C	132	0.0900	0.5200	2009	FDOT	0145	EB
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	42,500	2,940	2,790	1,989	1,836	B	951	0.0900	0.5200	2009	FDOT	0007	EB
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	45,500	1,960	1,860	2,129	1,966	C	(169)	0.0900	0.5200	2009	FDOT	0300	EB
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	44,000	1,960	1,860	1,901	2,059	F	(99)	0.0900	0.5200	2009	FDOT	0105	WB
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	39,000	2,940	2,790	1,825	1,685	B	1,115	0.0900	0.5200	2009	FDOT	5021	EB
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	28,500	1,960	1,860	1,334	1,231	B	626	0.0900	0.5200	2009	FDOT	0155	EB
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	22,000	3,320	3,230	1,030	950	B	2,290	0.0900	0.5200	2009	FDOT	0255	EB
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	17,600	3,320	3,230	882	814	A	2,438	0.0964	0.5200	2009	FDOT	0302	EB
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	11,800	3,320	3,230	592	546	A	2,728	0.0964	0.5200	2009	FDOT	0304	EB

* K100 and D100 factors for all FDOT roads updated to reflect those in 2009 FDOT traffic information

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

SUMMARY OF ROADWAY SEGMENT ANNUAL GROWTH, PHASE 1 YEAR 2015

Center Lake

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Daily Background Volume Model	MOCF	Revised Model	Existing Daily Volume	2015 Model-Existing	Total Growth	Model Annual Growth	Historic Growth	Revised Annual Growth	Growth Method	Count Source	Count Stn.
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	4LD	Urban Collector	E	19,679	19,285	19,285	20,500	-1,215	-5.92%	-0.99%	4.02%	4.02%	Historic	FDOT	7044
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	53,538	51,932	51,932	27,787	24,145	86.89%	12.41%	6.31%	6.31%	Historic	Orange	7040
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	37,383	36,261	36,261	21,801	14,460	66.33%	9.48%	3.52%	9.48%	Model	Orange	6030
	SR 417 - Tyson Road/Lake Nona Road C	2U	Principal Arterial	D	56,338	54,648	54,648	18,144	36,504	201.19%	28.74%	3.25%	3.25%	Historic	Orange	6029
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	2U	Principal Arterial	D	53,034	51,443	51,443	16,857	34,586	205.17%	29.31%	6.93%	6.93%	Historic	Orange	7041
	Lake Nona Road E - Boggy Creek Rd East	2U	Principal Arterial	D	54,629	52,990	52,990	16,857	36,133	214.35%	30.62%	6.93%	6.93%	Historic	Orange	7041
	Boggy Creek Rd E - Jones Rd	2U	Principal Arterial	D	47,973	47,013	47,013	11,900	35,113	295.07%	49.18%	4.95%	4.95%	Historic	FDOT	7045
	Jones Rd - Rummel Rd	2U	Principal Arterial	D	51,528	50,497	50,497	13,600	36,897	271.30%	45.22%	6.26%	6.26%	Historic	FDOT	7044
	Rummel Rd - 10th St	2U	Principal Arterial	D	42,917	42,058	42,058	15,800	26,258	166.19%	27.70%	4.34%	4.34%	Historic	FDOT	7043
	10th St - US 192-441	2U	Principal Arterial	D	42,881	42,023	42,023	16,109	25,914	160.87%	22.98%	2.10%	2.10%	Historic	Osceola	589
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	12,124	11,881	11,881	8,482	3,399	40.07%	5.72%	2.83%	5.72%	Model	Osceola	416
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	19,710	19,316	19,316	11,760	7,556	64.25%	8.03%	4.65%	8.03%	Model	Osceola	417
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	11,445	11,216	11,216	7,981	3,235	40.54%	4.50%	4.65%	4.50%	Model	Osceola	516
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	13,492	13,222	13,222	7,981	5,241	65.67%	7.30%	3.82%	7.30%	Model	Osceola	516
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	6,660	6,526	6,526	7,981	-1,455	-18.23%	-2.03%	3.82%	3.82%	Historic	Osceola	516
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	4,115	4,032	4,032	7,981	-3,949	-49.48%	-5.50%	3.82%	3.82%	Historic	Osceola	516
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	5,831	5,714	5,714	7,981	-2,267	-28.40%	-3.16%	3.82%	3.82%	Historic	Osceola	516
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	8,006	7,846	7,846	2,900	4,946	170.55%	28.42%	4.39%	4.39%	Historic	FDOT	7041
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	4,496	4,406	4,406	976	3,430	351.44%	50.21%	-0.72%	2.00%	2%	Osceola	545
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	0	0	0	1,350	-1,350	-100.00%	-16.67%	-28.49%	2.00%	2%	FDOT	7074
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	14,732	14,438	14,438	1,250	13,188	1055.01%	175.84%	6.54%	6.54%	Historic	FDOT	7039
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	6,875	6,738	6,738	3,000	3,738	124.58%	20.76%	3.50%	3.50%	Historic	FDOT	7003
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	60,178	58,974	58,974	48,000	10,974	22.86%	3.81%	4.95%	3.81%	Model	FDOT	0147
	OBT - Michigan Ave.	6LD	Principal Arterial	D	61,637	60,404	60,404	48,000	12,404	25.84%	4.31%	4.95%	4.31%	Model	FDOT	5017
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	43,423	42,554	42,554	60,000	-17,446	-29.08%	-4.85%	4.95%	4.95%	Historic	FDOT	0145
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	47,130	46,188	46,188	42,500	3,688	8.68%	1.45%	7.04%	7.04%	Historic	FDOT	0007
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	52,709	51,654	51,654	45,500	6,154	13.53%	2.25%	4.31%	2.25%	Model	FDOT	0300
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	51,030	50,009	50,009	44,000	6,009	13.66%	2.28%	4.31%	2.28%	Model	FDOT	0105
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	45,640	44,728	44,728	39,000	5,728	14.69%	2.45%	4.40%	2.45%	Model	FDOT	5021
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	51,536	50,505	50,505	28,500	22,005	77.21%	12.87%	4.40%	4.40%	Historic	FDOT	0155
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	45,729	44,814	44,814	22,000	22,814	103.70%	17.28%	5.10%	5.10%	Historic	FDOT	0255
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	37,081	36,339	36,339	17,600	18,739	106.47%	17.75%	5.10%	5.10%	Historic	FDOT	0302
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	45,724	44,810	44,810	11,800	33,010	279.74%	46.62%	5.10%	5.10%	Historic	FDOT	0304

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

Table 21-E.1 (b)

SUMMARY OF ROADWAY SEGMENT CAPACITY

CENTER LAKE DRI, PHASE 1 YEAR 2015

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Peak-Hour Svc. Vol. @ Std.	Existing Background AADT	Annual Growth Rate	2015 Background Volume	K- Factor	D- Factor	Project Distribution	PM Peak-Hour Directional Volumes						LOS	Project as % of Total Traffic	Project as % of Service Volume		Significant?		Adverse?		Sig. & Adv?	
												Background		Project		Total											
												NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB					Peak	Off-pk	Peak	Off-pk	Peak	Off-pk
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	4LD	Urban Collector	E	1,860	20,500	4.02%	25,447	0.090	0.520	0.17%	1,191	1,099	1	1	1,192	1,100	B	0.09%	0.05%	0.05%	No	No	No	No	No	No
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	1,860	27,787	6.31%	40,067	0.090	0.629	5.79%	1,337	2,269	40	42	1,377	2,311	F	2.22%	2.26%	2.15%	No	No	Yes	No	No	No
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	1,860	21,801	9.48%	36,261	0.093	0.569	6.59%	1,447	1,908	45	48	1,492	1,956	C	2.70%	2.58%	2.42%	No	No	Yes	No	No	No
	SR 417 - Tyson Road/Lake Nona Road C	6LD	Principal Arterial	D	2,790	18,144	3.25%	22,271	0.091	0.520	13.11%	970	1,050	90	96	1,060	1,146	B	8.43%	3.44%	3.23%	No	No	No	No	No	No
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	6LD	Principal Arterial	D	2,790	16,857	6.93%	25,030	0.094	0.710	17.62%	1,670	683	122	129	1,792	812	B	9.64%	4.37%	4.62%	No	No	No	No	No	No
	Lake Nona Road E - Boggy Creek Rd East	6LD	Principal Arterial	D	2,790	16,857	6.93%	25,030	0.094	0.710	21.04%	1,670	683	145	154	1,815	837	B	11.28%	5.20%	5.52%	Yes	Yes	No	No	No	No
	Boggy Creek Rd E - Jones Rd	4LD	Principal Arterial	D	1,860	11,900	4.95%	15,436	0.090	0.520	25.93%	667	722	179	190	846	912	C	20.99%	10.22%	9.62%	Yes	Yes	No	No	No	No
	Jones Rd - Rummel Rd	4LD	Principal Arterial	D	3,230	13,600	6.26%	18,706	0.090	0.520	24.52%	808	875	169	180	977	1,055	B	17.17%	5.57%	5.23%	Yes	Yes	No	No	No	No
	Rummel Rd - 10th St	4LD	Principal Arterial	D	1,860	15,800	4.34%	19,914	0.090	0.520	27.95%	860	932	205	193	1,065	1,125	B	18.17%	10.38%	11.02%	Yes	Yes	No	No	No	No
	10th St - US 192-441	4LD	Principal Arterial	D	1,860	16,109	2.10%	18,480	0.090	0.530	23.85%	782	881	175	165	957	1,046	B	16.97%	8.87%	9.41%	Yes	Yes	No	No	No	No
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	760	8,482	5.72%	11,881	0.090	0.590	1.21%	438	631	8	9	446	640	D	1.56%	1.18%	1.05%	No	No	No	No	No	No
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	760	11,760	8.03%	19,316	0.101	0.700	4.00%	1,364	585	28	29	1,392	614	F	2.84%	3.68%	3.82%	No	No	Yes	No	No	No
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	760	7,981	4.50%	11,216	0.094	0.630	3.93%	666	391	29	27	695	418	D	5.03%	3.82%	3.55%	No	No	No	No	No	No
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	760	7,981	7.30%	13,222	0.094	0.630	4.36%	785	461	32	30	817	491	D	4.74%	4.21%	3.95%	No	No	Yes	No	No	No
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	760	7,981	3.82%	10,723	0.094	0.630	4.76%	636	374	35	33	671	407	D	6.31%	4.61%	4.34%	No	No	No	No	No	No
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	760	7,981	3.82%	10,723	0.094	0.630	5.16%	636	374	38	36	674	410	D	6.83%	5.00%	4.74%	Yes	No	No	No	No	No
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	760	7,981	3.82%	10,723	0.094	0.630	8.02%	636	374	59	55	695	429	D	10.14%	7.76%	7.24%	Yes	Yes	No	No	No	No
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	1,130	2,900	4.39%	3,664	0.090	0.520	8.13%	171	158	60	56	231	214	B	26.02%	5.31%	4.96%	Yes	No	No	No	No	No
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	730	976	2.00%	1,113	0.101	0.600	2.12%	45	68	15	16	60	84	A	21.55%	2.19%	2.05%	No	No	No	No	No	No
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	530	1,350	2.00%	1,512	0.090	0.520	13.72%	71	65	101	95	172	160	C	59.02%	19.06%	17.92%	Yes	Yes	No	No	No	No
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	1,120	1,250	6.54%	1,741	0.090	0.520	4.30%	75	81	31	30	106	111	C	28.02%	2.68%	2.77%	No	No	No	No	No	No
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	760	3,000	3.50%	3,630	0.090	0.520	11.33%	170	157	83	78	253	235	C	33.01%	10.92%	10.26%	Yes	Yes	No	No	No	No
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	2,680	48,000	3.81%	58,974	0.090	0.520	2.65%	2,760	2,548	19	18	2,779	2,566	E	0.69%	0.71%	0.67%	No	No	Yes	No	No	No
	OBT - Michigan Ave.	6LD	Principal Arterial	D	2,940	48,000	4.31%	60,404	0.090	0.520	4.17%	2,827	2,609	31	29	2,858	2,638	B	1.09%	1.05%	0.99%	No	No	No	No	No	No
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	2,940	60,000	4.95%	77,831	0.090	0.520	4.45%	3,642	3,362	33	31	3,675	3,393	F	0.91%	1.12%	1.05%	No	No	Yes	Yes	No	No
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	2,940	42,500	7.04%	60,439	0.090	0.520	5.68%	2,829	2,611	42	39	2,871	2,650	C	1.47%	1.43%	1.33%	No	No	No	No	No	No
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	1,960	45,500	2.25%	51,654	0.090	0.520	6.80%	2,417	2,231	50	47	2,467	2,278	F	2.04%	2.55%	2.40%	No	No	Yes	Yes	No	No
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	1,960	44,000	2.28%	50,009	0.090	0.520	8.98%	2,160	2,340	66	62	2,226	2,402	F	2.77%	3.16%	3.37%	No	No	Yes	Yes	No	No
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	2,940	39,000	2.45%	44,728	0.090	0.520	13.30%	2,093	1,932	98	92	2,191	2,024	C	4.51%	3.33%	3.13%	No	No	No	No	No	No
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	1,960	28,500	4.40%	36,023	0.090	0.520	19.47%	1,686	1,556	143	134	1,829	1,690	B	7.87%	7.30%	6.84%	Yes	Yes	No	No	No	No
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	3,320	22,000	5.10%	28,737	0.090	0.520	3.45%	1,345	1,241	25	24	1,370	1,265	B	1.86%	0.75%	0.72%	No	No	No	No	No	No
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	3,320	17,600	5.10%	22,990	0.096	0.520	0.51%	1,152	1,064	4	4	1,156	1,068	B	0.36%	0.12%	0.12%	No	No	No	No	No	No
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	3,320	11,800	5.10%	15,414	0.096	0.520	11.53%	773	713	80	85	853	798	B	9.99%	2.41%	2.56%	No	No	No	No	No	No

