CHAPTER 4. IMPLEMENTATION

4.1 Introduction

Fulfillment of the Mixed Use District goals and policies identified in the Comprehensive Plan, and Chapter 3, *The Master Plan*, requires that proper infrastructure is in place to support future development and growth throughout Osceola County. To ensure adequate levels of infrastructure for development at East of Lake Toho, likely costs, associated potential funding sources/funding strategies, and responsible parties have been identified and analyzed. This chapter explores total costs including private sector costs and those by other public agencies as well as the costs expected to be supported by the County using impact fees. Where there is a gap, other potential funding mechanisms are suggested, include tax increment financing (TIF) financed through bonds backed by future ad valorem taxes that may be used to fund public realm improvements and infrastructure in the East of Lake Toho planning area.

Notably, a project of the magnitude of East of Lake Toho should utilize a variety of funding sources by both the public and private sectors. As such, a list of potential federal, state and local competitive grants geared to funding various improvements, are contained in Technical Appendix 01, *Economic Analysis*.

Successful implementation of the plan's goals and planning principles will require a variety of key actions and investments by both the public and private sectors. Some actions, such as public investment in transportation improvements, will be required prior to investment response by the private-sector.

Specific implementation actions will not occur simultaneously; some will occur over an extended period of time, while others proceed concurrently. Yet others will necessitate public policies and decisions to attain the plan's multiple objectives. As with any long-term master plan, implementation strategies should be reviewed regularly and modified as necessary to achieve desired outcomes as circumstances, such as market fluctuations, change. Moreover, as economic cycles dictate changes in funding capacity and availability, it may be necessary for both the public and private sectors to adapt to changing circumstances, such as the current decline in tax revenues as a result of the state and national economic recession. As a result, implementation strategies should be sufficiently flexible to accommodate such conditions and offer choices for both Osceola County and private investors/developers in the East of Lake Toho planning area in order to achieve the plan's goals and objectives.

4.2 Development Phasing

Overview

As illustrated in Technical Appendix 01, *Economic Analysis*, METROPLAN forecasts 108,500 new housing units across Osceola County between 2009 and 2030. The market analysis estimates that the East of Lake Toho planning area could potentially capture between 25,000 and 30,000 new housing units, including residential development planned for the five DRIs in the East of Lake Toho planning area, which collectively are planning approximately 17,300 units. As illustrated in Map 4.2-1, *Development Phasing Map*, development phasing is described as two phases, 2011 - 2015 and 2016 through build-out.

Phasing, 2011 - 2015

The Florida Department of Community Affairs (DCA) requires that any Comprehensive Plan Amendment be financially feasible for the first five years of development. As such, Table 4.2-1, *East of Lake Toho Planning Area Development Program, 2011 - 2015*, illustrates the development program, with estimated annual build-out for each use for the period between 2011 and 2015. With the exception of the multifamily housing units, all development has been accounted for within the Osceola County Comprehensive Plan.

Residential

Development of approximately 14,000 new housing units in the East of Lake Toho planning area over the next five years will necessitate annual absorption of roughly 2,800 units per year. This is aggressive with market analysis suggesting average annual absorption ranging from 1,100 to 1,300 units per year. Short-term absorption may be reduced due to the ongoing economic recession with later years more likely to support larger absorption.

Commercial

The development program identifies development of 642,800 square feet of commercial retail uses in the first phase.

However, before any substantial retail space can be developed in the East of Lake Toho planning area, a critical mass of new, fully-occupied housing will be required. Retail development will be phased in over time, with Neighborhood Centers supportable in early phases and larger retail formats emerging with completion of a critical mass of new housing.

New retail space in the first five years will range from multiple Neighborhood Centers to one or two Community Centers anchored by grocery stores and/or a primary destination retail project such as a lifestyle/urban main street format center ranging in size from 125,000 up to 350,000 square feet.

Future retail projects located within the Urban Center will require additional residential densities, excellent frontage and visibility, strong traffic counts, and immediate/proximate access to framework streets and the regional transportation network. As such, any large-scale retail development in the East of Lake Toho planning area will require all of the above.

Office/Workplace

As with commercial retail uses, significant office development will require access and an increasing perception of the area as an office location. Areas near Florida's Turnpike will be initially most competitive, as the area increases in competitive position in the regional marketplace for speculative office development over the long-term. In the short- and medium term, these sites will be

Table 4.2-1. East of Lake Toho Planning Area Development Program, 2011 - 2015

	2011	2012	2013	2014	2015
Single-Family Detached (Units)	200	800	1,200	2,500	3,970
Multifamily (Units)	100	600	800	1,500	2,360
Retail (SF)	-	-	-	-	642,750
Office (SF)	-	-	-	44,000	44,000
Hotel (Rooms)	-	-	-	-	225

Map 4.2-1. Development Phasing Map

Place Types
- Urban Center
- Community Center
- Neighborhood Center
- Neighborhood Type 1
- Neighborhood Type 2
- Open Space District

Miscellaneous
- Roadways
- Preserved Wetlands
- Stormwater Ponds
- Existing Residential Development

Phasing
- Development Phasing Boundary

0 1,320' 2,640' 5,280'

the most appropriate locations for Class A office buildings. As build-out occurs over time and in multiple phases, the value of interior parcels, particularly those that can accommodate higher-density, urban mixed-use functions, will increase as well.

In the first phase, residential development will generate some incremental demand for professional office space oriented to medical, professional and business services. Typically, these office tenants will be located in smaller office formats ranging from 10,000 to 25,000 square feet.

Hotel

Market support for hotel uses is limited for the next five years. There are 225 rooms planned in the first phase, which will support two smaller limited service hotels or one full-service hotel.

Phasing, 2015 - Build-out

Build-out of the East of Lake Toho planning area is expected to occur sometime after 2030 and will be distributed over multiple economic cycles.

Residential

At build-out, there are expected to be a total of approximately 33,500 housing units, with the majority (18,200) being single-family detached. As previously mentioned, historic absorption suggests average annual absorption ranging from 1,100 to 1,300 units per year, which would require a build-out period of between 25 and 30 years.

Commercial

Commercial retail development will follow as other residential, workplace, and hospitality uses are added to service residents, workers, and visitors. Total build-out of retail and service space is projected to be 1.9 million square feet and to be located in the Urban and Community Centers.

Office/Flex/Workplace

A total of 3.1 million square feet of workplace uses are projected for build-out, all as office space, to be located in Urban and Community Centers. As described in the section on the first five years, the initial demand will be for smaller scale offices accessible to residents, with larger scale buildings being supportable after other areas are built out because of its distance from existing office cores.

Hotel

East of Lake Toho is projected to include 1,300 hotel rooms. The area would be best positioned to serve business and leisure travel. The hotels are planned for both Urban and Community Centers.

Table 4.2-2. East of Lake Toho Planning Area Development Program, Build-out

	Build-out
Single-Family Detached (Units)	18,200
Multifamily (Units)	15,300
Retail (SF)	1,900,000
Office (SF)	3,090,000
Hotel (Rooms)	1,300

4.3 Costs & Feasibility

Overview

The following examines the costs of infrastructure for new development in the East of Lake Toho planning area, as well as looking at Osceola County's current impact fee structure. Certain improvements in the County, such as roads, are currently funded by impact fees levied on new development, while others, such as wastewater infrastructure, are funded through other means. The section below begins with a calculation of impact fees generated by new development in the East of Lake Toho planning area, focusing on the first phase (five years) of project development. Should the impact fees prove insufficient, other funding mechanisms could include creation of a community development district (CDD), tax increment financing (TIF) financed through bonds backed by future ad valorem taxes, and mobility fees, as allowed by Florida statute.

It should also be noted that a full fiscal analysis of this planning area has not been done. A fiscal analysis was done for the Northeast District which suggested that the County would gain a net revenue in the long term above and beyond its investment in infrastructure from a combination of taxes, impact fees, and other fees. Whereas this analysis for the East of Lake Toho planning area examines the impact fees generated by the proposed development, looking at these investments holistically is advised, keeping in mind other potential fiscal benefits and community goals. In addition to the above strategies, a list of potential Federal, state and local competitive grants geared to funding various improvements are contained in Technical Appendix 01, *Economic Analysis*.

Current Impact Fee Structure

The County has four impact fee assessments related to growth. These impact fee assessments are implemented as part of building permits issued for new housing, commercial (office/retail), and industrial development. Impact fees for new development located in unincorporated parts of Osceola County, such as the East of Lake Toho planning area, are collected to fund construction of public realm improvements in the following categories: Transportation, Education, Parks and Recreation, and Fire Rescue services.

New residential development is assessed for all four impact fees, while commercial and industrial projects are assessed for only the transportation and fire rescue impact fees. Generally, impact fees are calculated based on the use of a building and/or the use of a specific site/property. Commercial and industrial projects also consider the size of a building when determining impact fees. Notably, impact fee assessment rates established for education, fire rescue, and parks and recreation are applied countywide. However, transportation impact fee assessment rates differ from other impact fees in that they are established for specific geographic areas, referred to as Road Construction Districts (or Districts). As specified in Osceola County Ordinance 06-38, there are seven Road Construction Districts. In addition, there is one overlay district referred to as the "Poinciana Concurrency Exemption District" (Poinciana Overlay).

According to Ordinance 06-38, the East of Lake Toho planning area is mostly located in District 5, with part of the northern section of the area in District 4. In order to calculate impact fees, development in the Tohoqua and Toho Preserve DRIs were included in District 4, while the remaining development was included in District 5. It is assumed that multifamily units are split equally between rental apartments and for-sale condominium units, which are assessed at different impact rates. (Refer to Table 4.2-1, *East of Lake Toho Planning Area Development Program, 2011 - 2015*).

Osceola County also imposes annual special assessments for fire rescue and solid waste collection services within unincorporated parts of the County. Residential homeowners are assessed on an annual basis for both solid waste and fire rescue services. Commercial and industrial building owners are charged annual assessments only for fire rescue services.

First Five Years (2011 – 2015)

For the first five years, and as shown in Table 4.3-1, *East of Lake Toho Planning Area Development Costs, 2011 - 2015*, improvement costs in current dollars are estimated as follows:

- $204 million for transportation-related projects, including existing and proposed street network
- $117 million for schools; and.
- $42.9 million for parks, trails and recreational facilities

In summary, preliminary costs associated with transportation and infrastructure improvements that are typically covered by impact fees total approximately $366.4 million for the planning area's first five years of development.

As illustrated in Table 4.3-2, *East of Lake Toho Planning Area Generated Impact Fees, 2011-2015*, residential and commercial development generate the following:

- Single-family residential uses generate the largest share of impact fees across transportation, schools and fire, or $162.7 million, in part because of the magnitude of both the amount of new single-family units as well as fee per unit. Of the $162.7 million in impact fees generated by single-family development, roughly $64.9 million could be used for transportation purposes.
- Multifamily development (rentals and for-sale condominiums) could be expected to produce $60.1 million in impact fees in the first five years of the project.
- Commercial uses would produce $13.9 million in fees, accounting for only eight percent of the total fees generated.

In summary, the first phase of residential and commercial development in the East of Lake Toho planning area would generate approximately $236.6 million in gross impact fees in the first five years. As shown in Table 4.3-3, *East of Lake Toho Planning Area Net/ Surplus Gap, 2011 - 2015*, with funding from impact fees only, in the first five years of development, there are funding shortfalls of $102.6 million for transportation and $31.2 million for parks. Strategies for closing these gaps are discussed in Section 4.4, *Potential Funding Strategies*, which could include a Multimodal Transportation Mobility Strategy (MMTMS) to fund transportation improvements, or a Recreational District to help fund parks facilities.

The Osceola County School District is in the process of adjusting its school impact fees based on a School Impact Fee Update Study prepared by Tindale-Oliver & Associates, Inc., for the School District. The study, and therefore the anticipated impact fees, reflect direction from the School District that in the future all capital costs associated with student stations required for new development will be paid for by impact fees. Other revenues available for capital purposes, including some received as a result of new development, will be dedicated to other purposes, such as replacement, renovation, and maintenance of older schools. The study takes account of per-student school construction, architecture, site improvement, FF&E, land, transportation, and ancillary facilities building and land costs for every student expected in new development, based on a very sophisticated, GIS-based calculation of student generation rates. Therefore, all costs for new school capacity required to serve housing developed in the East of Lake Toho planning area will be covered by the impact fees paid in connection with new housing construction. Current calculations indicate that in the first five years of development, there would be a surplus of $4 million for schools.