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

SUMMARY OF ROADWAY SEGMENT ANNUAL GROWTH, PHASE 2

Center Lake

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Daily Background Volume Model	MOCF	Revised Model	Existing Daily Volume	2020 Model-Existing	Total Growth	Model Annual Growth	Historic Growth	Revised Annual Growth	Growth Method	Count Source	Count Stn.
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	4LD	Urban Collector	E	24,205	23,721	23,721	20,500	3,221	15.71%	1.43%	4.37%	4.37%	Historic	FDOT	7044
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	66,307	64,317	64,317	27,787	36,530	131.47%	10.96%	9.13%	9.13%	Historic	Orange	7040
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	60,280	58,471	58,471	21,801	36,670	168.20%	14.02%	3.22%	3.22%	Historic	Orange	6030
	SR 417 - Tyson Road/Lake Nona Road C	2U	Principal Arterial	D	77,711	75,380	75,380	18,144	57,236	315.45%	26.29%	4.97%	4.97%	Historic	Orange	6029
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	2U	Principal Arterial	D	70,138	68,034	68,034	16,857	51,177	303.60%	25.30%	11.23%	11.23%	Historic	Orange	7041
	Lake Nona Road E - Boggy Creek Rd East	2U	Principal Arterial	D	74,253	72,025	72,025	16,857	55,168	327.27%	27.27%	11.23%	11.23%	Historic	Orange	7041
	Boggy Creek Rd E - Jones Rd	2U	Principal Arterial	D	64,855	63,557	63,557	11,900	51,657	434.10%	39.46%	5.61%	5.61%	Historic	FDOT	7045
	Jones Rd - Rummel Rd	2U	Principal Arterial	D	72,005	70,565	70,565	13,600	56,965	418.86%	38.08%	6.68%	6.68%	Historic	FDOT	7044
	Rummel Rd - 10th St	2U	Principal Arterial	D	61,775	60,539	60,539	15,800	44,739	283.16%	25.74%	5.01%	5.01%	Historic	FDOT	7043
	10th St - US 192-441	2U	Principal Arterial	D	58,811	57,635	57,635	16,109	41,526	257.78%	21.48%	5.52%	5.52%	Historic	Osceola	589
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	11,845	11,608	11,608	8,482	3,126	36.85%	3.07%	0.66%	3.07%	Model	Osceola	416
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	18,528	18,157	18,157	11,760	6,397	54.40%	4.18%	3.38%	4.18%	Model	Osceola	417
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	10,559	10,348	10,348	7,981	2,367	29.66%	2.12%	3.38%	2.12%	Model	Osceola	516
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	11,624	11,392	11,392	7,981	3,411	42.73%	3.05%	2.63%	3.05%	Model	Osceola	516
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	5,834	5,717	5,717	7,981	-2,264	-28.36%	-2.03%	2.63%	2.63%	Historic	Osceola	516
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	3,820	3,743	3,743	7,981	-4,238	-53.10%	-3.79%	2.63%	2.63%	Historic	Osceola	516
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	6,278	6,152	6,152	7,981	-1,829	-22.91%	-1.64%	2.63%	2.63%	Historic	Osceola	516
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	9,758	9,563	9,563	2,900	6,663	229.75%	20.89%	2.30%	2.30%	Historic	FDOT	7041
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	6,136	6,013	6,013	976	5,037	516.11%	43.01%	-3.26%	2.00%	2%	Osceola	545
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	0	0	0	1,350	-1,350	-100.00%	-9.09%	-2.89%	2.00%	2%	FDOT	7074
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	21,809	21,372	21,372	1,250	20,122	1609.79%	146.34%	7.00%	7.00%	Historic	FDOT	7039
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	8,696	8,522	8,522	3,000	5,522	184.07%	16.73%	3.33%	3.33%	Historic	FDOT	7003
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	70,994	69,574	69,574	48,000	21,574	44.95%	4.09%	5.50%	4.09%	Model	FDOT	0147
	OBT - Michigan Ave.	6LD	Principal Arterial	D	74,396	72,908	72,908	48,000	24,908	51.89%	4.72%	5.50%	4.72%	Model	FDOT	5017
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	49,022	48,042	48,042	60,000	-11,958	-19.93%	-1.81%	5.21%	5.21%	Historic	FDOT	0145
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	55,479	54,369	54,369	42,500	11,869	27.93%	2.54%	7.57%	2.54%	Model	FDOT	0007
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	51,244	50,219	50,219	45,500	4,719	10.37%	0.94%	4.33%	4.33%	Historic	FDOT	0300
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	52,704	51,650	51,650	44,000	7,650	17.39%	1.58%	4.33%	4.33%	Historic	FDOT	0105
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	51,198	50,174	50,174	39,000	11,174	28.65%	2.60%	5.37%	2.60%	Model	FDOT	5021
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	58,958	57,778	57,778	28,500	29,278	102.73%	9.34%	5.10%	9.34%	Model	FDOT	0155
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	55,151	54,048	54,048	22,000	32,048	145.67%	13.24%	5.14%	5.14%	Historic	FDOT	0255
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	43,388	42,520	42,520	17,600	24,920	141.59%	12.87%	5.14%	5.14%	Historic	FDOT	0302
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	35,967	35,247	35,247	11,800	23,447	198.70%	18.06%	5.14%	5.14%	Historic	FDOT	0304

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

Table 21-E.3 (b)

SUMMARY OF ROADWAY SEGMENT CAPACITY

CENTER LAKE DRI, PHASE 2 YEAR 2020

Roadway	Segment From - To	E+C # of Lanes	Roadway Classification	LOS Std.	Peak-Hour Svc. Vol. @ Std.	Existing Background AADT	Annual Growth Rate	2020 Background Volume	K- Factor	D- Factor	Project Distribution	PM Peak-Hour Directional Volumes						LOS	Project as % of Total Traffic	Project as % of Service Volume		Significant?		Adverse?		Sig. & Adv?	
												Background		Project		Total											
												NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB					Peak	Off-pk	Peak	Off-pk	Peak	Off-pk
Boggy Creek Road	Central Florida Greenway - Osceola/Orange Co. Line	4LD	Urban Collector	E	1,860	20,500	4.37%	30,363	0.090	0.520	0.16%	1,421	1,312	2	3	1,423	1,315	C	0.18%	0.11%	0.16%	No	No	No	No	No	No
CR15	SR528 - Lake Nona Club Road	4LD	Principal Arterial	E	1,860	27,787	9.13%	58,234	0.090	0.629	5.15%	1,943	3,298	71	91	2,014	3,389	F	3.00%	4.89%	3.82%	No	No	Yes	Yes	No	No
	Lake Nona Club Road - SR 417	4LD	Principal Arterial	E	1,860	21,801	3.22%	30,214	0.093	0.569	6.38%	1,205	1,589	88	113	1,293	1,702	C	6.71%	6.08%	4.73%	Yes	No	No	No	No	No
	SR 417 - Tyson Road/Lake Nona Road C	6LD	Principal Arterial	D	2,790	18,144	4.97%	28,961	0.091	0.520	17.37%	1,261	1,366	240	309	1,501	1,675	B	17.29%	11.08%	8.60%	Yes	Yes	No	No	No	No
	Tyson Road/Lake Nona Rd C - Lake Nona Rd E	6LD	Principal Arterial	D	2,790	16,857	11.23%	39,571	0.094	0.710	22.63%	2,639	1,080	313	402	2,952	1,482	D	16.12%	11.22%	14.41%	Yes	Yes	Yes	No	Yes	No
	Lake Nona Road E - Boggy Creek Rd East	6LD	Principal Arterial	D	2,790	16,857	11.23%	39,571	0.094	0.710	26.52%	2,639	1,080	367	471	3,006	1,551	F	18.39%	13.15%	16.88%	Yes	Yes	Yes	No	Yes	No
	Boggy Creek Rd E - Jones Rd	4LD	Principal Arterial	D	1,860	11,900	5.61%	19,248	0.090	0.520	30.30%	832	901	419	538	1,251	1,439	D	35.59%	28.92%	22.53%	Yes	Yes	No	No	No	No
	Jones Rd - Rummel Rd	4LD	Principal Arterial	D	3,230	13,600	6.68%	23,586	0.090	0.520	29.26%	1,019	1,104	405	520	1,424	1,624	C	30.35%	16.10%	12.54%	Yes	Yes	No	No	No	No
	Rummel Rd - 10th St	4LD	Principal Arterial	D	1,860	15,800	5.01%	24,500	0.090	0.520	17.76%	1,058	1,147	316	246	1,374	1,393	B	20.31%	13.23%	16.99%	Yes	Yes	No	No	No	No
	10th St - US 192-441	4LD	Principal Arterial	D	1,860	16,109	5.52%	26,787	0.090	0.530	14.38%	1,133	1,278	255	199	1,388	1,477	B	15.85%	10.70%	13.71%	Yes	Yes	No	No	No	No
Lakeshore Blvd	Fortune Rd - Partin Settlement Rd	2U	Urban Collector	D	760	8,482	3.07%	11,608	0.090	0.590	1.17%	428	616	16	21	444	637	D	3.42%	2.76%	2.11%	No	No	No	No	No	No
	Partin Settlement Rd. - Brown Chapel Rd.	2U	Urban Collector	D	760	11,760	4.18%	18,157	0.101	0.700	2.77%	1,282	550	38	49	1,320	599	F	4.53%	5.00%	6.45%	Yes	Yes	Yes	No	Yes	No
	Brown Chapel Rd. - Montana Ave.	2U	Urban Collector	D	760	7,981	2.12%	10,348	0.094	0.630	1.86%	614	361	33	26	647	387	D	5.71%	4.34%	3.42%	No	No	No	No	No	No
	Montana Ave. - Vermont Ave.	2U	Urban Collector	D	760	7,981	3.05%	11,392	0.094	0.630	2.06%	676	397	37	28	713	425	D	5.71%	4.87%	3.68%	No	No	No	No	No	No
	Vermont Ave. - Massachusetts Ave.	2U	Urban Collector	D	760	7,981	2.63%	10,919	0.094	0.630	2.49%	648	381	44	34	692	415	D	7.05%	5.79%	4.47%	Yes	No	No	No	No	No
	Massachusetts Ave. - Michigan Ave.	2U	Urban Collector	D	760	7,981	2.63%	10,919	0.094	0.630	2.65%	648	381	47	37	695	418	D	7.55%	6.18%	4.87%	Yes	No	No	No	No	No
	Michigan Ave. - Mississippi Ave.	2U	Urban Collector	D	760	7,981	2.63%	10,919	0.094	0.630	4.39%	648	381	78	61	726	442	D	11.91%	10.26%	8.03%	Yes	Yes	No	No	No	No
Nova Rd	US192 - Pine Grove Rd.	2U	Minor Arterial	D	1,130	2,900	2.30%	3,632	0.090	0.520	13.39%	170	157	238	185	408	342	C	56.41%	21.06%	16.37%	Yes	Yes	No	No	No	No
	Pine Grove Rd. - Orange County Line	2U	Minor Arterial	D	730	976	2.00%	1,210	0.101	0.600	2.69%	49	74	37	48	86	122	A	40.93%	6.58%	5.07%	Yes	Yes	No	No	No	No
Jones Road	Narcoossee Rd. - Site Access	2U	Urban Collector	D	530	1,350	2.00%	1,647	0.090	0.520	13.85%	77	71	246	192	323	263	D	74.71%	46.42%	36.23%	Yes	Yes	No	No	No	No
Hickory Tree Road	US 192 to Deer Run Road	2U	Urban Collector	D	1,120	1,250	7.00%	2,212	0.090	0.520	3.28%	96	104	58	45	154	149	C	34.10%	5.18%	4.02%	Yes	No	No	No	No	No
Rummel Road	Mississippi Ave - Narcoossee Rd	2U	Urban Collector	D	760	3,000	3.33%	4,100	0.090	0.520	7.44%	192	177	132	103	324	280	D	38.91%	17.37%	13.55%	Yes	Yes	No	No	No	No
US192	Bermuda Ave. - OBT	6LD	Principal Arterial	D	2,680	48,000	4.09%	69,574	0.090	0.520	2.23%	3,256	3,006	40	31	3,296	3,037	F	1.12%	1.49%	1.16%	No	No	Yes	Yes	No	No
	OBT - Michigan Ave.	6LD	Principal Arterial	D	2,940	48,000	4.72%	72,908	0.090	0.520	3.32%	3,412	3,150	59	46	3,471	3,196	F	1.57%	2.01%	1.56%	No	No	Yes	Yes	No	No
	Michigan Ave - Boggy Creek Rd	6LD	Principal Arterial	D	2,940	60,000	5.21%	94,394	0.090	0.520	3.41%	4,418	4,078	61	47	4,479	4,125	F	1.26%	2.07%	1.60%	No	No	Yes	Yes	No	No
	Boggy Creek Rd - Shady Ln	6LD	Principal Arterial	D	2,940	42,500	2.54%	54,369	0.090	0.520	4.90%	2,544	2,349	87	68	2,631	2,417	F	3.07%	2.96%	2.31%	No	No	No	No	No	No
	Shady Ln - Commerce Center Dr	4LD	Principal Arterial	D	1,960	45,500	4.33%	67,151	0.090	0.520	6.52%	3,143	2,901	116	90	3,259	2,991	F	3.30%	5.92%	4.59%	Yes	No	Yes	Yes	Yes	No
	Commerce Center Dr - Columbia/Budinger	4LD	Principal Arterial	D	1,960	44,000	4.33%	64,937	0.090	0.520	9.03%	2,805	3,039	161	125	2,966	3,164	F	4.67%	6.38%	8.21%	Yes	Yes	Yes	Yes	Yes	Yes
	Columbia/Budinger - Mississippi Ave	6LD	Principal Arterial	D	2,940	39,000	2.60%	50,174	0.090	0.520	13.56%	2,348	2,168	241	188	2,589	2,356	F	8.68%	8.20%	6.39%	Yes	Yes	No	No	No	No
	Mississippi Ave - Narcoossee Rd	4LD	Principal Arterial	D	1,960	28,500	9.34%	57,778	0.090	0.520	19.48%	2,704	2,496	346	269	3,050	2,765	B	10.58%	17.65%	13.72%	Yes	Yes	Yes	Yes	Yes	Yes
	Narcoossee Rd - Nova Rd	4LD	Principal Arterial	D	1,960	22,000	5.14%	34,450	0.090	0.520	13.83%	1,612	1,488	246	191	1,858	1,679	C	12.35%	12.55%	9.74%	Yes	Yes	No	No	No	No
	Nova Rd - Pine Grove Rd.	4LD	Principal Arterial	D	1,960	17,600	5.14%	27,560	0.096	0.520	0.42%	1,382	1,275	6	8	1,388	1,283	C	0.52%	0.31%	0.41%	No	No	No	No	No	No
	Pine Grove Rd. - Old Melbourne Hwy.	4LD	Principal Arterial	D	1,960	11,800	5.14%	18,478	0.096	0.520	5.46%	926	855	75	97	1,001	952	B	8.81%	3.83%	4.95%	No	No	No	No	No	No

Source: Orange County Traffic Count Program
Osceola County Traffic Count Program
FDOT Traffic Information
Design + Planning AECOM

Table 21A.3

SUMMARY OF INTERSECTION LEVEL OF SERVICE, YEAR 2009

Center Lake Ranch DRI

Intersection	Intersection Control	LOS Standard	EXISTING CONDITIONS				
				APPROACH			
			OVERALL	EB	WB	NB	SB
CR 15/ SR 417 NB Ramps	Signal	LOS	B	D		B	B
		Delay (sec/veh)	16.9	37.1		15.7	10.2
		Queue Length (ft)		450		375	475
CR 15/ SR 417 SB Ramps	Signal	LOS	C		E	A	B
		Delay (sec/veh)	23.9		60.6	8.9	15.8
		Queue Length (ft)			725	50	75
CR 15/ Jones Rd.	TWSC	LOS	E	E	D	A	A
		Delay (sec/veh)	37.6	37.6	30.3	9.5	8.5
		Queue Length (ft)					
CR 15/ Boggy Creek Rd.	Signal	LOS	A	D		A	A
		Delay (sec/veh)	7.9	39.4		4.7	5.8
		Queue Length (ft)		100		125	75
CR 15/ Ralph Miller Rd.	TWSC	LOS	D		D		A
		Delay (sec/veh)	28.1		28.1		8.8
		Queue Length (ft)					
CR 15/ Rummel Rd.	Signal	LOS	A	D		A	A
		Delay (sec/veh)	7.6	36.6		4.3	4.6
		Queue Length (ft)		175		25	50
US 192/ Pine Grove Rd.	TWSC	LOS	E	A	A	E	C
		Delay (sec/veh)	36.7	9.0	8.7	36.7	16.5
		Queue Length (ft)					
US 192/ Nova Rd.	TWSC	LOS	B	A			B
		Delay (sec/veh)	11.7	9.6			11.7
		Queue Length (ft)					
US 192/ CR 15	Signal	LOS	C	C	C	C	D
		Delay (sec/veh)	31.6	28.7	29.8	31.8	40.1
		Queue Length (ft)		550	100	125	350
US 192/ Old Hickory Tree Rd.	Signal	LOS	B	B	B	D	C
		Delay (sec/veh)	13	10.6	11.3	35.4	33.1
		Queue Length (ft)		75	325	175	75
US 192/ Delaware Ave.	Signal	LOS	A	A	A	D	D
		Delay (sec/veh)	7.4	6.2	6.0	54.4	53.2
		Queue Length (ft)		250	225	100	50
US 192/ Michigan Ave. East	Signal	LOS	C	C	B	D	D
		Delay (sec/veh)	25.5	29.0	14.6	52.4	45
		Queue Length (ft)		725	375	375	200
US 192/ New York Ave.	Signal	LOS	B	A	A	D	D
		Delay (sec/veh)	10.7	9.1	8.1	49.8	50.2
		Queue Length (ft)		375	325	100	150
US 192/ Vermont Ave.	Signal	LOS	C	C	C	E	D
		Delay (sec/veh)	34	22.9	34.3	77.4	52
		Queue Length (ft)		800	525	425	300
US 192/ Columbia Ave./ Budinger Ave.	Signal	LOS	C	B	B	D	D
		Delay (sec/veh)	21.5	19.2	20.0	40.4	52.8
		Queue Length (ft)		600	25	125	150
US 192/ Neptune Rd.	Signal	LOS	C	C	B	D	D
		Delay (sec/veh)	23.1	28.1	13.7	41.1	48.5
		Queue Length (ft)		100	300	100	125
US 192/ Kissimmee Park Rd.	Signal	LOS	D	C	C	E	E
		Delay (sec/veh)	37.2	32.8	26.1	58.4	60.9
		Queue Length (ft)		325	300	350	275
US 192/ Commerce Center Dr.	Signal	LOS	C	C	C	D	D
		Delay (sec/veh)	31.4	30.4	22.3	50.3	50.4
		Queue Length (ft)		300	200	325	325
US 192/ Partin Settlement Rd.	Signal	LOS	D	D	E	C	D
		Delay (sec/veh)	39.9	49.5	63.6	22.4	44.9
		Queue Length (ft)		250	525	200	525
US 192/ Boggy Creek Rd.	Signal	LOS	C	C	C	D	B
		Delay (sec/veh)	21.4	21.6	22.0	36.9	18.5
		Queue Length (ft)		650	25	0	375
US 192/ Michigan Ave. North	Signal	LOS	E	D	E	E	E
		Delay (sec/veh)	60.1	54.4	58.4	58.5	75.1
		Queue Length (ft)		425	575	425	625
US 192/ Orange Blossom Trail	Signal	LOS	E	E	E	E	F
		Delay (sec/veh)	69.6	70.3	56.9	59.4	88.5
		Queue Length (ft)		1,300	900	250	925