Build-out

The requirements for build-out of the East of Lake Toho planning area are included in each of the Technical Appendices.

Table 4.3-1. East of Lake Toho Planning Area Development Costs, 2011 - 2015

	Road - District 4	Road - District 5	Road Subtotal	Schools	Parks	Fire	Total
Total Development Costs	$46,600,000	$157,420,000	$204,020,000	$117,000,000	$42,900,000	$2,500,000	**$353,500,000**
Total	$46,600,000	$157,420,000	$204,020,000	$117,000,000	$42,900,000	$2,500,000	$ $366,420,000

Table 4.3-2. East of Lake Toho Planning Area Generated Impact Fees, 2011 - 2015

	Program			Road - District 4		Road - District 5		Schools		Parks		Fire		
	District 4	District 5	Total	Rate Per Unit	Subtotal	Rate Per Unit	Subtotal	Rate Per Unit	Subtotal	Rate Per Unit	Subtotal	Rate Per Unit	Subtotal	Total
Single-Family (Units)	2,750	5,920	8,670	$6,294	**$17,308,913**	$8,035	**$47,564,477**	$10,190	**$88,347,300**	$924	**$8,008,739**	$164.57	**$1,426,822**	**$162,656,250**
Apartment (Units)	550	2,130	2,680	$3,766	**$2,077,070**	$4,821	**$10,268,134**	$6,087	**$16,313,160**	$679	**$1,819,640**	$164.57	**$441,048**	**$30,919,050**
Condominium (Units)	550	2,130	2,680	$3,237	**$1,780,339**	$4,132	**$8,801,245**	$6,087	**$16,313,160**	$679t	**$1,819,640**	$164.57	**$441,048**	**$29,155,431**
Retail (SF)	162,500	480,250	642,750	$17,930	**$2,913,625**	$19,500	**$9,364,875**	N/A	**N/A**	N/A	**N/A**	$0.03	**$19,283**	**$12,297,783**
Office (SF)	0	88,000	88,000	$9,690	**$-**	$9,630	**$847,440**	N/A	**N/A**	N/A	**N/A**	$0.09	**$7,920**	**$855,360**
Hotel	225	0	225	$2,338	**$526,007**	$2,934	-		**N/A**		**N/A**		**$205,200**	**$731,207**
Total	-	-	**$639,098**	-	**$24,605,953**	-	**$76,846,171**	-	**120,973,620**	-	**$11,648,018**	-	**$2,541,320**	**$236,615,082**

Table 4.3-3. East of Lake Toho Planning Area Net/ Surplus Gap, 2011 - 2015

	Road - District 4	Road - District 5	Road Subtotal	Schools	Parks	Fire	Total
Development Costs	$46,600,000	$157,420,000	**$204,020,000**	$117,000,000	$42,900,000	$2,500,000	**$366,420,000**
Impact Fees	$24,605,953	$76,846,171	**$101,452,124**	$120,973,620	$11,648,018	$2,541,320	**$236,615,082**
Total	($21,994,047)	($80,573,829)	($102,567,876)	$3,973,620	($31,251,982)	$41,320	($129,804,918)

4.4 Potential Funding Strategies

Overview

This section examines potential funding strategies outside of those listed previously that could be used to fund the construction of public realm and infrastructure projects in the East of Lake Toho planning area. Potential funding sources include a combination of public debt, public-private incentives, and/or grants and loans available at various government levels. Notably, Osceola County has at its disposal the potential to issue public debt for improvements including Revenue, Lease Revenue, and General Obligation Bonds. An overview of all the available sources and their uses is shown in Table 4.4-1, *Potential Funding Sources*.

To meet ever-increasing demands for infrastructure, the Florida Legislature has allowed several additional tools. Chapter 163 of the Florida State Statutes outlines growth policy, county and municipal planning, community redevelopment and land development regulations in the State of Florida, and allows local governments to adopt financial incentives for new development, expansion of existing development, or redevelopment within a redevelopment area. Chapter 163 also outlines the use of Tax Increment Financing (TIF) and Community Development Districts (CDDs), which has special taxing authority, as well as other mechanisms to fund infrastructure improvements.

Other potential funding sources (listed in Technical Appendix 01, *Economic Analysis*) are grants-in-aid from various Federal or state agencies that, though applicable, face enormous competition. The funding sources identified are intended to be illustrative and by no means reflect the only sources of possible funding for these initiatives. Information on various Federal or state grants can be obtained from the Federal Register; www.grants.gov; the Florida League of Cities; Grants Explorer (a fee service); www.foundationcenter.org; www.housingfinance.com; and various Federal and state agency websites.

Technical Appendix 02, *Transportation Analysis*, outlines a variety of additional potential funding management systems including establishing Multimodal Transportation Mobility Strategy (MMTMS) for the Conceptual Master Plan Areas, Transportation Concurrency Exception Areas, Transportation Concurrency Management Areas, Long Term Transportation Concurrency Management Systems, or Multimodal Transportation Districts.

In order to fund the higher level of service for parks facilities anticipated, potential funding sources could include adjustment of the County's existing impact fees structure, formation of a Recreational District, additional developer contributions for local capital facilities, or additional grants as noted in Technical Appendix 01, *Economic Analysis*. An additional option would be to phase in facilities as funding becomes available.

Table 4.4-1. Potential Funding Sources

Transportation	Impact Fees	CDD	TIF	Revenue Bonds	General Obligation Bonds	MMTD	TCSP	TEP	Florida Transportation Fund	Florida Greenways & Trails
County										
Landscaping			X			X		X		
Parking Structures			X	X	X					
Public Facilities	X									
Framework Streets	X				X		X		X	
Regional Trails & Parks	X		X			X		X		X
Other Public										
Regional Transportation				X						
Sewer	X		X							
Water	X									
Multimodal Facilities/ Systems						X	X			
Developer										
Landscape										
Local Streets		X								
Parking Structures										
Recreational Facilities		X								
Sidewalks & Trails										
Sewer		X								
Water		X								
Notes		Cost of improvements are borne by main beneficiaries Formed at the request of the landowner and authorized by state or local government	Uses future gains in taxes realized from increase in value due to improvements Used by local governments for a variety of projects TIF districts are defined as those areas that would benefit from public involvement	Used to fund improvements of revenue generating uses (i.e. toll roads) to support new development	Unlike revenue bonds, they are not tied to a specific revenue source and can be used to fund a variety of infrastructure projects	Focus is on increasing funding for alternative transportation facilities as well as improve urban design and aesthetics	MPO's and local governments are eligible to apply Goal is to enhance transportation systems and reduce the economic and environmental impact	Funding for projects related to surface transportation including pedestrian and bicycle activity, acquisition of scenic or historic sites and landscaping	Replenished partially through motor vehicle tax fuel receipts Used to finance major transportation improvements on the Strategic Intermodal System (SIS) and other state roads	Used to acquire lands to facilitate statewide trails and greenways

TECHNICAL APPENDIX 01. ECONOMIC ANALYSIS

TA1.1. Market Analysis

Introduction

As part of East of Lake Toho Conceptual Master Plan (CMP) master planning team, this demographic and economic profile has been prepared and a real estate market analysis conducted to guide market-supportable land uses. A target industrial analysis has also been prepared to examine opportunities to attract targeted industries or sectors to Osceola County.

The East of Lake Toho project builds on previous analyses for the South Lake Toho and Northeast District planning areas, both of which included a market analysis and target industry analysis. As a part of the work for these projects, stakeholders were interviewed and primary and secondary data sources were analyzed. For the East of Lake Toho planning area, the data analysis was updated, adding data specific to the East of Lake Toho planning area. Additional interviews will also be conducted as the project proceeds.

To analyze demographics, economic conditions, and real estate market indicators, a variety of public and private data sources were used, including resources from Osceola County, U.S. Census Bureau, U.S. Department of Housing and Urban Development, U.S. Internal Revenue Service, ESRI Business Analyst, Woods & Poole, Inc., CoStar Realty Information, the Orlando Regional Realtors Association, and others.

The following summarizes key findings generated from our analysis of demographic characteristics, economic profile, and recent and current market conditions across a range of real estate sectors. In addition, a number of developments of regional impact (DRIs) in Osceola County were profiled to ascertain key factors such as planned development, recent and current absorption/leasing/sales patterns, and buildout schedule.

Demographic & Economic Overview

Population & Households

Osceola County has had significant growth in the last decade, attracting new residents and households. The County went from having 172,500 residents in 60,977 households in the 2000 Census to having 278,700 residents in 98,784 households in 2008, according to estimates by ESRI. This represents a 62% growth in households and population. In comparison, the Orlando CBSA as a whole has grown half as fast—adding 30% new households over the 2000 Census, to a total of 813,200 (Table TA1.1-1, *Population and Households, 2000-2013*).

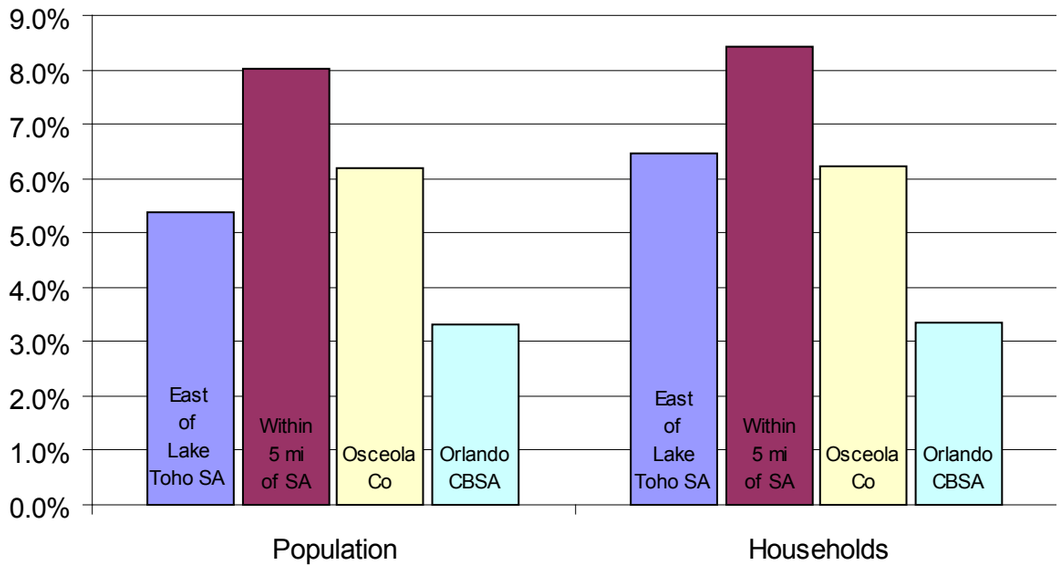
Most of the growth in the County has been pushing toward previously undeveloped areas, and it is this growth that has prompted the planning process that this report is supporting. The East of Lake Toho planning area is estimated in 2008 to have grown by 50% since 2000, from 1,400 residents to 2,200 (in 790 households). The planning area, however, still remains largely undeveloped, but within five miles of its border, new residents have augmented the population by 85%—adding 18,900 residents—and nearly doubled the number of households in the County—adding 7,200 households. It is expected that as the economy recovers, this growth can and will continue and affect the planning area and other undeveloped areas within the urban growth boundary

Figure TA1.1-1 shows a comparison of the annual growth rate of the planning area,

Table TA1.1-1. Population and Households, 2000-2013

Population	2000	2008	2013	2000-2013 Growth	CAGR 2000-2008	CAGR 2008-2013	CAGR 2000-2013
East Lake Toho Study Area	1,417	2,157	2,735	1,318	5.4%	4.9%	5.2%
Within 5 Miles of Study Area Border	22,124	41,010	54,870	32,746	8.0%	6.0%	7.2%
Osceola County	172,493	278,691	366,329	193,836	6.2%	5.6%	6.0%
Orlando CBSA	1,644,561	2,133,842	2,488,010	843,449	3.3%	3.1%	3.2%
Households							
East of Lake Toho Study Area	478	788	1,011	533	6.4%	5.1%	5.9%
Within 5 Miles of Study Area Border	7,911	15,099	20,414	12,503	8.4%	6.2%	7.6%
Osceola Co	60,977	98,784	129,693	68,716	6.2%	5.6%	6.0%
Orlando CBSA	625,248	813,171	948,747	323,499	3.3%	3.1%	3.3%

Source: ESRI; ERA, 2009



Source: ESRI; ERA, 2009.