Source: Design + Planning AECOM

FUTURE BACKGROUND INTESECTION TURNING MOVEMENT VOLUMES

Center Lake

Intersection	Background												
	APPROACH												
	Total	EB			WB			NB			SB		
		Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
CR 15/ SR 417 NB Ramps	2,539	315		213					545	209	180	1,077	
	2,615	324		219					561	215	185	1,109	
	Future App.		699						970			1,424	
	3,093	417		282					701	269	204	1,220	
CR 15/ SR 417 SB Ramps	2,443				422		234	76	772			824	115
	2,516				435		241	78	795			849	118
	Future App.					908			1,084			1,429	
	3,421				584		324	97	987			1,254	175
CR 15/ Jones Rd.	1,439	19	3	13	15	4	18	16	495	26	25	775	30
	1,482	20	3	13	15	4	19	16	510	27	26	798	31
	Future App.		40			42			808			940	
	1,830	22	3	15	17	5	20	24	745	39	28	878	34
CR 15/ Boggy Creek Rd.	1,581	67		173				163	314			714	150
	1,628	69		178				168	323			735	155
	Future App.		420						667			979	
	2,066	117		303				228	439			809	170
CR 15/ Rummel Rd./ Ralph Miller Rd.	1,675	127		43	12		3	25	525	9	4	773	154
	1,725	131		44	12		3	26	541	9	4	796	159
	Future App.		228			17			860			1,055	
	2,160	170		58	14		3	38	808	14	5	876	174
US 192/ Pine Grove Rd.	1,358	135	587	2	2	496	19	17	8	6	12	8	66
	1,399	139	605	2	2	511	20	18	8	6	12	8	68
	Future App.		1,152			713			35			155	
	2,055	215	934	3	3	684	26	19	9	7	22	14	119
US 192/ Nova Rd.	1,627	234	733			522	16				11		111
	1,676	241	755			538	16				11		114
	Future App.		1,345			970						158	
	2,473	325	1,020			941	29				14		144
US 192/ CR 15	2,757	367	630	109	73	529	145	97	89	49	272	138	259
	2,840	378	649	112	75	545	149	100	92	50	280	142	267
	Future App.		1,686			1,241			266			881	
	4,074	559	960	166	121	879	241	110	101	56	358	182	341
US 192/ Old Hickory Tree Rd.	2,258	41	961	99	26	891	4	113	15	44	11	18	35
	2,326	42	990	102	27	918	4	116	15	45	11	19	36
	Future App.		1,686			1,556			218			73	
	3,533	63	1,472	152	44	1,505	7	144	19	56	12	20	40
US 192/ Delaware Ave.	2,496	3	1,268	11	3	1,131	9	25	13	8	15	3	7
	2,571	3	1,306	11	3	1,165	9	26	13	8	15	3	7
	Future App.		2,093			1,932			52			28	
	4,105	5	2,070	18	5	1,912	15	28	15	9	17	3	8
US 192/ Michigan Ave. East	2,904	2	1,261	132	45	1,095	7	162	21	60	36	61	22
	2,991	2	1,299	136	46	1,128	7	167	22	62	37	63	23
	Future App.		2,093			1,932			438			214	
	4,678	3	1,892	198	76	1,844	12	292	38	108	65	110	40
US 192/ New York Ave.	3,056	25	1,467	6	4	1,336	25	36	13	7	63	11	63
	3,148	26	1,511	6	4	1,376	26	37	13	7	65	11	65
	Future App.		2,093			1,932			63			155	
	4,244	35	2,050	8	6	1,891	35	41	15	8	71	12	71
US 192/ Vermont Ave.	3,709	15	1,491	230	178	1,201	15	189	71	151	19	137	12
	3,820	15	1,536	237	183	1,237	15	195	73	156	20	141	12
	Future App.		2,093			1,932			466			190	
	4,681	18	1,798	277	247	1,665	21	214	80	171	22	155	14
US 192/ Columbia Ave./ Budinger Ave.	3,032	38	1,496	34	16	1,155	28	91	30	50	43	20	31
	3,123	39	1,541	35	16	1,190	29	94	31	52	44	21	32
	Future App.		2,160			1,932			194			107	
	4,392	52	2,061	47	26	1,861	45	103	34	57	49	23	35
US 192/ Neptune Rd.	3,195	41	1,318	15	156	1,135	53	24	38	260	73	40	42
	3,291	42	1,358	15	161	1,169	55	25	39	268	75	41	43
	Future App.		2,160			2,340			580			279	
	5,360	64	2,072	24	272	1,976	92	43	68	469	132	72	76
US 192/ Kissimmee Park Rd.	3,394	55	1,206	276	145	791	95	252	138	65	174	167	30
	3,496	57	1,242	284	149	815	98	260	142	67	179	172	31
	Future App.		2,160			1,858			516			420	
	4,954	77	1,695	388	261	1,426	171	286	156	74	197	189	34
US 192/ Commerce Center Dr.	3,391	119	1,404	60	84	965	114	153	94	71	148	84	95
	3,493	123	1,446	62	87	994	117	158	97	73	152	87	98
	Future App.		2,417			2,096			360			370	
	5,244	182	2,144	92	151	1,739	205	173	107	80	168	95	108
US 192/ Partin Settlement Rd.	4,048	58	97	71	79	87	259	90	1,165	34	388	1,700	20
	4,169	60	100	73	81	90	267	93	1,200	35	400	1,751	21
	Future App.		283			532			2,323			2,231	
	5,369	73	121	89	99	109	324	162	2,100	61	411	1,799	21
US 192/ Boggy Creek Rd.	3,904	774	1,554	0	0	1,061	13	2	0	1	20	1	478
	4,021	797	1,601	0	0	1,093	13	2	0	1	21	1	492
	Future App.		3,642			1,936			3			565	
	6,147	1,211	2,431	0	0	1,912	23	2	0	1	23	1	542
US 192/ Michigan Ave. North	5,500	321	1,388	43	408	981	287	97	481	471	487	333	203
	5,665	331	1,430	44	420	1,010	296	100	495	485	502	343	209
	Future App.		2,827			3,021			1,189			1,562	
	8,599	518	2,240	69	735	1,768	517	110	545	534	744	509	310
US 192/ Orange Blossom Trail	4,753	172	1,380	88	114	988	185	102	423	106	303	689	203
	4,896	177	1,421	91	117	1,018	191	105	436	109	312	710	209
	Future App.		2,760			2,320			1,137			2,154	
	8,371	289	2,322	148	205	1,781	333	184	762	191	546	1,242	366

Source: Design + Planning AECOM

Intersection	Intersection Control	Condition	Future Background + Trips												
			APPROACH												
			Total	EB			WB			NB			SB		
				Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
CR 15/ SR 417 NB Ramps	Signal	Future Background	3,093	417		282					701	269	204	1,220	
		Project Trips	231	0		11					95	17	0	108	
		Total	3,324	417		293					796	286	204	1,328	
CR 15/ SR 417 SB Ramps	Signal	Future Background	3,421				584		324	97	987			1,254	175
		Project Trips	174				17		0	12	73			72	0
		Total	3,595				601		324	109	1,060			1,326	175
CR 15/ Jones Rd.	TWSC	Future Background	1,830	22	3	15	17	5	20	24	745	39	28	878	34
		Project Trips	463	0	0	0	28	0	67	0	142	29	71	126	0
		Total	2,293	22	3	15	45	5	87	24	887	68	99	1,004	34
CR 15/ Boggy Creek Rd.	Signal	Future Background	2,066	117		303				228	439			809	170
		Project Trips	356	0		29				27	146			154	0
		Total	2,422	117		332				255	585			963	170
CR 15/ Rummel Rd./ Ralph Miller Rd.	Signal	Future Background	1,725	170		58	14		3	38	808	14	5	876	174
		Project Trips	907	0	83	0	193	78	170	0	0	204	179	0	0
		Total	3,067	170	83	58	207	78	173	38	808	218	184	876	174
US 192/ Pine Grove Rd.	TWSC	Future Background	2,055	215	934	3	3	684	26	19	9	7	22	14	119
		Project Trips	164	0	4	0	0	4	80	0	0	0	76	0	0
		Total	2,219	215	938	3	3	688	106	19	9	7	98	14	119
US 192/ Nova Rd.	TWSC	Future Background	2,473	325	1,020			941	29				14		144
		Project Trips	49	21	4			4	0				0		20
		Total	2,522	346	1,024			945	29				14		164
US 192/ CR 15	Signal	Future Background	4,074	559	960	166	121	879	241	110	101	56	358	182	341
		Project Trips	401	154	10	0	2	9	14	0	26	2	14	24	146
		Total	4,475	713	970	166	123	888	255	110	127	58	372	206	487
US 192/ Old Hickory Tree Rd.	Signal	Future Background	3,533	63	1,472	152	44	1,505	7	144	19	56	12	20	40
		Project Trips	319	0	132	0	30	125	0	0	0	32	0	0	0
		Total	3,852	63	1,604	152	74	1,630	7	144	19	88	12	20	40
US 192/ Delaware Ave.	Signal	Future Background	4,105	5	2,070	18	5	1,912	15	28	15	9	17	3	8
		Project Trips	219	0	106	0	2	100	4	0	0	2	5	0	0
		Total	4,324	5	2,176	18	7	2,012	19	28	15	11	22	3	8
US 192/ Michigan Ave. East	Signal	Future Background	4,678	3	1,892	198	76	1,844	12	292	38	108	65	110	40
		Project Trips	197	0	101	0	0	96	0	0	0	0	0	0	0
		Total	4,875	3	1,993	198	76	1,940	12	292	38	108	65	110	40
US 192/ New York Ave.	Signal	Future Background	4,244	35	2,050	8	6	1,891	35	41	15	8	71	12	71
		Project Trips	197	0	88	0	0	84	12	0	0	0	13	0	0
		Total	4,441	35	2,138	8	6	1,975	47	41	15	8	84	12	71
US 192/ Vermont Ave.	Signal	Future Background	4,681	18	1,798	277	247	1,665	21	214	80	171	22	155	14
		Project Trips	165	0	77	0	0	73	7	0	0	0	8	0	0
		Total	4,846	18	1,875	277	247	1,738	28	214	80	171	30	155	14
US 192/ Columbia Ave./ Budinger Ave.	Signal	Future Background	4,392	52	2,061	47	26	1,861	45	103	34	57	49	23	35
		Project Trips	150	0	77	0	0	73	0	0	0	0	0	0	0
		Total	4,542	52	2,138	47	26	1,934	45	103	34	57	49	23	35
US 192/ Neptune Rd.	Signal	Future Background	5,360	64	2,072	24	272	1,976	92	43	68	469	132	72	76
		Project Trips	160	0	67	0	12	64	2	0	0	13	2	0	0
		Total	5,520	64	2,139	24	284	2,040	94	43	68	482	134	72	76
US 192/ Kissimmee Park Rd.	Signal	Future Background	4,954	77	1,695	388	261	1,426	171	286	156	74	197	189	34
		Project Trips	131	0	52	0	14	50	0	0	0	15	0	0	0
		Total	5,085	77	1,747	388	275	1,476	171	286	156	89	197	189	34
US 192/ Commerce Center Dr.	Signal	Future Background	5,244	182	2,144	92	151	1,739	205	173	107	80	168	95	108
		Project Trips	101	0	50	0	0	47	2	0	0	0	2	0	0
		Total	5,345	182	2,194	92	151	1,786	207	173	107	80	170	95	108
US 192/ Partin Settlement Rd.	Signal	Future Background	4,169	73	121	89	99	109	324	162	2,100	61	411	1,799	21
		Project Trips	131	0	18	0	0	17	0	0	47	0	0	49	0
		Total	5,500	73	139	89	99	126	324	162	2,147	61	411	1,848	21
US 192/ Boggy Creek Rd.	Signal	Future Background	4,021	1,211	2,431	0	0	1,912	23	2	0	1	23	1	542
		Project Trips	73	8	29	0	0	28	0	0	0	0	0	0	8
		Total	6,220	1,219	2,460	0	0	1,940	23	2	0	1	23	1	550
US 192/ Michigan Ave. North	Signal	Future Background	8,599	518	2,240	69	735	1,768	517	110	545	534	744	509	310
		Project Trips	74	0	31	0	4	29	3	0	0	4	3	0	0
		Total	8,673	518	2,271	69	739	1,797	520	110	545	538	747	509	310
US 192/ Orange Blossom Trail	Signal	Future Background	8,371	289	2,322	148	205	1,781	333	184	762	191	546	1,242	366
		Project Trips	61	0	20	0	6	19	5	0	0	6	5	0	0
		Total	8,432	289	2,342	148	211	1,800	338	184	762	197	551	1,242	366

Source: Design + Planning AECOM

Exhibit 13A - Revised Table 21-E.2

SUMMARY OF INTERSECTION LEVEL OF SERVICE, PHASE 1 (YEAR 2015)

Center Lake Ranch DRI

Intersection	Intersection Control	LOS Standard	EXISTING CONDITIONS					PHASE 1				
				APPROACH					APPROACH			
			OVERALL	EB	WB	NB	SB	OVERALL	EB	WB	NB	SB
CR 15/ Jones Rd.	Signalized in 2015	LOS	E	E	D	A	A	C	C	C	C	B
		Delay (sec/veh)	37.6	37.6	30.3	9.5	8.5	20.9	20.5	22.2	27.6	15.0
		Queue Length (ft)							50	150	625	500
CR 15/ Boggy Creek Rd.	Signal	LOS	A	D		A	A	B	D		B	A
		Delay (sec/veh)	7.9	39.4		4.7	5.8	15.1	42.3		14.7	7.7
		Queue Length (ft)		100		125	75		325		425	400
CR 15/ Ralph Miller Rd.	TWSC	LOS	D		D		A					
		Delay (sec/veh)	28.1		28.1		8.8					
		Queue Length (ft)										
CR 15/ Rummel Rd.	Signal	LOS	A	D		A	A					
		Delay (sec/veh)	7.6	36.6		4.3	4.6					
		Queue Length (ft)		175		25	50					
CR 15/ Rummel Rd./ Ralph Miller Rd.	Signal	LOS						C	D	C	D	C
		Delay (sec/veh)						34.2	48.7	23.9	49.7	20.9
		Queue Length (ft)							450	275	925	175
US 192/ Pine Grove Rd.	TWSC	LOS	E	A	A	E	C	F	B	B	F	E
		Delay (sec/veh)	36.7	9.0	8.7	36.7	16.5	51.1	11.2	10.1	51.1	47.3
		Queue Length (ft)							25	0	50	125
US 192/ Nova Rd.	TWSC	LOS	B	A			B	B	C			C
		Delay (sec/veh)	11.7	9.6			11.7	13.7	15.5			17.5
		Queue Length (ft)							75			50
US 192/ CR 15	Signal	LOS	C	C	C	C	D	F	F	D	F	F
		Delay (sec/veh)	31.6	28.7	29.8	31.8	40.1	92.2	109.5	46.3	83.7	120.3
		Queue Length (ft)		550	100	125	350		1925	275	225	1000
US 192/ Old Hickory Tree Rd.	Signal	LOS	B	B	B	D	C	C	B	C	D	C
		Delay (sec/veh)	13	10.6	11.3	35.4	33.1	21.1	17.7	22.2	36.9	33.3
		Queue Length (ft)		75	325	175	75		125	1050	225	75
US 192/ Delaware Ave.	Signal	LOS	A	A	A	D	D	B	B	A	D	D
		Delay (sec/veh)	7.4	6.2	6.0	54.4	53.2	10.9	10.5	9.9	53.0	51.9
		Queue Length (ft)		250	225	100	50		725	625	100	50
US 192/ Michigan Ave. East	Signal	LOS	C	C	B	D	D	D	C	B	F	F
		Delay (sec/veh)	25.5	29.0	14.6	52.4	45	45.7	30.1	15.9	195.9	217.4
		Queue Length (ft)		725	375	375	200		1375	775	1100	700
US 192/ New York Ave.	Signal	LOS	B	A	A	D	D	B	B	B	D	D
		Delay (sec/veh)	10.7	9.1	8.1	49.8	50.2	13.0	11.9	10.6	51.0	51.3
		Queue Length (ft)		375	325	100	150		750	675	125	200
US 192/ Vermont Ave.	Signal	LOS	C	C	C	E	D	D	D	C	E	E
		Delay (sec/veh)	34	22.9	34.3	77.4	52	45.7	53.0	30.1	71.4	70.7
		Queue Length (ft)		800	525	425	300		1625	825	475	425
US 192/ Columbia Ave./ Budinger Ave.	Signal	LOS	C	B	B	D	D	D	C	F	D	D
		Delay (sec/veh)	21.5	19.2	20.0	40.4	52.8	53.3	26.6	84.2	41.2	54.4
		Queue Length (ft)		600	25	125	150		1225	50	175	175
US 192/ Neptune Rd.	Signal	LOS	C	C	B	D	D	D	F	B	D	F
		Delay (sec/veh)	23.1	28.1	13.7	41.1	48.5	51.3	82.7	17.7	54.4	91.2
		Queue Length (ft)		100	300	100	125		150	600	525	300
US 192/ Kissimmee Park Rd.	Signal	LOS	D	C	C	E	E	E	E	E	E	E
		Delay (sec/veh)	37.2	32.8	26.1	58.4	60.9	68.8	79.9	56.2	64.7	72.9
		Queue Length (ft)		325.0	300.0	350.0	275		500	750	425	350
US 192/ Commerce Center Dr.	Signal	LOS	C	C	C	D	D	F	F	D	E	E
		Delay (sec/veh)	31.4	30.4	22.3	50.3	50.4	86.0	124.5	48.7	62.8	63.5
		Queue Length (ft)		300	200	325	325		450	350	375	400
US 192/ Partin Settlement Rd.	Signal	LOS	D	D	E	C	D	F	D	E	F	F
		Delay (sec/veh)	39.9	49.5	63.6	22.4	44.9	109.1	46.6	64.1	152.4	82.2
		Queue Length (ft)		250	525	200	525		350	700	1375	1900
US 192/ Boggy Creek Rd.	Signal	LOS	C	C	C	D	B	C	B	E	D	B
		Delay (sec/veh)	21.4	21.6	22.0	36.9	18.5	27.9	12.4	58.9	51.5	19.3
		Queue Length (ft)		650	25	0	375		925	25	25	475

Source: Design + Planning AECOM

Exhibit 13B - Revised Table 21-F.1

SUMMARY OF INTERSECTION SIGNIFICANCE

Center Lake Ranch DRI

Intersection	Adverse Approach	Lane Group Capacity		Proj. Trips	Significance (Proj. Trips/LOS Cap.)	Project Significant?
		LOS E	LOS D*			
US 192/ Pine Grove	NBLTR	116	80	0	0.0%	No
	SBLT	149	102	76	**74.2%**	**Yes**
US 192/ Nova Road	SBL	101	69	0	0.0%	No
US 192/ Narcoossee Road	EBL	581	399	154	**38.6%**	**Yes**
	EBT	1,075	739	10	1.4%	No
	NBT	143	98	26	**26.4%**	**Yes**
	SBL	482	331	14	4.2%	No
	SBR	257	177	146	**82.6%**	**Yes**
US 192/ Michigan Ave. East	EBL	77	53	0	0.0%	No
	WBL	189	130	0	0.0%	No
	NBLT	264	182	0	0.0%	No
	SBLTR	168	116	0	0.0%	No
US 192/ New York Ave.	EBL	193	133	0	0.0%	No
	WBL	193	133	0	0.0%	No
US 192/ Vermont Ave.	EBL	163	112	0	0.0%	No
	WBL	281	193	0	0.0%	No
	NBL	243	167	0	0.0%	No
	SBLTR	270	186	8	4.3%	No
US 192/ Columbia Ave./ Budinger Ave.	EBL	175	120	0	0.0%	No
	WBL	181	124	0	0.0%	No
	WBT	1,824	1,254	73	**5.8%**	**Yes**
US 192/ Neptune Rd.	EBL	142	98	0	0.0%	No
	EBT	2,021	1,389	67	4.8%	No
	WBL	351	241	12	4.97%	No
	NBT	102	70	0	0.0%	No
	SBL	164	113	2	1.8%	No
	SBT	102	70	0	0.0%	No
	SBR	87	60	0	0.0%	No
US 192/ Kissimmee Park Rd.	EBT	1,650	1,134	52	4.6%	No
	WBL	262	180	14	**7.8%**	**Yes**
	NBL	243	167	0	0.0%	No
	NBLT	477	328	0	0.0%	No
	SBL	191	131	0	0.0%	No
	SBLTR	375	258	0	0.0%	No
US 192/ Commerce Center Dr.	EBL	210	144	0	0.0%	No
	EBT	1,886	1,297	50	3.9%	No
	WBL	210	144	0	0.0%	No
	NBL	299	206	0	0.0%	No
	NBTR	254	175	0	0.0%	No
	SBL	300	206	2	1.0%	No
	SBTR	250	172	0	0.0%	No
US 192/ Partin Settlement Rd.	WBR	377	259	0	0.0%	No
	NBL	249	171	0	0.0%	No
	NBT	1,774	1,220	47	3.9%	No
	SBL	483	332	0	0.0%	No
	SBT	1,790	1,231	49	4.0%	No
US 192/ Boggy Creek Rd.	WBT	1,979	1,361	28	2.1%	No

* LOS D capacity calculated (LOS E capcity * 0.6875) for intersections in Osceola County