Figure TA1.1-1. Comparison of Compound Annual Growth Rates (CAGR), 2000-2008

the area within five miles around it, and the County and CBSA as a whole. On average, from 2000 to 2008, the County grew twice as fast as the CBSA, and while the planning area grew at the same rate as the County, the five-mile area around it grew two and a half times as fast as the CBSA.

Throughout the next five years (2008 to 2013), the pace of growth is expected to slow, tempered by economic conditions. However, the area around the planning area is still expected to sustain a pace twice that of the CBSA.

Household Migration

To gauge the source and characteristics of Osceola County's growth, one set of data available is IRS County-to-County migration data. Because household relocations are at the core of demand for new housing, this information also can inform the analysis of residential opportunities and potential sources of demand. County-to County migration data provides year-to-year changes in where households file their income tax returns. While this data does not conclude the exact number of people relocating, it is a useful proxy to understand broader geographic trends in population movement and the relative quantity of households moving to or from a location.

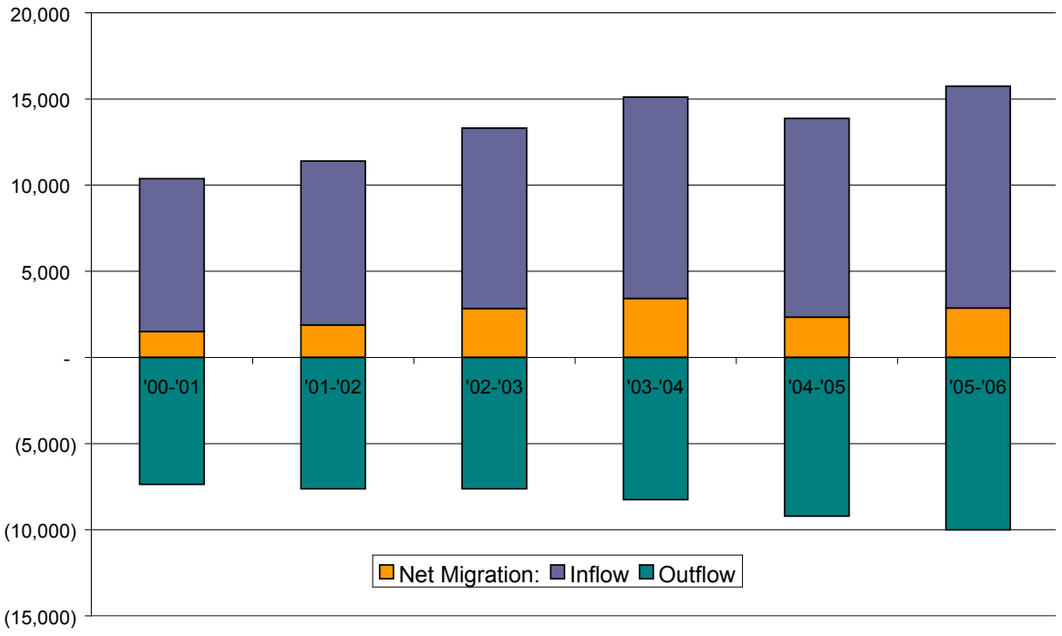
The County has had positive net in-migration from other counties in the last 6 years, with an average inflow of approximately 2,500 households annually. The county contributing to the greatest number of incoming households is adjacent Orange County, with an average of 3,200 households moving from there to Osceola County each year, which corroborates the anecdotal understanding of market dynamics and the regional growth patterns.

An average of 11,000 households moves into Osceola County from other counties each year, and 8,300 move out Table TA1.1-2 and Figure TA1.1-2).

Table TA1.1-2. Osceola County-to-County Migration, 200 0-2006

	'00-'01	'01-'02	'02-'03	'03-'04	'04-'05	'05-'06	TOTAL
Inflow	8,869	9,511	10,468	11,680	11,544	12,873	64,945
Outflow	(7,362)	(7,622)	(7,626)	(8,256)	(9,211)	(10,009)	(50,086)
Net Migration:	**1,507**	**1,889**	**2,842**	**3,424**	**2,333**	**2,864**	**14,859**

Source: IRS Statistics of Income; Economics Research Associates, 2009.



Source: IRS Statistics of Income; ERA, 2009.

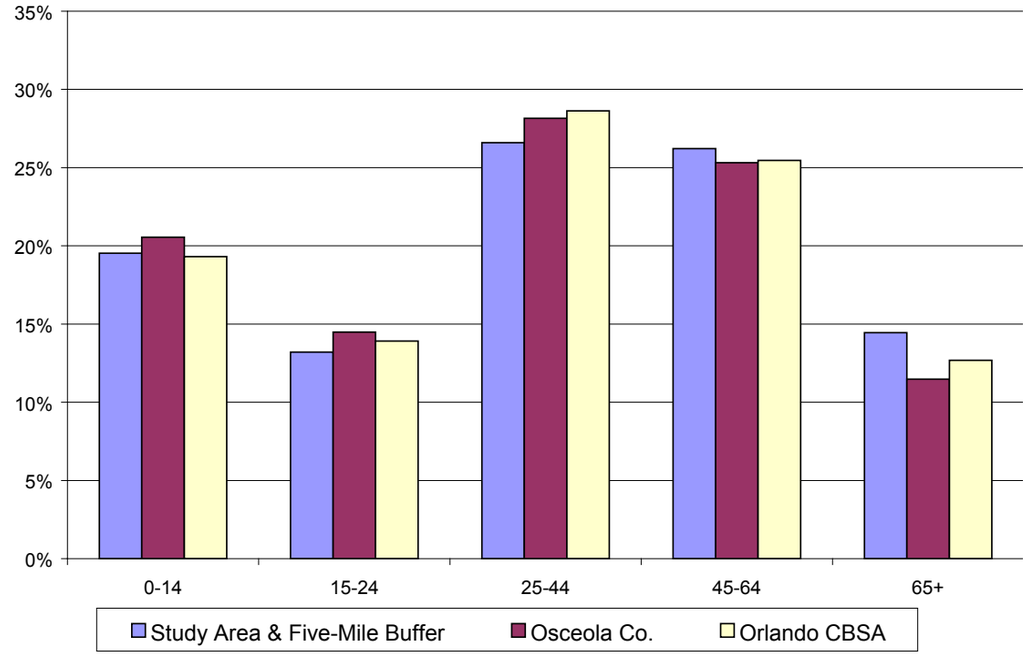
Figure TA1.1-2. Osceola County Migration Patterns 2000-2006

Age

The age profile of an area can indicate the need for specific retail and services and housing types. Of specific interest from a market standpoint is how the age profile is expected to change. On a national basis, as the baby boomers move into retirement, the nation will be aging, with a greater percentage of population over age 65, necessitating new real estate to accommodate their lifestyles. This is often more pronounced in Florida, popular as a retirement destination.

While the nation and state may be aging, Osceola County's age profile is slightly younger than the CBSA as a whole, with a median age of 35.6 in 2008; 35% of the County's population is under the age of 25. The County has a slightly greater concentration of its population in younger age groups. In 2008, the County had 20.6% of its population under the age of 14, compared to 19.3% in that group in the Orlando metro area. On the other end of the age spectrum, there is 11.5% of the population over the age of 65, compared to 12.7% in the metro. (Figure TA1.1-3)

The five-mile area around the planning area is slightly older, with a median age of 38.5 in 2008. As a point of reference, the nation as a whole has a median age of 36.8. The planning area and the five mile area around it have higher percentages of their population in this age group—16% and 14%, respectively, indicating an older, more established population.



Source: ESRI, 2008; ERA, 2009.

FIGURE TA1.1-3. COMPARISON OF POPULATION BY AGE, 2008

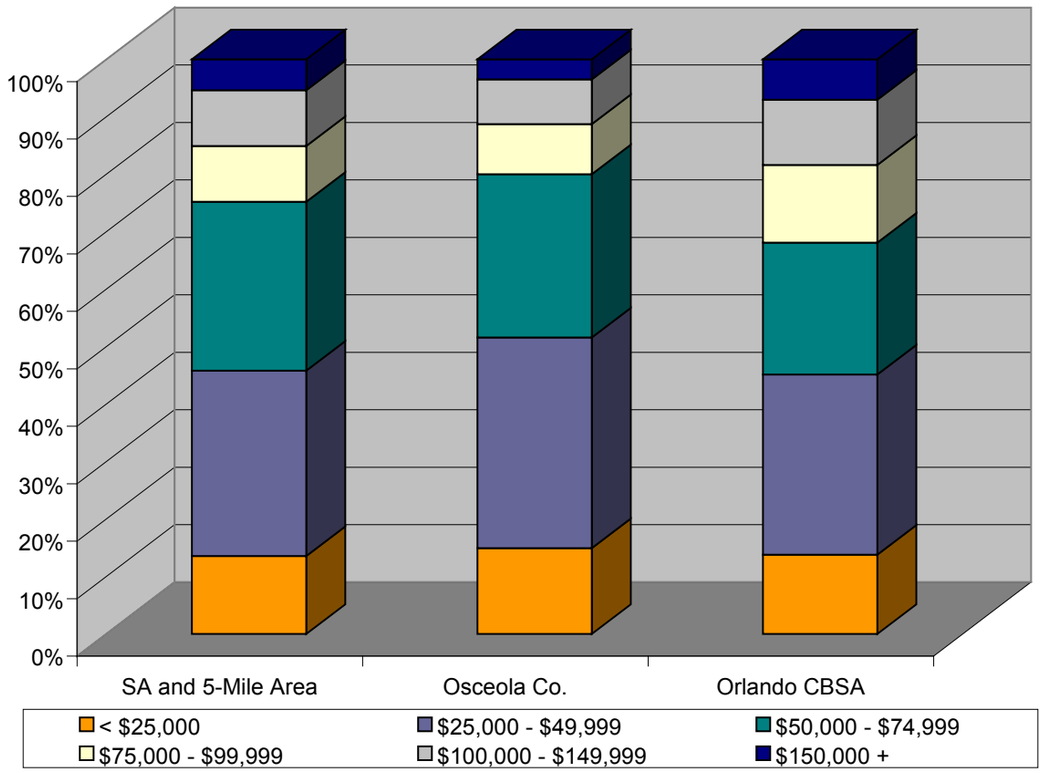
In the next five years (2008 to 2013), the greatest share of household in the planning area and five-mile are around it will be in the 45 to 64 years age category, which will comprise 37% of all residents. The number of residents in this and in the next older category (over 65) is expected to grow by 41% (adding a total of 7,100 residents over the 2008 population) whereas other categories are expected to grow by about a third. In comparison, the County as a whole is expected to maintain approximately the same share in the 45-64 age category (going from 25.3% to 26.5% of the total population). However, while not at as great a rate as the planning area, the two oldest age categories are expected to grow at a faster rate than the younger age categories in the County—at 38% between 2008 and 2013, compared to between 26 and 30% in the younger age categories.

Income

The household incomes in an area are a critical factor in the amount of available spending for retail and services and the types of housing that can be supported. They can also be a relative indicator of an area's position within a metro area and the region's position nationally. Osceola County as a whole has modest incomes when compared to the metro area. In 2008, Osceola County had a median household

income of $48,300, below that of the CBSA median of $54,200. Most County households are middle income, with 37% earning between $50,000 and $99,999; another 11% earn over $100,000 per year.

In the planning area and area immediately surrounding it (in a five-mile buffer area), households are on average more affluent than the county as a whole. The limited households within the planning area earned a median income of $59,600 in 2008, above that of the metro area. Within five miles of the East of Lake Toho Planning area, households earned a median income of $52,800. This suggests that the area being studied has the capacity to attract a more affluent resident, one more on par with the middle-income households nationwide. Around two-thirds of households in these two areas earn between $25,000 and $75,000. The planning area and area surrounding it also has a greater percentage of households earning in the upper income categories than the County as a whole (Figure TA1.1-4).



Source: ESRI, 2008; ERA, 2009.

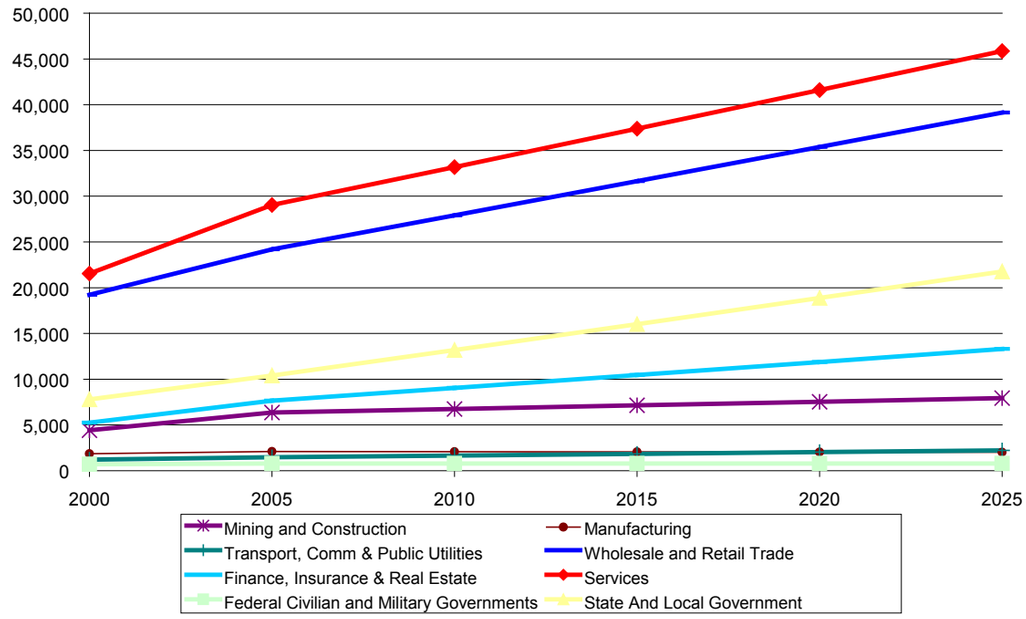
FIGURE TA1.1-4. HOUSEHOLDS BY HOUSEHOLD INCOME, 2008

Employment

Growth in employment is a key barometer of demand for "workplace" uses such as office and industrial parks and retail centers. Over the past eight years, Osceola County added more than 27,800 new jobs, reflecting an average annual pace of almost 3,500 new jobs annually since 2000, at a rate of 5% annually. In 2008, Osceola contains 92,300 total jobs, which accounts for only 7% of total CBSA employment. Characteristic of the predominant role of tourism across greater Orlando as well as a shift of focus from manufacturing and goods-producing industries nationwide, the Services sector comprises the greatest share of jobs (34%) in Osceola, followed by Wholesale & Retail Trade (30%), state and local Government (14%) and Finance Insurance and Real Estate (FIRE) (9%).

The Florida Agency for Workforce Innovation (the state's labor agency) does not prepare employment forecasts for Osceola County. According to Woods & Poole, Inc. forecasts, Osceola is expected to gain 40,700 new jobs by 2025, suggesting an average annual pace of about 2,400 new jobs per year (Figure TA1.1-5).

Top employers in Osceola County include: Walt Disney Company (3,700), Wal-Mart Stores, Inc (2,730), Orange Lake Resort & Country Club (2,400), Gaylord Palms Resort & Convention Center, Resort & Hotel (1,900), Publix Supermarkets, Inc. (1,350), Osceola Regional Medical Center (1,200), Florida Hospital Celebration Healthcare (1,076), McLane / Suneast, Incorporated (1,000), and Lowe's RDC (607) (Table TA1.1-3). Many of these have been successfully attracted to Osceola County because of economic development efforts, as well as key business attraction elements integral to the County, such as good access, low cost of living, and available land. These are all factors that will be examined in the economic strategy part of this planning effort.



Source: Woods and Poole, 2007; ERA, 2009.

FIGURE TA1.1-5. OSCEOLA COUNTY PROJECTED JOB GROWTH BY INDUSTRY SECTOR

TABLE TA1.1-3. MAJOR OSCEOLA COUNTY EMPLOYERS

Company Name	Employment Type	Location	Employees
Walt Disney Company	Osceola County Offices	Lake Buena Vista	3,700
Wal-Mart Stores, Inc.	Retail Stores	Kissimmee & St. Cloud	2,730
Orange Lake Resort & Country Club	Country Club	Kissimmee	2,400
Gaylord Palms Resort & Convention Center	Resort & Hotel	Kissimmee	1,900
Publix Supermarkets, Inc.	Grocery Stores	Kissimmee & St. Cloud	1,350
Osceola Regional Medical Center	Healthcare Provider	Kissimmee	1,200
Florida Hospital Celebration Healthcare	Healthcare Provider	Celebration	1,076
McLane / Suneast, Incorporated	Distribution Facility	Poinciana	1,000
Lowe's RDC	Distribution Center	Poinciana	607
Valencia Community College	Junior College	Kissimmee	508
Florida Hospital - Kissimmee	Healthcare Provider	Kissimmee	500
Good Samaritan Village	Retirement Community	Kissimmee	350
Tupperware Corporation	World Headquarters	Kissimmee	300
Quaker Oats / PepsiCo	Manufacturing	Poinciana	213
Mercury Marine	Marine Parts Manufacturer	St. Cloud	148
Channel Intelligence	World Headquarters	Celebration	120

Source: Osceola County; Economics Research Associates, 2009.

Real Estate Market Conditions

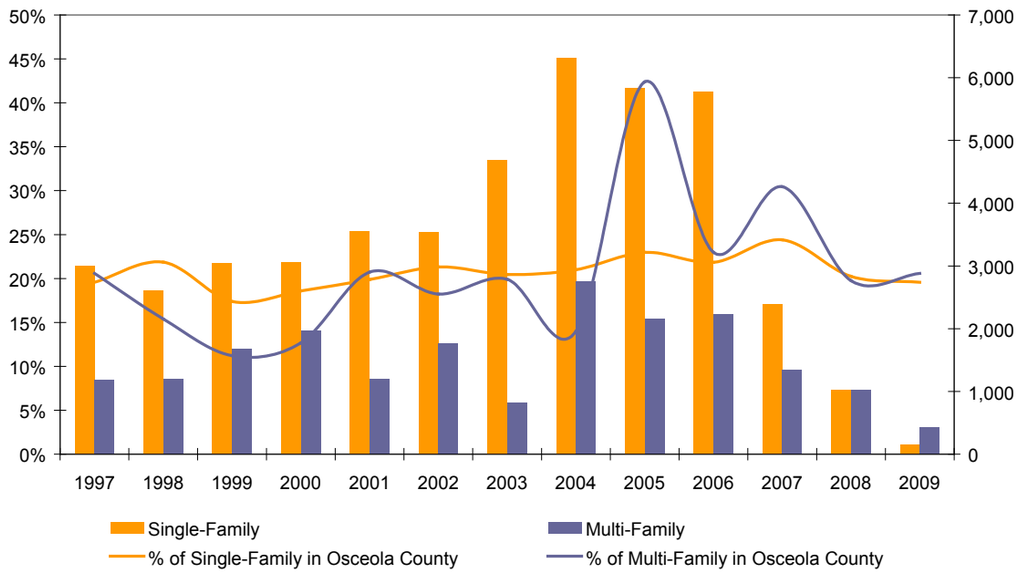
Residential

The once-booming residential market in Osceola County and nationwide has been in a downswing, affecting the industry greatly. However, trends over the last decade can indicate the pace of growth during both the highs and lows of the market. To gauge residential market trends, building permit activity, new home sales data, rental trends, and re-sales data were examined.

Building Permit Data

The last 10 years of full-year data (1999 to 2008) of residential building permits, indicates permitting for just over 56,000 units. This activity suggests an average of 5,600 building permits per year. Of these permits, approximately 70% (almost 4,000 annually) were for single family detached units, while the remaining 1,700 annually were for multifamily product. This is the same ratio of single to multifamily as in the metro area as a whole.

The high point for permitting activity was in 2004, with over 9,000 units permitted. Activity sharply declined in 2007 to under 4,000, less than half of what it was the previous year. 2008 had a total of approximately 2,000 units permitted, another 50% decline. In the first four months of 2009, a total of only 592 units has been permitted, indicating the general slowdown in the residential development sector and the economy overall (Figure TA1.1-6 and Table TA1.1-4).



Note: 2009 represents data available through April 2009.

Source: HUD SOCDS Building Permit Database; Economics Research Associates, 2009.

FIGURE TA1.1-6. OSCEOLA COUNTY RESIDENTIAL BUILDING PERMIT TRENDS

Table TA1.1-4. Building Permit Activity

	Osceola County, FL		Orlando, FL CBSA	
	Single-Family	Multi-Family	Single-Family	Multi-Family
1997	2,995	1,184	13,696	7,695
1998	2,613	1,204	15,024	10,734
1999	3,042	1,675	16,368	13,225
2000	3,061	1,974	15,400	9,524
2001	3,561	1,206	16,700	6,619
2002	3,541	1,772	17,306	8,902
2003	4,692	823	22,345	5,888
2004	6,316	2,754	27,493	6,499
2005	5,841	2,155	26,753	9,384
2006	5,772	2,234	23,646	7,338
2007	2,389	1,350	11,805	6,833
2008	1,033	1,019	5,280	4,953
2009 (through April)	156	436	1,026	678
Total	**45,012**	**19,786**	**212,842**	**98,272**
10-Year & 5-Year Summary Statistics				
1999 - 2008 Total	**39,248**	**16,962**	**183,096**	**79,165**
1999 - 2003 Subtotal	17,897	7,450	88,119	44,158
2004 - 2008 Subtotal	21,351	9,512	94,977	35,007
1999 - 2008 Avg Annl	**3,925**	**1,696**	**18,310**	**7,917**
1999 - 2003 Avg Annl	3,579	1,490	17,624	8,832
2004 - 2008 Avg Annl	4,270	1,902	18,995	7,001

Source: US Census Bureau; HUD SOCDS Building Permit Database; Economics Research Associates, 2009.

MLS Residential Sales Trends

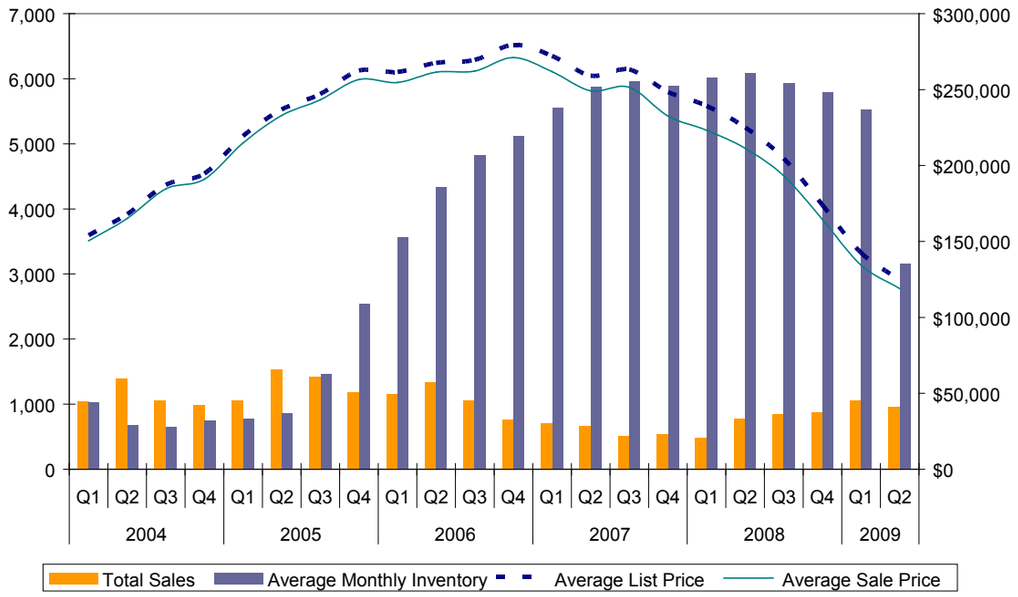
The permitting for new construction reflects the economic downturn, as sales of new and existing housing. As with much of the U.S., the pace of residential sales in the Orlando MSA has slowed over the past two years. In Osceola County, 2007 was a low point in sales, according to MLS data, with only 2,400 sales, a reduction of 44% from the previous year.