Source: Design + Planning AECOM

Exhibit 13C - Revised Table 21-F.2

SUMMARY OF INTERSECTION IMPROVEMENTS, PHASE 1

Center Lake Ranch DRI

Intersection	Intersection Control	LOS Standard	Phase 1					PHASE 1 (Improved)					Improvement*
				APPROACH					APPROACH				
			OVERALL	EB	WB	NB	SB	OVERALL	EB	WB	NB	SB	
CR 15/ Rummel Rd./ Ralph Miller Rd.	Signal	LOS	C	D	C	D	C	B	D	D	A	B	Changed to WBL and WBRT; Signal Timing and Phasing
		Delay (sec/veh)	34.2	48.7	23.9	49.7	20.9	16.8	38.6	42.8	8.5	10.3	
		Queue Length (ft)		450	275	925	175		275	375	400	250	
US 192/ Pine Grove Rd.	TWSC	LOS	F	B	B	F	E	B	A	A	D	D	Signalize when warranted
		Delay (sec/veh)	51.1	11.2	10.1		47.3	10.7	7.5	5.9	37.5	40.1	
		Queue Length (ft)		25	0		125		225	100	50	150	
US 192/ CR 15	Signal	LOS	F	F	D	F	F	D	D	D	D	D	Add EBL; split phase for N/S
		Delay (sec/veh)	92.2	109.5	46.3	83.7	120.3	42.9	35.5	49.2	41.6	49.4	
		Queue Length (ft)		1,925	275	225	1,000		275	100	75	200	
US 192/ Columbia Ave./ Budinger Ave.	Signal	LOS	D	C	F	D	D	C	B	C	D	D	Signal timing and phasing
		Delay (sec/veh)	53.3	26.6	84.2	41.2	54.4	25.1	15.4	32.3	52.0	52.4	
		Queue Length (ft)		1,225	50	175	175		875	50	150	175	
US 192/ Kissimmee Park Rd.	Signal	LOS	E	E	E	E	E	D	C	B	F	F	Add WBL; Signal Timing and Phasing
		Delay (sec/veh)	68.8	79.9	56.2	64.7	72.9	45.8	27.9	19.7	140.7	144.0	
		Queue Length (ft)		500	750	425	350		425	300	625	450	

* Any geometric improvements assume optimization of timing and phasing

** 95% queue length

Source: Design + Planning AECOM

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: Jones Rd.

Inter.: 02 Narcoossee-Jones Rd 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: CR 15 (Narcoossee Road)

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	1	2	0	1	2	0
LGConfig		LTR			LTR		L	TR		L	TR	
Volume	22	3	15	45	5	87	24	887	68	99	1004	34
Lane Width		12.0			12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru	A				Thru	A	A	
Right	A				Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	33.5					36.5	11.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	0.0	

Cycle Length: 95.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	535	1516	0.08	0.35	20.5	C	20.5	C
Westbound								
LTR	553	1568	0.26	0.35	22.2	C	22.2	C
Northbound								
L	113	294	0.22	0.38	20.7	C		
TR	1338	3482	0.75	0.38	27.8	C	27.6	C
Southbound								
L	440	1805	0.24	0.58	23.6	C		
TR	1951	3531	0.56	0.55	14.1	B	15.0	B

Intersection Delay = 20.9 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: DHirsch
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: Boggy Creek Rd.

Inter.: 03 Narcoossee - Boggy Creek 15
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Narcoossee Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	2	0	0	2	1
LGConfig	L		R				L	T			T	R
Volume	117		332				255	858			963	170
Lane Width	12.0		12.0				12.0	12.0			12.0	12.0
RTOR Vol			133									15

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left		A			NB Left	A			
Thru					Thru	A			
Right		A			Right				
Peds					Peds				
WB Left					SB Left				
Thru					Thru	A			
Right					Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		22.5				75.0			
Yellow		5.0				5.0			
All Red		1.5				1.0			

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	362	1770	0.35	0.20	38.1	D		
							42.3	D
R	327	1599	0.65	0.20	44.8	D		
Westbound								
Northbound								
L	310	454	0.88	0.68	38.6	D		
T	2442	3582	0.38	0.68	7.6	A	14.7	B
Southbound								
T	2442	3582	0.42	0.68	8.0	A	7.7	A
R	1090	1599	0.15	0.68	6.3	A		

Intersection Delay = 15.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: Ralph Miller/ Rummel Road

Inter.: 04 Narcoossee-Ralph Miller Rum
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: CR 15 (Narcoossee Road)

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	1
LGConfig		LT	R	L	TR		L	TR		L	T	R
Volume	170	83	58	207	78	173	38	808	218	184	876	174
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			26			16			0			20

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru	A					Thru	A			
	Right	A					Right	A			
	Peds						Peds				
WB	Left	A	A			SB	Left	A	A		
	Thru	A	A				Thru	A	A		
	Right	A	A				Right	A	A		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		33.5	6.0					36.5	11.0		
Yellow		4.0	4.0					4.0	4.0		
All Red		1.0	0.0					1.0	0.0		

Cycle Length: 105.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	331	1038	0.85	0.32	51.8	D	48.7	D
R	505	1583	0.07	0.32	25.0	C		
Westbound								
L	491	1805	0.47	0.45	27.4	C		
TR	725	1710	0.36	0.42	20.9	C	23.9	C
Northbound								
L	111	318	0.38	0.35	27.9	C		
TR	1190	3422	0.96	0.35	50.5	D	49.7	D
Southbound								
L	382	1805	0.53	0.53	37.7	D		
T	1774	3547	0.55	0.50	18.4	B	20.9	C
R	808	1615	0.21	0.50	14.8	B		

Intersection Delay = 34.2 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: kmah
Agency/Co.: Glatting Jackson
Date Performed: 12/2/2009
Analysis Time Period: PM peak
Intersection: 05 US192-PineGrove 15PM
Jurisdiction: Osceola County
Units: U. S. Customary
Analysis Year: 2015
Project ID: 19670 - Center Lake Ranch DRI
East/West Street: US 192
North/South Street: Pine Grove Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	215	938	3	3	688	106
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	226	987	3	3	724	111
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Raised curb			/ 2		
RT Channelized?			No			No
Lanes	1	2	1	1	2	1
Configuration	L	T	R	L	T	R
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	19	9	7	98	14	119
Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	20	9	7	103	14	125
Percent Heavy Vehicles	0	0	0	8	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			/
Lanes	0	1	0	0	1	1
Configuration		LTR			LT	R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	226	3		36		117		125
C(m) (vph)	807	706		113		149		641
v/c	0.28	0.00		0.32		0.79		0.20
95% queue length	1.15	0.01		1.24		4.92		0.72
Control Delay	11.2	10.1		51.1		85.1		12.0
LOS	B	B		F		F		B
Approach Delay				51.1			47.3	
Approach LOS				F			E	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: kmah
Agency/Co.: Glatting Jackson
Date Performed: 12/2/2009
Analysis Time Period: PM peak
Intersection: 06 US192-Nova 15PM
Jurisdiction: Osceola County
Units: U. S. Customary
Analysis Year: 2015
Project ID: 19670 - Center Lake Ranch DRI
East/West Street: US 192
North/South Street: Nova Road
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	346	1024			945	29
Peak-Hour Factor, PHF	0.95	0.95			0.95	0.95
Hourly Flow Rate, HFR	364	1077			994	30
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Raised curb		/ 2			
RT Channelized?					Yes	
Lanes	1	2			2	1
Configuration	L	T			T	R
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				14		164
Peak Hour Factor, PHF				0.95		0.95
Hourly Flow Rate, HFR				14		172
Percent Heavy Vehicles				0		0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes				1		1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	364					14		172
C(m) (vph)	704					101		524
v/c	0.52					0.14		0.33
95% queue length	3.00					0.46		1.42
Control Delay	15.5					46.3		15.2
LOS	C					E		C
Approach Delay							17.5	
Approach LOS							C	

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 07 US192-CR15 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: CR 15 (Narcoossee Road)

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	1	1	2	1	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	713	970	166	123	888	255	110	127	58	372	206	487
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			49			77			40			162

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		A
Thru		A			Thru			A
Right		A			Right			A
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru		A			Thru		A	A
Right		A			Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	39.0	36.0				7.0	7.0	9.0
Yellow	3.0	5.0				3.0	3.5	3.5
All Red	1.5	1.0				0.0	0.0	1.5

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	581	1787	1.31	0.32	190.5	F		
T	1075	3582	0.96	0.30	59.3	E	109.5	F
R	485	1615	0.26	0.30	32.1	C		
Westbound								
L	581	1787	0.23	0.32	29.7	C		
T	1043	3478	0.91	0.30	51.0	D	46.3	D
R	457	1524	0.41	0.30	34.2	C		
Northbound								
L	194	1805	0.60	0.13	54.2	D		
T	143	1900	0.94	0.08	113.6	F	83.7	F
R	121	1615	0.16	0.08	52.6	D		
Southbound								
L	482	3403	0.82	0.14	61.0	E		
T	309	1900	0.71	0.16	54.9	D	120.3	F
R	257	1583	1.35	0.16	229.7	F		

Intersection Delay = 92.2 (sec/veh) Intersection LOS = F

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 08 US192-OldHickoryTree 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Old Hickory Tree Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	0	1	0
LGConfig	L	T	R	L	TR		L	T	R		LTR	
Volume	63	1604	152	74	1630	7	144	19	88	12	20	40
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0		12.0	
RTOR Vol			18			0			28			19

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left			A		NB Left	A			
Thru		A	A		Thru	A			
Right		A	A		Right	A			
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A	A			Thru	A			
Right	A	A			Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	9.5	41.0	9.5			20.0			
Yellow	4.0	5.0	4.0			3.5			
All Red	0.0	0.0	1.5			2.0			

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	171	1805	0.39	0.09	44.0	D		
T	1969	3547	0.87	0.56	17.2	B	17.7	B
R	896	1615	0.16	0.56	10.9	B		
Westbound								
L	165	1736	0.48	0.09	45.1	D		
TR	1913	3511	0.91	0.55	21.2	C	22.2	C
Northbound								
L	271	1355	0.56	0.20	38.8	D		
T	380	1900	0.05	0.20	32.4	C	36.9	D
R	323	1615	0.20	0.20	33.6	C		
Southbound								
LTR	341	1703	0.16	0.20	33.3	C	33.3	C

Intersection Delay = 21.1 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 9 US192-Delaware 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Delaware Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	0	1	0	0	1	0
LGConfig	L	TR		L	TR			LTR			LTR	
Volume	5	2176	18	7	2012	19	28	15	11	22	3	8
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
RTOR Vol		1			0			3			5	

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru	A	A				Thru	A			
	Right	A	A				Right	A			
	Peds						Peds				
WB	Left			A		SB	Left	A			
	Thru		A	A			Thru	A			
	Right		A	A			Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		18.0	65.0	18.0				21.0			
Yellow		4.0	4.0	4.0				3.5			
All Red		0.0	0.0	1.0				1.5			

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	232	1805	0.02	0.13	53.3	D		
TR	3181	5119	0.73	0.62	10.4	B	10.5	B
Westbound								
L	232	1805	0.03	0.13	53.4	D		
TR	3119	5019	0.69	0.62	9.7	A	9.9	A
Northbound								
LTR	226	1506	0.23	0.15	53.0	D	53.0	D
Southbound								
LTR	222	1481	0.13	0.15	51.9	D	51.9	D

Intersection Delay = 10.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 10 US192-Michigan 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Michigan Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	0	1	1	0	1	0
LGConfig	L	TR		L	TR			LT	R		LTR	
Volume	3	1993	198	76	1940	12	292	38	108	65	110	40
Lane Width	12.0	12.0		12.0	12.0			12.0	12.0		12.0	
RTOR Vol			5			0			36			14