Between 2007 and 2008, the pace picked up slightly, adding an additional 550 sales. A reduction in sales price expectation could be the cause; the average asking price fell from asking prices reduced from $261,400 in 2007 to $206,600 in 2008. Average sales prices had a slightly wider gap, falling from approximately $250,000 in 2007 to $194,000 in 2008. As of the second quarter of 2009, there have been just over 2,000 sales. Again, a lowered asking ($134,000) and achieved ($127,000) sales price have encouraged buyers Table TA1.1-5 and Figure TA1.1-7).

TABLE TA1.1-5. OSCEOLA COUNTY MLS SALES DATA

Year	Total Sales	Average List Price	Average Sale Price
2004	4,469	$175,193	$172,058
2005	5,196	$241,916	$237,494
2006	4,313	$268,558	$261,544
2007	2,426	$261,438	$249,698
2008	2,978	$206,638	$194,453
2009 (Q2)	2,019	$134,054	$127,130

Source: Osceola County Association of Realtors, data from Mid Florida Regional MLS; Economics Research Associates, 2009.



Source: Osceola County Association of Realtors, data from Mid Florida Regional Multiple Listing Service; ERA, June 2009.

FIGURE TA1.1-7. OSCEOLA COUNTY MLS HOME SALES AND HOME SALES PRICE DATA, 2004-2009

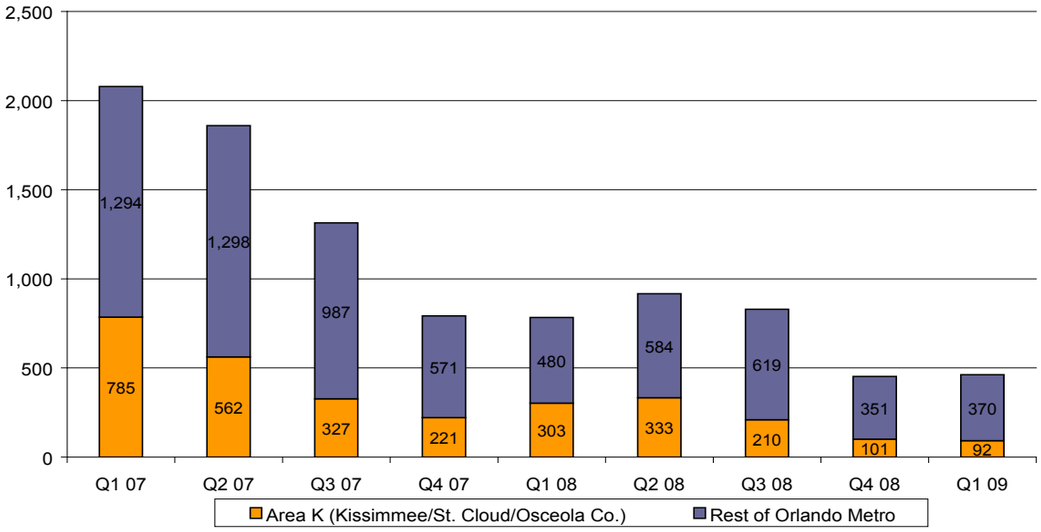
New Residential Construction

The construction and sale of new housing product has also slowed. As tracked by data from Charles Wayne Consulting, Osceola County closings for new single-family homes in 2008 (903) were about 44% of 2007 (2,051); a similar reduction was seen metro-wide. The development community has responded by having fewer starts; in the first quarter of 2009, there were 65 single-family starts in Osceola County, 28% of the previous year's starts during the same period and 12% of 2007's (Figure TA1.1-8 and Figure TA1.1-9).

Sales prices have fallen in new construction, though not as sharply as in sales listed on the MLS. The first quarter of 2009 had the average new home selling for $254,600, a 30% reduction over the average price of $363,900 in the first quarter of 2007. It is likely that builders have tempered losses by modulating supply.

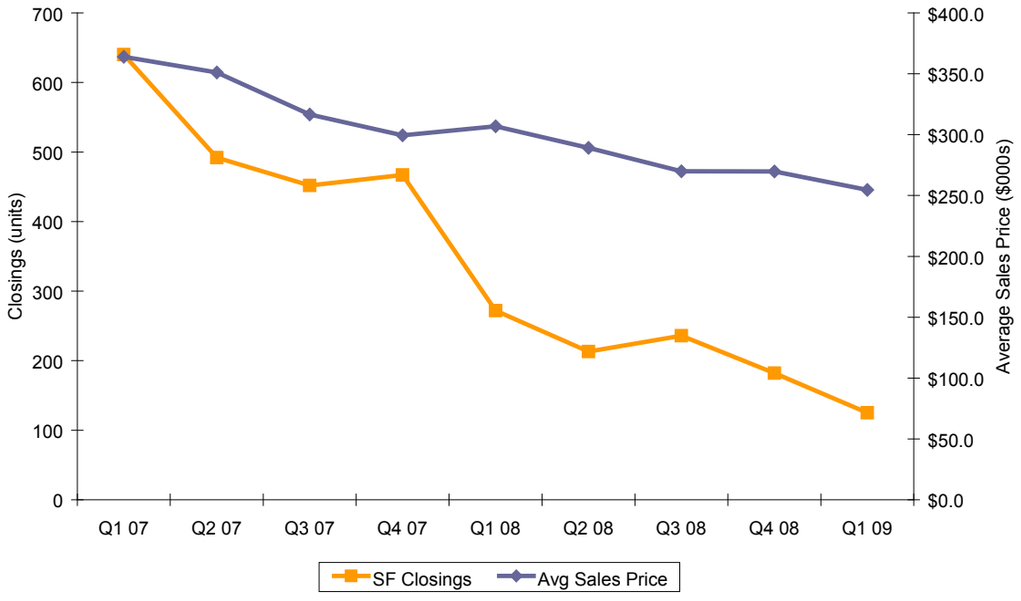
Foreclosures

Sales prices of both new and existing homes have been impacted by the fall-out of the nationwide housing crisis, which hit Florida and the Orlando area particularly hard. Osceola County has been one of the hardest hit jurisdictions in the country; the most recent month's activity ranks it fourth among counties for the rate of foreclosures (1.52% of all housing units) according to RealtyTrac.



Source: Charles Wayne Consulting; Economics Research Associates, 2009.

FIGURE TA1.1-8. SINGLE FAMILY UNITS UNDER CONSTRUCTION



Source: Charles Wayne Consulting; Economics Research Associates, 2009.

FIGURE TA1.1-9. SINGLE FAMILY CLOSINGS AND SALES PRICE TRENDS (2007-2009)

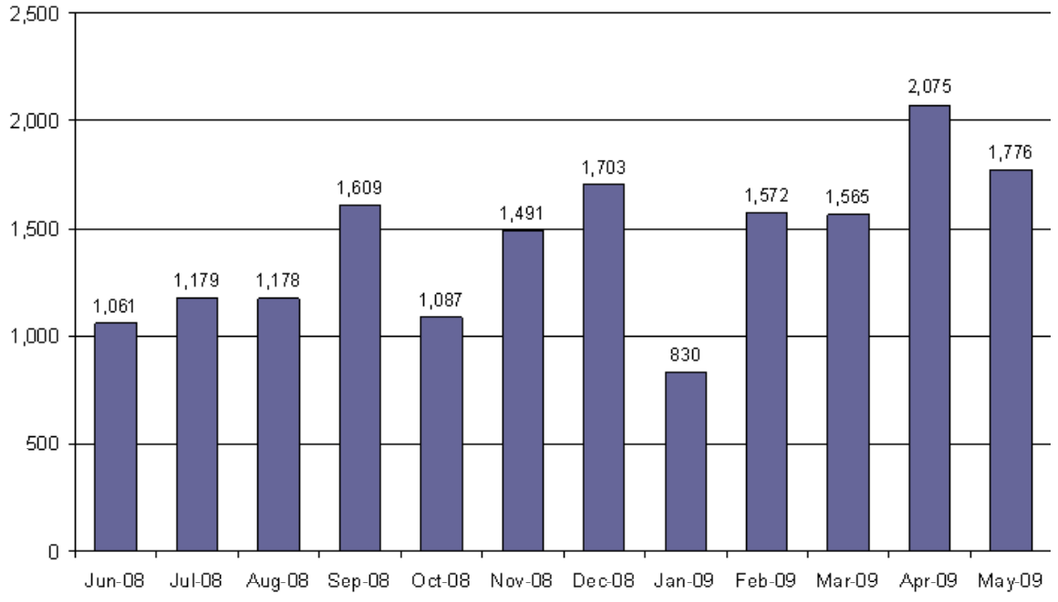
RealtyTrac states that 1,776 properties were some stage of foreclosure as of May 2009 in Osceola County. This was down from the 2,075 properties in April which represented a peak for the past year. The Orlando metropolitan area has a total of 8,778 properties in foreclosure as of May (Figure TA1.1-10).

Multifamily For-Rent

The Kissimmee/St. Cloud market area (Osceola County) has a total of 11,423 multifamily rental units. Two-thirds of all the units were built after 1990, compared to just over half in the metro area. There are only 29 units under construction in Osceola County (including any units under renovation) (Table TA1.1-6).

As of March 2009, Osceola County's rental units have an 85% occupancy rate, compared to 87% in the metro. The newest units are suffering most, with a 55% occupancy rate for units built between 2005 and 2009, presumably having difficulty during lease-up (Figure TA1.1-11).

Occupancy rates for rentals have gone down, likely influenced by the affordability of for-sale housing coupled with first time buyer programs to encourage home ownership.



Source: RealtyTrac, data as of June 2009; Economics Research Associates, 2009.

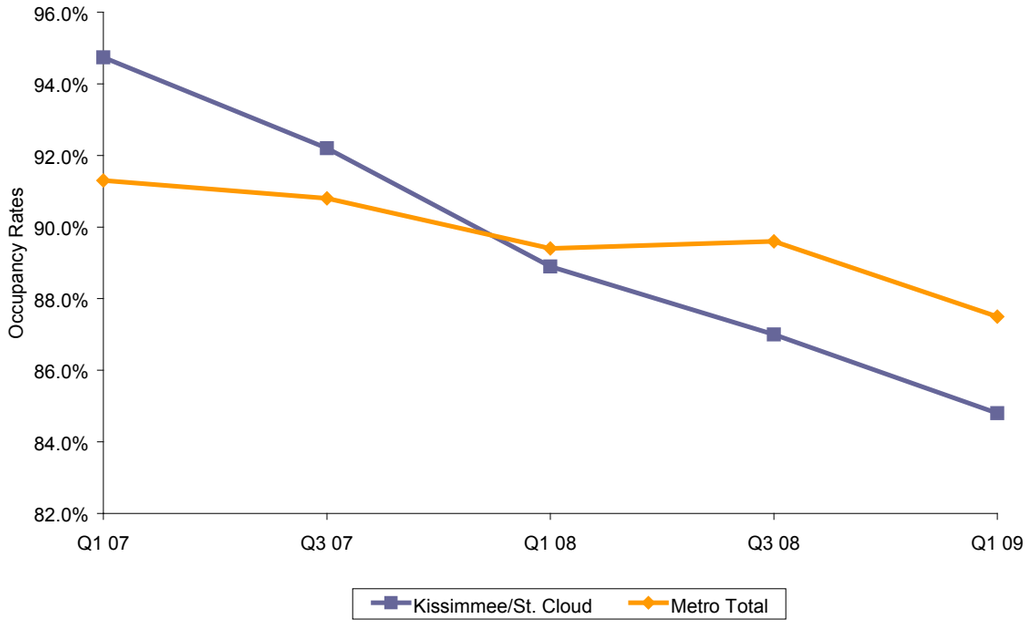
FIGURE TA1.1-10. OSCEOLA COUNTY PROPERTIES IN FORECLOSURE, JUNE 2008 TO MAY 2009

TABLE TA1.1-6. MULTIFAMILY FOR RENT SUPPLY TRENDS

	Pre 1970	1970-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	Under Construction	Total
Kissimmee/St. Cloud	0	1,064	192	600	2,002	2,024	1,498	3,001	1,013	29	11,423
Other Areas	4,321	19,795	2,062	10,092	25,086	12,799	26,258	23,426	12,278	3,859	139,976
Metro Total	**4,321**	**20,859**	**2,254**	**10,692**	**27,088**	**14,823**	**27,756**	**26,427**	**13,291**	**3,888**	**151,399**

Note: Year used is year of first construction; under construction includes units under renovation

Source: Charles Wayne Consulting Residential Market Reports, Housing Trends Orlando 1Q 2009; Economics Research Associates, 2009.



Source: Charles Wayne Consulting; Economics Research Associates, 2009.

FIGURE TA1.1-11. MULTIFAMILY FOR RENT APARTMENT OCCUPANCY TRENDS, 2007-2009

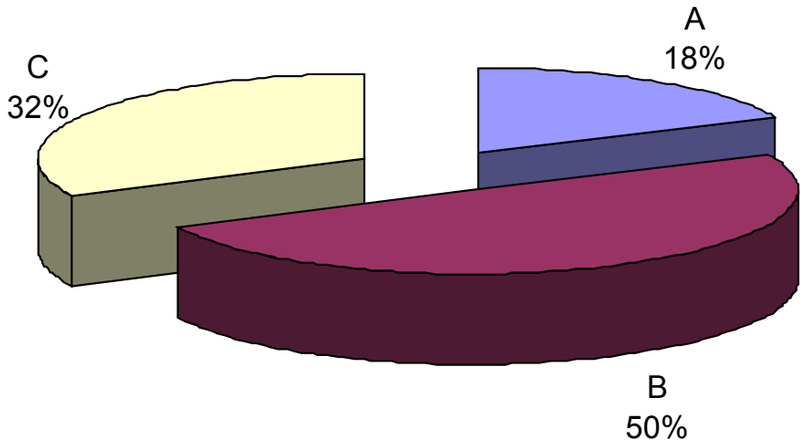
Commercial Office

According to CoStar, Osceola County contains 4.1 million square feet of office space in 273 buildings. This inventory represents only 5% of the Orlando market (though the share has increased since the 2008 analysis).

The average size of the County's office buildings is 15,000 square feet, which would be defined as "garden" office space. Moreover, the County is considered a "back office" location, as illustrated in the distribution of its office inventory: there are 2 million square feet of Class B space, 1.3 million square feet of Class C buildings, and only 747,000 square feet of Class A space (Figure TA1.1-12).

Notably, Class A and C inventory has performed better in terms of occupancy, with vacancies of only 9%. This rate has increased since 2007, but is below that of the Orlando market as a whole (with 15 and 12% vacancies, respectively). The County's Class B buildings have a higher vacancy rate at 13%, which compares to the market as a whole (Figure TA1.1-13).

Office space rents range from $22 per square foot for Class B or C space. The rental rates of B space compare to the metropolitan area as a whole, but A space commands a higher rent by approximately $3 per square foot. Osceola's Class A rental rate as of the second quarter of 2009 was $27. Areas commanding the highest rents in Orlando include: Downtown, Casselberry, Metro West, and Winter Park.



Source: CoStar Property; Economics Research Associates, 2009.

FIGURE TA1.1-12. OSCEOLA COUNTY OFFICE SPACE BY CLASS

Source: CoStar Property; Economics Research Associates, 2009.

FIGURE TA1.1-13. OSCEOLA COUNTY OFFICE VACANCY RATES BY CLASS

The most critical barometer of the overall health of an office market is absorption, which is defined as the amount of net leasing activity that occurs annually. Historic average annual absorption in Osceola County (2004-2008) is 113,600 square feet per year. The year to date has had a positive absorption of 53,700 square feet, mostly due to positive absorption in Class A space which offset negative Class B and C absorption.

By comparison, approximately 160,000 square feet of office space is built annually in Osceola; with the pace of absorption noted above, this suggests that the County's office market is oriented to "owner/ users", as leasing activity roughly tracks construction deliveries. Currently, there are 385,000 square feet of office space under construction and another 78,000 square feet proposed. This space represents approximately 6% of the metropolitan office pipeline.

While Osceola's historic deliveries represent only 7% of the total Orlando market, for the current year, the County's deliveries comprise a full 17% of all metropolitan office deliveries. This suggests that Osceola County is emerging as an increasingly viable location (i.e., office submarket) of metropolitan Orlando; additional job growth in office-using sectors will be critical to strengthening this emerging market

General Industrial

According to CoStar, Osceola County contains six million square feet of industrial space in 205 buildings. This inventory includes owner-user buildings such as the Lowe's regional distribution center

As is characteristic of Osceola's historic role in the regional marketplace (and fueled by lower land costs), the majority of the County's industrial inventory (94%) contains warehouse space. As of first quarter 2009, warehouse rents were $6.51 per square foot as compared to $5.95 per square foot across metropolitan Orlando. Osceola County's industrial vacancy rate was high at 13.6%, as compared to 10.2 in the MSA. There have been several deliveries recently, as well as inventory in the pipeline (Figure TA1.1-14).

In terms of leasing activity, Osceola County absorbed an annual average of 339,500 square feet of industrial space between 2004 and 2008. The most recent year has had a negative absorption of 107,000, under 10% of the metropolitan area's negative absorption (1.5 million).

In addition, there are 353,000 square feet of flex-tech space in Osceola, with quoted rents of $7.77 per square foot—compared to $10.32 per square feet across the metropolitan area. Vacancies, however, are high at 30.8%—indicating that recently delivered space (236,000 square feet in 2008) is currently available for lease. There has also been a negative absorption of 47,000 square feet.

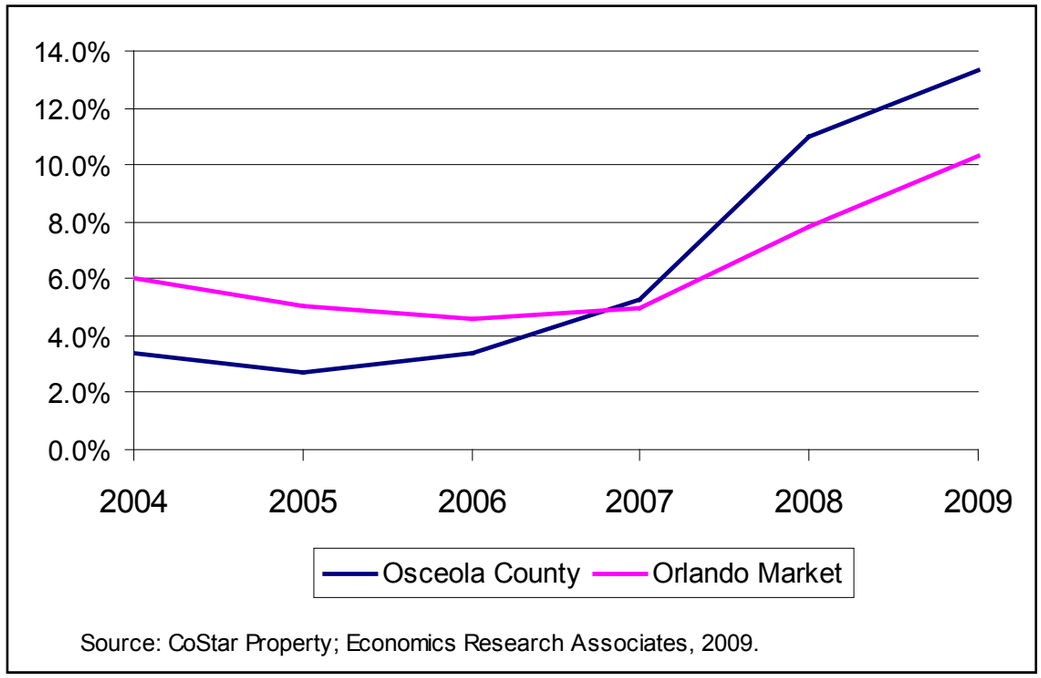


FIGURE TA1.1-14. INDUSTRIAL VACANCY, 2004-2009

Vacancy rates in the metro area overall have climbed in the last several years. At one point the County had lower vacancy rates than the metro market area; however, as more product came on line in the County, its vacancy rates surpassed the metro, reaching 13% in 2009 (partial year).

According to interviews with key officials in the industrial sector in Osceola County, industrial activity is reportedly strong in Osceola, with the majority of new development oriented to owner-users.

Hotel/Lodging & Visitors

Visitors are a critical component of metropolitan Orlando's economy, with Central Florida's major theme parks reporting a combined attendance of 74.3 million visitors in 2008.

The Kissimmee Convention and Visitors Bureau (CVB) reports an estimated 6.1 million overnight visitors to Osceola in 2008. That number was slightly down by about 44,000 visitors from 2007, largely due to a dip in visitation in the last quarter of 2008 which negated the 2% increases in visitation experienced by the County in the first three quarters. In general, visitation has steadily grown from 2003.

In 2008, fully 32% of visitors to Osceola County were from foreign countries (up from 24% in the previous year). Of the domestic visitors, Florida residents account for 22% of visitors. This was up 4% from 2007, reflecting the trend of travelers staying closer to home after the economic downturn. Excluding Florida, the top five states for visitation to Osceola are New York, Pennsylvania, Georgia, Illinois and New Jersey, representing a quarter of domestic visitors.

The Orlando Convention and Visitors Bureau reports that there were 49 million visitors to the metropolitan area in 2008. 3.4 million of those visitors were international, a slightly higher amount than in 2007. In 2007, overnight domestic visitors stayed an average of 4.4 nights, with 64% staying in hotels. The majority of domestic visitation (77%) is leisure; average party size was 3.2 persons. Domestic leisure visitors spent $584 per person per trip, and the average household income of visitors was $78,000. (Note: 2008 information was not available for these data as of this report).

Given its proximity to the major attractions of greater Orlando, Osceola County contains 57 hotels with almost 15,000 rooms (tracked by Smith Travel Research data). Based on Smith Travel Research's classifications, it is estimated that 38% are mid-range, 24% are "limited-service" properties, and 39% are business or "luxury."

While supply increased by 439,000 room-nights and demand increased by 221,000 room-nights over the last five years in Osceola, annual average occupancies of 61.3% were recorded between 2003 and 2008. Capital markets typically seek sustained annual occupancies in the range of 70 to 72% when considering whether to finance new hotel construction (Table TA1.1-7).

Seasonality has less of an impact on Osceola County hotels. Demand peaks in mid-spring and summer because of families with children that visit Orlando and its attractions.