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru			A			Thru	A			
	Right			A			Right	A			
	Peds						Peds				
WB	Left	A	A			SB	Left	A			
	Thru		A	A			Thru	A			
	Right		A	A			Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		6.0	6.0	70.9				37.1			
Yellow		4.0	4.0	4.0				4.0			
All Red		0.0	0.0	2.0				2.0			

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	77	1805	0.04	0.04	64.4	E		
TR	2561	5056	0.92	0.51	30.0	C	30.1	C
Westbound								
L	189	1656	0.43	0.11	59.4	E		
TR	2930	5070	0.72	0.58	14.2	B	15.9	B
Northbound								
LT	264	996	1.34	0.26	229.7	F	195.9	F
R	428	1615	0.18	0.26	39.9	D		
Southbound								
LTR	168	635	1.29	0.26	217.4	F	217.4	F

Intersection Delay = 45.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 11 US192-NewYork 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: New York Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	0	1	0	0	1	1
LGConfig	L	TR		L	TR			LTR			LT	R
Volume	35	2138	8	6	1975	47	41	15	8	84	12	71
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	12.0
RTOR Vol			1			2			2			39

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A			
	Thru	A	A				Thru	A			
	Right	A	A				Right	A			
	Peds						Peds				
WB	Left			A		SB	Left	A			
	Thru		A	A			Thru	A			
	Right		A	A			Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		15.0	67.0	15.0				25.0			
Yellow		4.0	4.0	4.0				3.5			
All Red		0.0	0.0	1.0				1.5			

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	193	1805	0.19	0.11	57.5	E		
TR	3116	5072	0.73	0.61	11.1	B	11.9	B
Westbound								
L	193	1805	0.03	0.11	56.1	E		
TR	3108	5059	0.69	0.61	10.4	B	10.6	B
Northbound								
LTR	205	1150	0.32	0.18	51.0	D	51.0	D
Southbound								
LT	242	1356	0.42	0.18	52.3	D	51.3	D
R	288	1615	0.12	0.18	48.4	D		

Intersection Delay = 13.0 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 12 US192-Vermont 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Vermont Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	1	1	0	0	1	0
LGConfig	L	TR		L	TR		L	TR			LTR	
Volume	18	1875	277	247	1738	28	214	80	171	30	155	14
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vol		7			1			45			0	

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A	A		
Thru	A	A			Thru	A	A		
Right	A	A			Right	A	A		
Peds					Peds				
WB Left			A		SB Left		A	A	
Thru		A	A		Thru		A	A	
Right		A	A		Right		A	A	
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	13.5	45.0	22.0			15.0	10.5	7.0	
Yellow	4.0	4.0	4.0			4.0	3.5	4.0	
All Red	0.0	0.0	2.0			0.0	0.0	1.5	

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	163	1687	0.12	0.10	58.1	E		
TR	2245	5028	1.01	0.45	53.0	D	53.0	D
Westbound								
L	281	1787	0.93	0.16	92.7	F		
TR	2568	5064	0.72	0.51	21.3	C	30.1	C
Northbound								
L	243	1770	0.93	0.21	89.3	F		
TR	361	1715	0.60	0.21	52.7	D	71.4	E
Southbound								
LTR	270	1867	0.78	0.15	70.7	E	70.7	E

Intersection Delay = 45.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 13 US192-Columbia 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Columbia Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	2	1	1	1	0	0	1	0
LGConfig	L	TR		L	T	R	L	TR			LTR	
Volume	52	2138	47	26	1934	45	103	34	57	49	23	35
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0			12.0	
RTOR Vol		5			9			10			18	

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left		A			NB	Left	A	A		
	Thru	A					Thru	A	A		
	Right	A					Right	A	A		
	Peds						Peds				
WB	Left		A			SB	Left	A			
	Thru	A					Thru	A			
	Right	A					Right	A			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		72.0	14.0					23.0	12.0		
Yellow		4.0	3.5					3.5	4.0		
All Red		2.0	1.0					0.0	1.0		

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	175	1752	0.31	0.10	59.6	E		
TR	2629	5111	0.87	0.51	25.9	C	26.6	C
Westbound								
L	181	1805	0.15	0.10	57.9	E		
T	1824	3547	1.12	0.51	85.8	F	84.2	F
R	831	1615	0.05	0.51	16.9	B		
Northbound								
L	430	1787	0.25	0.29	43.1	D		
TR	472	1716	0.18	0.28	38.9	D	41.2	D
Southbound								
LTR	208	1264	0.45	0.16	54.4	D	54.4	D

Intersection Delay = 53.3 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 14 US192-Neptune 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Neptune Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	1	1	1	1	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	64	2139	24	284	2040	94	43	68	482	134	72	76
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			6			10			199			25

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A				NB	Left	A	A		
	Thru			A			Thru		A		
	Right			A			Right		A		
	Peds						Peds				
WB	Left	A	A			SB	Left	A	A		
	Thru		A	A			Thru		A		
	Right		A	A			Right		A		
	Peds						Peds				
NB	Right	A	A			EB	Right				
SB	Right					WB	Right				
Green		11.0	12.0	79.0				7.5	7.5		
Yellow		4.5	4.5	4.5				3.5	3.5		
All Red		0.0	0.0	1.0				0.0	1.5		

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	142	1805	0.48	0.08	64.3	E		
T	2021	3582	1.13	0.56	83.8	F	82.7	F
R	911	1615	0.02	0.56	13.5	B		
Westbound								
L	351	1787	0.86	0.20	73.4	E		
T	2443	3582	0.89	0.68	10.3	B	17.7	B
R	1102	1615	0.08	0.68	7.5	A		
Northbound								
L	160	1805	0.29	0.14	53.9	D		
T	102	1900	0.71	0.05	85.1	F	54.4	D
R	461	1615	0.65	0.29	47.2	D		
Southbound								
L	164	1805	0.87	0.14	95.6	F		
T	102	1900	0.75	0.05	92.3	F	91.2	F
R	87	1615	0.62	0.05	77.7	E		

Intersection Delay = 51.3 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 15 US192-KissPark 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Kissimmee Park Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	2	1	1	2	0
LGConfig	L	T	R	L	T	R	L	LT	R	L	LTR	
Volume	77	1747	388	275	1476	171	286	156	89	197	189	34
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			39			49			35			4

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A	A			Thru	A		
Right	A	A			Right	A		
Peds					Peds			
WB Left			A		SB Left	A		
Thru		A	A		Thru	A		
Right		A	A		Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0	40.0	20.5			15.0	19.0	
Yellow	4.5	4.5	4.5			4.0	4.0	
All Red	0.0	0.0	1.0			1.5	1.5	

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	253	1770	0.32	0.14	54.6	D		
T	1650	3582	1.11	0.46	91.6	F	79.9	E
R	737	1599	0.50	0.46	27.0	C		
Westbound								
L	262	1787	1.10	0.15	145.8	F		
T	1631	3512	0.95	0.46	42.3	D	56.2	E
R	742	1599	0.17	0.46	21.9	C		
Northbound								
L	243	1787	0.81	0.14	76.6	E		
LT	477	3513	0.56	0.14	58.2	E	64.7	E
R	219	1615	0.26	0.14	54.8	D		
Southbound								
L	191	1787	0.71	0.11	71.7	E		
LTR	375	3499	0.81	0.11	73.5	E	72.9	E

Intersection Delay = 68.8 (sec/veh) Intersection LOS = E

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 16 US192-CommerceCtr 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Commerce Center Drive

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	1	0	1	1	0
LGConfig	L	T	R	L	T	R	L	TR		L	TR	
Volume	182	2194	92	169	1989	231	173	107	80	170	95	108
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			23			52			9			23

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	73.7	16.3				20.0	9.0	
Yellow	5.0	4.5				4.0	4.0	
All Red	1.0	1.0				0.0	1.5	

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	210	1805	0.91	0.12	100.4	F		
T	1886	3582	1.22	0.53	129.9	F	124.5	F
R	833	1583	0.09	0.53	16.5	B		
Westbound								
L	210	1805	0.85	0.12	86.9	F		
T	1849	3512	1.13	0.53	91.0	F	85.1	F
R	842	1599	0.22	0.53	17.9	B		
Northbound								
L	299	1805	0.61	0.25	57.0	E		
TR	254	1779	0.74	0.14	68.5	E	62.8	E
Southbound								
L	300	1805	0.60	0.25	56.5	E		
TR	250	1748	0.76	0.14	70.1	E	63.5	E

Intersection Delay = 99.9 (sec/veh) Intersection LOS = F

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: Partin Settlement Rd.

Inter.: 17 US192-Partin Settlemen 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: US 192

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	1	2	2	1
LGConfig	L	TR		L	T	R	L	T	R	L	T	R
Volume	73	139	89	99	126	324	162	2147	61	411	1848	21
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			30			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	32.7					19.3	70.0	
Yellow	4.0					4.0	5.0	
All Red	2.0					2.0	1.0	

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	281	1202	0.27	0.23	44.5	D		
TR	424	1815	0.49	0.23	47.3	D	46.6	D
Westbound								
L	217	931	0.48	0.23	48.0	D		
T	444	1900	0.30	0.23	44.6	D	64.1	E
R	377	1615	0.90	0.23	76.6	E		
Northbound								
L	249	1805	0.69	0.14	65.2	E		
T	1774	3547	1.27	0.50	162.8	F	152.4	F
R	808	1615	0.08	0.50	18.3	B		
Southbound								
L	483	3505	0.90	0.14	78.5	E		
T	1791	3582	1.09	0.50	83.8	F	82.2	F
R	808	1615	0.03	0.50	17.8	B		

Intersection Delay = 109.1 (sec/veh) Intersection LOS = F

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 18 US192-BoggyCreekRd 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Boggy Creek Rd.