Table TA1.1-7. Osceola County Hotel Property Performance Trends

	2003	2004	2005	2006	2007	2008	Ann'l Growth 2003 - 2008
Available Roomnights (Supply)	4,977,185	4,822,854	4,966,781	5,010,172	5,182,628	5,416,604	1.71%
Occupied Roomnights (Demand)	2,905,490	3,152,654	3,195,986	3,071,464	3,125,188	3,126,357	1.48%
Annual Occupancy (%)	58.2%	65.4%	64.4%	61.3%	60.4%	57.8%	-0.14%
Average Daily Rate	$ 64.44	$ 64.06	$ 72.54	$ 75.50	$ 80.24	$ 79.68	4.34%
Revenue/Available Room	$ 37.59	$ 41.86	$ 46.93	$ 46.55	$ 48.60	$ 46.39	4.30%
YEAR-TO-YEAR GROWTH							
Annual Occupancy		12.4%	(1.6%)	(4.7%)	(1.5%)	(4.3%)	
Average Daily Rate		(0.6%)	13.2%	4.1%	6.3%	(0.7%)	
Revenue/Available Room		11.4%	12.1%	(0.8%)	4.4%	(4.5%)	

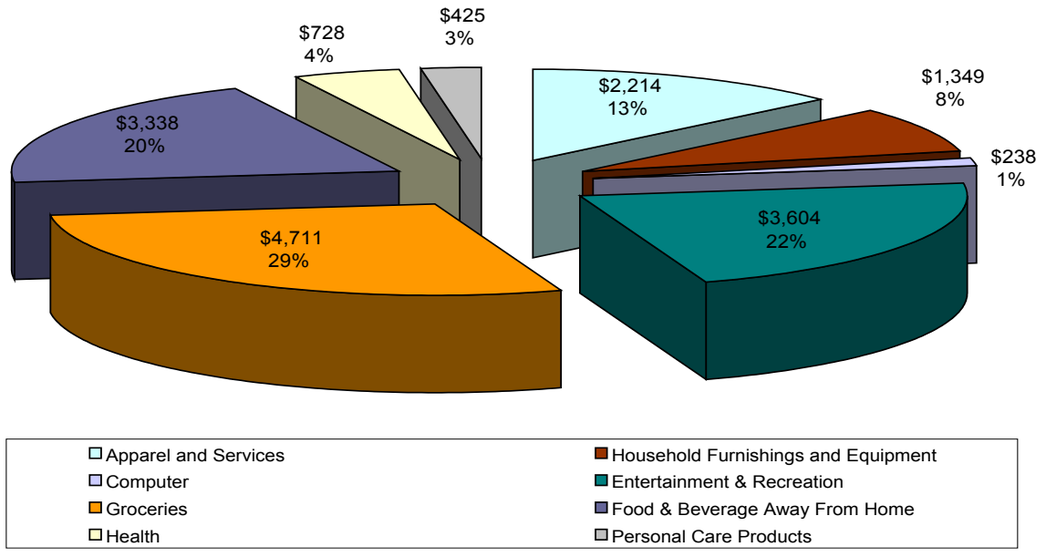
Source: Smith Travel Research; Economics Research Associates, July 2008.

Retail

Retail development is driven largely by resident household and visitor spending. Osceola County households spend an average of $13,200 per year on various retail goods, which is well-below the averages of the MSA and the U.S. (Figure TA1.1-15).

Osceola County contains 13.4 million square feet of retail space, with 51% located in Kissimmee, 37% in outlying parts of the County, and 11% in St. Cloud. The impact of the huge visitor market to greater Orlando is illustrated in the amount of retail space per capita. In Osceola, there are 48 square feet of retail space per County resident—this is substantially above the national average of 27 square feet per capita.

There are no regional shopping centers in Osceola County (defined as centers containing 500,000 square feet or more of space). County residents likely do the majority of their comparative shopping at malls in Orange County, including Mall at Millennia, Fashion Square, Florida Mall, and Premium Outlets (Table TA1.1-8).



Source: ESRI; ERA, June 2009.

FIGURE TA1.1-15. OSCEOLA COUNTY HOUSEHOLD RETAIL EXPENDITURES BY CATEGORY

TABLE TA1.1-8. OSCEOLA COUNTY SHOPPING CENTER SPACE BY TYPE

Shopping Center Type	Number	Total RBA/GLA
Super Regional (1.0+ million sq. ft.)	0	-
Regional (500,000 - 999,999 sq. ft)	0	-
Power Center (200,000 - 499,999 sq. ft)	7	2,354,800
Community Center (100,000 - 199,999 sq. ft.)	19	2,241,107
Neighborhood Center (50,000 - 99,999 sq ft)	23	1,698,583
Small Scale (<50,000 sq. ft.)	48	933,516
Total	97	7,228,006

Source: CoStar; Economics Research Associates, 2009.

Developments of Regional Impact (DRIs)

In addition to examining the proposed projects as listed by CoStar Realty (which are usually in the nearer-term development pipeline), proposed DRIs and their proposed land uses and discussed these proposed projects with several key stakeholders were reviewed.

There a total of 39 Osceola County DRIs listed in the East Central Florida Planning Council's online database, Table TA1.1-9 (including those that have been built out). Of these, five are in the East of Lake Toho Planning area: Bella Tara, Edgewater, Toho Preserve, Tohoqua, and Friar's Cove. All of the DRIs, with the exception of Friar's Cove are approved. The information below is gathered from the development orders provided by the County and other research. The data for other non-planning area DRIs was gathered during the analysis of the South Lake Toho planning area in 2007 from the EFRPC web site.

TABLE TA1.1-9. SUMMARY OF OSCEOLA COUNTY DRIS

Name	Acres	Status	Single-Family (DUs)	Multi-Family (DUs)	Retail (SF)	Office (SF)	Industrial (SF)	Hotel (Rooms)
Other Osceola County DRIs								
Celebration	5,265	Approved	8,065		1,977,087	2,577,053	1,780,000	1,539
Harmony	5,000	Approved	5,600	1,600	350,000	500,000	1,000,000	
Osceola Corporate Ctr	1,360	Approved			1,874,658	1,402,616	887,163	662
Championsgate	1,200	Approved	2,136		426,000	248,000		2,864
Xenorida	468	Approved	520		429,077	1,250,000		5,050
Mystic Dunes/The Palms	707	Approved						
Lindfields	371	Approved	780	600	120,000			500
Flora Ridge	1,097	Approved	2,229	1,590	1,401,000	700,000	400,000	600
Puente Romano	98	Proposed						2,000
Rolling Oaks	485	Approved			230,000			400
Fountainhead	142	Approved			234,630	66,640		
Subtotal-At Buildout:	**16,193**		**19,330**	**3,790**	**7,042,452**	**6,744,309**	**4,067,163**	**13,615**
Less Estimated Completions:			(7,524)	(1,927)	(1,154,729)	(1,153,203)	-	(2,526)
Subtotal-Other Osceola DRIs:	**16,193**		**11,806**	**1,863**	**5,887,723**	**5,591,106**	**4,067,163**	**11,089**
Lake Toho Area DRIs								
Bellalago	1,129	Approved	1,241	503	244,000	-	-	-
Johnson-Walker Ranch	3,226	Approved	9,900	-	30,000	-	-	-
Green Island DRI	5,977	Approved	8,500	4,500	2,750,000	410,000	840,000	
Tranquility (DRI designation removed in 2008)	552	Proposed	800	900	100,000			
Subtotal-At Buildout:	**10,884**		**20,441**	**5,903**	**3,124,000**	**410,000**	**840,000**	**-**
Less Estimated Completions:			(1,091)					
Subtotal-Lake Toho Area DRIs:	**10,884**		**20,441**	**5,903**	**3,124,000**	**410,000**	**840,000**	**-**
GRAND TOTAL-AT BUILDOUT:	**27,077**		**32,247**	**7,766**	**9,011,723**	**6,001,106**	**4,907,163**	**11,089**
East Lake Toho Study Area Projects								
Bella Tara	546	Approved	1,290	450	-	-	-	-
Edgewater	2,950	Approved	6,650	350	507,000	-	-	-
Friar's Cove	694	Proposed	968	770	180,000	-	-	-
Toho Preserve	1,596	Approved	2,976	639	350,000	100,000	-	-
Tohoqua	1,185	Approved	1,860	1,360	150,000	-	-	300
	6,971		**13,744**	**3,569**	**1,187,000**	**100,000**	**-**	**300**

Source: Central Florida Geographic Information Systems, East Central Florida Regional Planning Council; Osceola County, 2009; ERA, June 2009.

Other major County DRIs include Celebration, Harmony, Champions Gate, and Xentury City.

Selected information on the status of each project as well as development program/ buildout, by use, is illustrated below:

Bella Tara

Bella Tara is a proposed development to be located southwest of the City of St. Cloud, bordering Kissimmee Park Road and the Edgewater DRI to the north, Lake Toho Road to the west, Lake Toho to the south, and the Edgewater DRI and WPA Canal to the east. Bella Tara is proposed as a Traditional Neighborhood Design Community consisting of mixed residential units with a variety of product types and price lines, a neighborhood village center, parks, recreation facilities, open space, pedestrian/bicycle facilities, an elementary school site, and a club area.

This 546-acre development proposes a maximum of 1,290 single-family dwelling units, 450 multi-family dwelling units, an elementary school site, civic, public, and non-profit institutional uses located within a village center. It plans no commercial space

This is a single phase development. Original plans indicated development starting in 2007 and completion projected in 2011; however, to date, no development has occurred.

Edgewater

Edgewater is a proposed mixed-use development to be located southwest of the City of St. Cloud, bordering Ronald Reagan Turnpike to the west, Lake Toho to the east, and north and south of Kissimmee Park Road.

This 2,950-acre development proposes 6,650 single-family dwelling units, 350 multi-family dwelling units, and 507,000 square feet of retail. The proposed development will also include an elementary school, middle school, high school. The projected population for Edgewater is almost 19,000 residents.

The development order indicates three phases of development. In original plans, the first phase was expected to be completed by 2011. However, the timeline has been altered - Phase 1 (2015 completion), Phase 2 (2021 completion), and Phase 3 (2027 completion). Phasing is indicated by number of trips. Phase 1 will include 3,481 dwelling units (50% of total residential). Phase 2 will include 3,519 dwelling units (50% of total residential) and 507,000 square feet of retail (100% of total retail). To date, no construction has occurred.

The development order outlines a design framework that:

- Keep the mix, density, and location of housing types compatible with adjoining internal land uses
- Create a public/civil focal point
- Provide a range of housing for various family sizes and incomes
- Establish an interconnected street network to accommodate automobiles, pedestrians, and bicyclists.
- Gives priority to pedestrian movement, environment, and scale
- Plans to use collaborative site planning with County input for Community Centers

The development order states that the developer will provide a community center of 60,000 square feet with the first 1,000 to 1,200 dwelling units, to enhance the development with services for the residents, and another 25,000 square feet before issuance of permits for Phase II.

Friar's Cove

This 694-acre development is located east of the Bella Tara DRI and south of Edgewater DRI. It is north of Friar's Cove Road and west of the Ronald Reagan Turnpike. It is at the southern edge of the East of Lake Toho planning area, north of the Green Island DRI, which is incorporated in the South Lake Toho planning area. The DRI proposes 968 single-family dwelling units, 770 multi-family dwelling units, and 180,000 square feet of retail space. The original proposal (2006) suggests a five-year buildout and incorporation of a middle school, 20-acre central recreation park, community center, and community docks/boat lift.

Toho Preserve (Westlake Cove)

Toho Preserve is an approved DRI located south of Neptune Road, northeast of Lake

Toho, and west of the Florida Turnpike. This 1,596-acre mixed-use development plans 2,976 single-family dwelling units, 639 multi-family dwelling units (339 of which would be condominium), 350,000 square feet of retail, and 100,000 square feet of office.

The project is being designed primarily as a residential community that will include a village center intended to provide pedestrian friendly shopping, dining, and employment opportunities for the residents of the community and surrounding areas. An elementary school site has been designated within the mixed-use town center to provide walking and biking to school. Toho Preserve includes design elements similar to those in Edgewater (Residential compatibility, focal point, range of housing options, interconnected street network, pedestrian-friendly, and collaborative planning), as well as promising to provide a community center of 60,000 square feet with the first 1,000 to 1,200 dwelling units, to enhance the development with services for the residents, and another 25,000 square feet before issuance of permits for Phase II. There is also a wildlife buffer planned.

The proposed development will occur in three phases, with Phase 1 delivering in 2016, Phase 2 delivering in 2021, and Phase 3 delivering in 2027. There are 1,149 housing units, 25,000 square feet of commercial, and 20,000 square feet of institutional uses planned for Phase 1. In Phase 2, there are 1,648 residential units, 75,000 square feet of commercial, 10,000 square feet of office and another 20,000 square feet of institutional planned. Phase 3 completes the development with 818 residential units, 250,000 square feet of commercial, 90,000 square feet of office, and 60,000 square feet of institutional space. The elementary school would be built during Phase 1 and is not included in the institutional space above.

The projected population for Toho Preserve is approximately 11,200 residents.