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	3	0	1	3	1	1	1	0	1	1	1
LGConfig	L	TR		L	T	R	L	TR		L	LT	R
Volume	1219	2460	0	0	1940	23	2	0	1	23	1	550
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			1			0			114

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4		5	6	7	8
EB	Left	A				NB	Left A			
	Thru	A	A				Thru A			
	Right	A	A				Right A			
	Peds						Peds			
WB	Left			A		SB	Left A			
	Thru		A	A			Thru A			
	Right		A	A			Right A			
	Peds						Peds			
NB	Right					EB	Right			
SB	Right	A				WB	Right			
Green		48.3	32.4	5.5			3.8			
Yellow		3.5	5.0	3.0			4.5			
All Red		0.0	0.0	2.0			2.0			

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1480	3370	0.87	0.44	33.7	C		
TR	3922	5124	0.66	0.77	1.9	A	12.4	B
Westbound								
L	90	1805	0.00	0.05	49.6	D		
T	1979	5074	1.03	0.39	59.3	E	58.9	E
R	573	1468	0.04	0.39	20.8	C		
Northbound								
L	66	1900	0.03	0.03	51.5	D		
TR	56	1615	0.02	0.03	51.4	D	51.5	D
Southbound								
L	65	1810	0.22	0.03	53.3	D		
LT	62	1794	0.18	0.03	53.0	D	19.3	B
R	860	1615	0.53	0.53	17.4	B		

Intersection Delay = 27.9 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 05 US192-PineGrove 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015 Improved
N/S St: Pine Grove

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	0	1	0	0	1	1
LGConfig	L	T	R	L	T	R		LTR			LT	R
Volume	215	938	3	3	688	106	19	9	7	98	14	119
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	12.0
RTOR Vol			0			10			0			12

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	90.0					39.0		
Yellow	5.0					3.5		
All Red	1.0					1.5		

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	445	692	0.53	0.64	14.6	B		
T	2303	3582	0.44	0.64	5.9	A	7.5	A
R	1038	1615	0.00	0.64	8.9	A		
Westbound								
L	326	507	0.01	0.64	9.0	A		
T	2236	3478	0.33	0.64	5.3	A	5.9	A
R	980	1524	0.11	0.64	9.6	A		
Northbound								
LTR	435	1562	0.09	0.28	37.5	D	37.5	D
Southbound								
LT	374	1341	0.33	0.28	40.6	D	40.1	D
R	441	1583	0.26	0.28	39.6	D		

Intersection Delay = 10.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 07 US192-CR15 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015 Improved
N/S St: CR 15 (Narcoossee Road)

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	2	1	1	2	1	1	1	1	2	1	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	713	970	166	123	888	255	110	127	58	372	206	487
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			49			77			40			162

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A	A			NB Left	A		A	
Thru		A	A		Thru			A	
Right		A	A		Right			A	
Peds					Peds				
WB Left	A				SB Left	A	A		
Thru			A		Thru		A	A	
Right			A		Right		A	A	
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	14.0	10.0	32.0			6.5	8.0	16.0	
Yellow	3.0	3.0	5.0			3.0	3.5	3.5	
All Red	0.0	0.0	1.0			0.0	0.0	1.5	

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	852	3471	0.89	0.25	51.7	D		
T	1465	3582	0.70	0.41	25.4	C	35.5	D
R	661	1615	0.19	0.41	20.9	C		
Westbound								
L	227	1787	0.58	0.13	48.8	D		
T	1012	3478	0.93	0.29	52.7	D	49.2	D
R	443	1524	0.43	0.29	32.2	C		
Northbound								
L	279	1805	0.42	0.20	38.2	D		
T	276	1900	0.49	0.15	44.6	D	41.6	D
R	235	1615	0.08	0.15	40.8	D		
Southbound								
L	541	3403	0.73	0.16	49.1	D		
T	475	1900	0.46	0.25	35.7	D	49.4	D
R	396	1583	0.87	0.25	58.5	E		

Intersection Delay = 42.9 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 10 US192-Michigan 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015
N/S St: Michigan Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	3	0	1	1	0	1	1	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	3	1993	198	76	1940	12	292	38	108	65	110	40
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol		5			0			36			14	

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A	A		
Thru	A	A			Thru	A	A		
Right	A	A			Right	A	A		
Peds					Peds				
WB Left			A		SB Left	A			
Thru		A	A		Thru	A			
Right		A	A		Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	7.0	60.0	20.0			19.0	10.0		
Yellow	4.0	4.0	4.0			4.0	4.0		
All Red	0.0	0.0	2.0			2.0	0.0		

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	90	1805	0.03	0.05	63.4	E		
TR	2564	5056	0.92	0.51	29.8	C	29.9	C
Westbound								
L	237	1656	0.35	0.14	55.0-	D		
TR	3042	5070	0.69	0.60	11.7	B	13.3	B
Northbound								
L	354	1770	0.89	0.28	76.3	E		
TR	421	1685	0.28	0.25	42.7	D	67.1	E
Southbound								
L	163	1201	0.43	0.14	57.3	E		
TR	246	1816	0.59	0.14	60.7	E	59.6	E

Intersection Delay = 27.3 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 13 US192-Columbia 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015 Improved
N/S St: Columbia Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	1	2	1	1	1	0	0	1	0
LGConfig	L	TR		L	T	R	L	TR			LTR	
Volume	52	2138	47	26	1934	45	103	34	57	49	23	35
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0			12.0	
RTOR Vol			5			9			10			18

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left		A			SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	82.0	19.0				25.0		
Yellow	4.0	3.5				3.5		
All Red	2.0	1.0				0.0		

Cycle Length: 140.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	238	1752	0.23	0.14	54.5	D		
TR	2994	5111	0.77	0.59	14.5	B	15.4	B
Westbound								
L	245	1805	0.11	0.14	53.3	D		
T	2078	3547	0.98	0.59	32.4	C	32.3	C
R	946	1615	0.04	0.59	12.3	B		
Northbound								
L	223	1248	0.48	0.18	53.4	D		
TR	306	1716	0.28	0.18	50.2	D	52.0	D
Southbound								
LTR	222	1242	0.42	0.18	52.4	D	52.4	D

Intersection Delay = 25.1 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: kmah
Agency: Glatting Jackson
Date: 12/2/2009
Period: PM peak
Project ID: 19670 - Center Lake Ranch DRI
E/W St: US 192

Inter.: 15 US192-KissPark 15PM
Area Type: All other areas
Jurisd: Osceola County
Year : 2015 Improved
N/S St: Kissimmee Park Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	2	1	2	2	1	1	2	1	1	2	0
LGConfig	L	T	R	L	T	R	L	LT	R	L	LTR	
Volume	77	1747	388	275	1476	171	286	156	89	197	189	34
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			39			49			35			4

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4		5	6	7	8
EB	Left	A				NB	Left	A		
	Thru	A	A				Thru	A		
	Right	A	A				Right	A		
	Peds						Peds			
WB	Left			A		SB	Left	A		
	Thru		A	A			Thru	A		
	Right		A	A			Right	A		
	Peds						Peds			
NB	Right					EB	Right			
SB	Right					WB	Right			
Green		12.0	61.0	19.0			11.0	12.0		
Yellow		4.5	4.5	4.5			4.0	4.0		
All Red		0.0	0.0	1.0			1.5	1.5		

Cycle Length: 140.5 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	294	3437	0.28	0.09	60.7	E		
T	1976	3582	0.93	0.55	28.2	C	27.9	C
R	882	1599	0.42	0.55	18.7	B		
Westbound								
L	469	3471	0.62	0.14	59.7	E		
T	2112	3512	0.74	0.60	12.8	B	19.7	B
R	962	1599	0.13	0.60	12.2	B		
Northbound								
L	153	1787	1.28	0.09	231.3	F		
LT	300	3513	0.90	0.09	91.1	F	140.7	F
R	138	1615	0.41	0.09	62.9	E		
Southbound								
L	140	1787	0.96	0.08	129.5	F		
LTR	274	3499	1.11	0.08	150.5	F	144.0	F

Intersection Delay = 45.8 (sec/veh) Intersection LOS = D

SUMMARY OF ESTIMATED PROPORTIONATE SHARE COSTS

Center Lake DRI

Use of FDOT minimum K & D factors

August 25, 2010

Intersections	Segment (From - To)	Lane Group	A Service Volume @ Std.	B Total PM Pk-Hour Pk-Dir Traffic	C DRI PM Pk-Hour Pk-Dir Traffic	D Improvement	E Improved Service Volume	F Service Volume Increase	G Cost Per Mile ROW	G Cost Per Mile Design [1]	G Cost Per Mile Const.	G Cost Per Mile Total	I DRI Trips/ Svc. Vol. Increase (C /F)	J DRI Proportionate Share Cost (H * I)
CR 15/ Rummel Rd./ Ralph Miller Rd.						Realign Ralph Miller Rd, Adjust signalization and phasing to include new approach				$ -		$ -	100.0%	$ -
							1,310	1,310						
US 192/ Pine Grove Rd.			102	112	76	Signalize When Warranted	257	155		$ 7,200.00	$ 350,000.00	$ 357,200.00	49.1%	$ 175,497
US 192/ CR 15		EBL	399	713	154	Add EBL, Rephase	586	186		$ 75,000.00	$ 300,000.00	$ 375,000.00	82.7%	$ 309,963
US 192/ Columbia Ave./ Budinger Ave.		WBT	1,254	1,934	73	Signal Timing and Phasing	1,429	175		$ 7,200.00	$ -	$ 7,200.00	41.8%	$ 3,010
US 192/ Kissimmee Park Rd.		WBL	180	275	14	Add WBL; Signal Timing and Phasing	322	142		$ 75,000.00	$ 300,000.00	$ 375,000.00	9.8%	$ 36,891
Total (2010 $)														**$ 525,361**

Notes: Proportionate share calculated on the proportionate share formula contained in 9J-2.045 (project traffic [C] times service volume increase [F] times total improvement c

Construction costs based on the FDOT State Specifications and Estimates Office, 2010

[1] Design costs assumed to be 25% of Construction Costs

Source: AECOM D+P

Table 21-A.4

PLANNED AND PROGRAMMED ROADWAY IMPROVEMENTS

Center Lake Ranch DRI

Map Reference	Roadway	Segment From - To	Improvement	Length (miles)	Phase	Completion Date	Responsible Agency	Status
1	CR 15 (Narcoossee Road)	Orange-Osceola County Line - SR 417	Widen to six lanes	3.8	CST	2011	Orange County	Programmed (TRIP)
2	Boggy Creek	SR 417 - County Line Road	Widen to four lanes	1.5	CST	2013	Orange County	Programmed
3	Boggy Creek	Hillard Isle Road - Orange/ Osceola County Line	Widen to four lanes	3.1	CST	2014	Osceola County	Programmed
4	Boggy Creek	Boggy Creek	Intersection Improvement	-	CST	2013	Orange County	Programmed
5	Florida's Turnpike	Ramps to/ from Sun Pass	Partial Interchange	0.7	CST	2006	Turnpike	Constructed
6	John Young Parkway	Carroll St. - Orange/Osceola County Line	Widen to six lanes	0.9	CST	2011	Osceola County	Under Construction
7	Kissimmee Park Road	Neptune Rd. - Old Canoe Creek Rd.	Widen to four lanes	1.7	CST	2008	Osceola County	Constructed
8	Narcoossee Road (CR 15)	Hickory Tree Rd. - US 192	Create two lane highway	4.4	CST	2008	Osceola County	Constructed
9	Narcoossee Road (CR 15)	US 192 - Orange-Osceola County Line	Widen to four lanes	7.4	CST	2011	Osceola County	Under Construction
10	Osceola Parkway	Florida's Turnpike - Buenaventura Blvd.	Widen to six lanes	1.6	CST	2012	Osceola County	Under Construction
11	Osceola Parkway	Buenaventura Blvd. - Boggy Creek Rd.	Widen to four lanes	1.8	CST	2015	Osceola County	Programmed
12	Partin Settlement Road	Simmons Rd. - Lakeshore Blvd.	Widen to three lanes	0.7	CST	2008	Osceola County	Constructed
13	Simpson Road	US 192 - Florida's Turnpike	Widen to five lanes	0.4	CST	2015	Osceola County	Programmed
14	Simpson Road	Florida's Turnpike - Fortune Rd.	Widen to four lanes	0.8	CST	2017	Osceola County	Programmed
15	SR500/US192	CR532 - Hickory Tree Road	Widen to four lanes	5.7	CST	2006	FDOT	Constructed

Notes: CST - construction

Source: *Transportation Improvement Program for the Orlando Urban Area, 2009/10 - 2013/14*
Design + Planning AECOM

G-1