Tohoqua (Mariner's Cove)

Tohoqua is a mixed-use DRI to be located south of Neptune Road, north of Lake Toho, west of Ronald Reagan Turnpike, and east of Macy Island Road.

This 1,185-acre mixed-use development proposes a maximum of 1,860 single-family dwelling units, 1,360 multi-family dwelling units, up to 150,000 square feet of retail, services, or office uses, 300 hospitality suites, 30,000 square feet of institutional uses (exclusive of the elementary school and the middle school), an elementary school, and a portion of a middle school.

Tohoqua includes design elements similar to those in Edgewater and Toho Preserve (Residential compatibility, focal point, range of housing options, interconnected street network, pedestrian-friendly, and collaborative planning), as well as promising to provide a community center of 60,000 square feet with the first 1,000 to 1,700 dwelling units, to enhance the development with services for the residents, and another 25,000 before permitting for Phase 2. Some green building practices are expected to be implemented in the plan and in common buildings.

Development is proposed to occur in two phases: Phase 1 (2015 completion) and Phase 2 (2020 completion). Phase 1 will include 1,150 dwelling units (36% of total residential) and 100,000 square feet of retail services (67% of total retail services). Phase 2 will include 2,070 dwelling units (64% of total residential), 50,000 square feet of retail services (33% of total retail), and 300 hospitality suites (100% of total).

Green Island

Green Island is a major mixed-use development located within the South Lake Toho planning area. Though it is not the East of Lake Toho planning area, it is adjacent to it, and would substantially affect development plans within the current planning area, which is the purpose of including it here. Green Island is to be located to the south and southwest of the City of St. Cloud, east of Lake Toho, and west of Canoe Creek Road. The Ronald Reagan Turnpike bisects the project from north to south. The development plan proposes a 5,977-acre mixed-use development with 8,500 single-family dwelling units, 4,500 multi-family dwelling units, a 450,000 square feet village center (retail/service), a 1.55 million square feet regional mall, 750,000 square feet of support commercial, 410,000 square feet of office, 840,000 square feet of research/industrial, and five schools.

Development is proposed to occur in four phases: Phase 1 (Development Order-2016), Phase 2 (2017-2021), Phase 3 (2022-2027), and Phase 4 (2027-2030).

Phase 1 buildout includes 3,000 dwelling units (23% of total residential), 100,000 square feet of the village center (22% of total village center), 150,000 square feet of support commercial (20% of total support commercial), 80,000 square feet of office (20% of total office), 200,000 square feet of research/industrial (24% of total research/industrial), and one elementary school.

Phase 2 buildout includes 5,000 dwelling units (38% of total residential), 200,000 square feet of village center (44% of total village center), the 1.55 million sq. ft regional mall, 300,000 square feet of support commercial (40% of total support commercial), 200,000 square feet of office (48% of total office), 300,000 square feet of research/industrial (36% of total research/industrial), one elementary school, and one middle school.

Phase 3 buildout includes 4,000 dwelling units (31% of total residential), 100,000 square feet of village center (22% of total village center), 100,000 square feet of support commercial (13% of total support commercial), 80,000 square feet of office (20% of total office), 100,000 square feet of research/industrial (12% of total research/industrial), and one high school.

Phase 4 buildout includes 1,000 dwelling units (8% of total residential), 50,000 square feet of village center (12% of total village center), 200,000 square feet of support commercial (27% of total support commercial), 50,000 square feet of office (12% of total office), 240,000 square feet of research/industrial (28% of total research/industrial), and one elementary school.

Demand Potentials

The analysis of existing demographic, economic, and real estate conditions provides the foundation for projections of market supportable potential development of new housing, retail, workplace (office and industrial) uses, and hospitality (hotel) uses in the East of Lake Toho planning area.

Each of the land use analyses takes into account development at the DRIs reviewed in the above section.

Housing

Potentials for housing development in the East of Lake Toho area were based on projections of housing units by Traffic Analysis Zone (TAZ) by METROPLAN , the metropolitan planning organization (MPO) for the Orlando metro area. Analysis started at the countywide level, to account for variations in the distribution of units as trends change in the future. TAZ projections are often better at predicting future growth at a larger geography than at smaller areas such as a planning area, particularly in areas with changing land use qualities.

The TAZ projections originated in 2005 with a final analysis year of 2025 (Table TA1.1-10). To correspond to other market analysis which extends to 2030, the housing units from 2025 to 2030 were extrapolated using average growth rates as shown in Figure TA1.1-16. The number of current housing units (according to ESRI data) in 2009 was removed to find the net new housing units in 2030 (see Figure TA1.1-16).

Table TA1.1-10. New Housing Units in Osceola County, 2009-2030

2005 Baseline Housing Units (MPO)	103,113
2009 Housing Units (ESRI)	123,557
Projected 2025 Housing Units	206,254
Net New Units (2025-2009)	82,697
/ years	16
New Units/Year	5,169
Extrapolated 2030 Units	232,097
New Units (2009-2030)	**108,540**

Metroplan Orlando, 2005; Economics Research Associates, 2009.

	2030		Baseline (1) @ 100%	Moderate (2) @ 85%	High (3) @ 70%
New Housing Units (MPO)	108,540		108,540	108,540	108,540
DRI Buildout (All Units)	(40,013)		(40,013)	(34,011)	(28,009)
Vacancy Factor	(6,295)		(6,295)	(6,295)	(6,295)
Unallocated Demand:	**62,232**		**62,232**	**68,234**	**74,236**
Development Allocation to:					
Other Potential County Developments at 60%		(4)	37,339	40,941	44,542
East Lake Toho at 40%			24,893	27,294	29,694
Distribution of New Housing in East Lake Toho					
DRIs			17,313	14,716	12,119
Unallocated to Remainder of Study Area:			**7,580**	**12,578**	**17,575**
Average Annual Development Potential (2030):			**345**	**572**	**799**
Gross Acres-East Lake Toho Study Area	11,245				
Average Densities (Dwelling Units/Acre)			2.2	2.4	2.6

(1) The Baseline scenario assumes that residential uses in the DRIs as identified are fully built out
(2) The Moderate scenario assumes that residential uses in the DRIs achieve 85% buildout
(3) The High scenario assumes that residential uses in the DRIs achieve 70% buildout (i.e., leaving additional housing demand for other locations in Osceola County)
(4) Assumes that other developable locations within the Urban Growth Boundary are available to accommodate growth (assumed to capture 60%).

Source: MetroPlan Orlando; Economics Research Associates, 2009.

Figure TA1.1-16. East of Lake Toho Planning area Projected Supportable New Housing Units

In 2030, there are projected to be 108,500 new housing units in Osceola County. Some of these housing units will be captured in the East of Lake Toho planning area while

others will be developed in other areas, such as the South Lake Toho planning area and on other developable land throughout the County. In determining support for new housing units in the planning area by 2030, The expected buildout at DRIs both in and out of the planning area and potential developments elsewhere in the County were considered. In the baseline scenario, 100% of all planned units at the DRIs are assumed to be constructed; in the moderate scenario, 85% of units are constructed; and in the high scenario, 70% of units are constructed. In the baseline scenario, there are fewer units remaining for other developments in the County and for the planning area, whereas in the high scenario, a greater number of units are available.

DRIs outside of the planning area plan just over 40,000 new housing units. In the baseline scenario, all of these units are removed from the total potential County housing units leaving a balance of 68,500 units. In the high scenario, there is a balance of 80,500. From this, the analysis removes an allowance for vacant units in the County (6,300), recognizing that vacant units would need to be absorbed prior to the sale of new housing units. This leaves between 62,200 and 74,200 housing units to be spread among the planning area and other housing developments.

Because of the East of Lake Toho planning area's strategic position between the County's two cities and adjacency to popular residential areas, it was assumed that the planning area could capture 40% of all remaining units. This gives the planning area the potential for between 25,000 and 30,000 units from 2009 to 2030.

In determining the net units available after considering the DRIs planned units, the analysis used the same buildout assumptions, of between 70% and 100% of DRI planned units. Removing these from the total units allotted to the East of Lake Toho planning area leaves between 7,600 and 17,600 units outside of the DRIs for an average development potential of 345 to 799 units annually. Because of the limited amount of land outside of the DRIs, it is possible that some of this demand could be absorbed within the DRIs.

Over the 11,250 acres, the total number of housing units (including DRIs) translates to a gross unit density of 2.2 to 2.7 units per acre.

Office

Demand for new office space is dependent upon new employment, which translates to new users of the space. Office workers use different types of office space depending on local market characteristics and the type of business. For example, some office tenants are small and choose to locate in retail centers that command more foot traffic (such as H.& R. Block); others telecommute from home or work in industrial settings as part of "flex-tech" buildings that provide front-end office and back-end warehouse or light industrial.

Because not all industry sectors utilize office space equally, average ratios of office users per employment sector was applied to determine how many new employees would actually occupy office space. Employees in Finance/Insurance/Real Estate (FIRE) and Services have particularly high occupancy factors for office space; because these are growing industries in Osceola County, it would suggest that demand for new office space will increase over time. The need for new office space is also determined by the relative attractiveness and overall marketability of a specific submarket or location, as determined by historic trends in market performance such as leasing patterns (Table TA1.1-11).

For each workplace use such as office and industrial, employment forecasts prepared by Woods & Poole, Inc. were utilized as the basis for projecting office market potentials. Woods & Poole, Inc. is the only service that prepares long-term employment forecasts (through 2035) for every county in the United States. Our analysis also considers such factors as replacement of aging or obsolete office buildings as well as a vacancy factor that accounts for tenant "churn" in the marketplace.

Demand generated by new job growth is typically compared against historic demand for office space as measured by average annual absorption. However, in areas such as Osceola County that are transforming from "bedroom" communities into employment centers, this measure may not

Table TA1.1-11. Osceola County Employment Based Office Demand

Employment Sector	% Office Users /1	Total Demand for New Space (In 000s of SF) 2009-2015	2015-2030	Avg. Ann'l 2009-2030
Mining	10%	0.0	0.1	0.0
Construction	20%	23.5	58.9	3.9
Manufacturing	20%	(1.3)	(3.2)	(0.2)
Trans./Comm./Public Utilities	70%	38.5	97.1	6.5
Wholesale Trade	30%	83.6	210.0	14.0
Retail Trade	30%	251.6	635.1	42.2
Finance/Insurance/Real Estate	90%	379.35	960.30	63.8
Services	50%	629.6	1,594.1	105.9
Government	70%	594.1	1,514.8	100.4
Demand From New Employment:	**43%**	**1,999.1**	**5,067.3**	**336.5**
Plus Vacancy Adjustment: /2		149.9	380.0	25.2
Plus Cumulative Replacement Demand: /3		100.0	253.4	16.8
TOTAL DEMAND (In 000s of Sq. Ft.):		**2,249.0**	**5,700.7**	**378.6**

1/ Reflects office-using employees in each employment sector

2/ This allows for a 0.075 frictional vacancy rate in new space delivered to the market

3/ This represents new space required by existing businesses to replace obsolete or otherwise unusable space. This is assumed to represent 0.05 of total implied demand

Source: Woods & Poole, Inc; Economics Research Associates, 2009.

Table TA1.1-12. Osceola County-Wide Office Demand, 2009-2030

Year	Historic Market Demand /1	Median	Employment - based Demand
2009-2015 (In Sq. Ft.)	542,300	1,395,650	2,249,000
2015-2030 (In Sq. Ft.)	1,355,700	3,528,200	5,700,700
Total 2009 - 2030 (In Sq. Ft.):	**1,898,000**	**4,923,850**	**7,949,700**
Average Annual (Rounded)	**90,000**	**214,000**	**346,000**

(1) Based on average annual absorption of office space in Osceola County.

Source: CoStar Property; Woods and Poole, 2007; Economics Research Associates, 2009.

adequately express true demand for office space.

In fact, the forecasts for future office space in Osceola suggest a substantial difference between historic demand for office space versus space required based on job growth in the county through 2030. If historic absorption/leasing patterns continue, demand should generate about 1.9 million square feet of space between 2009 and 2030. By comparison, demand generated by job growth is expected to be significantly larger as Osceola emerges as a viable employment center in the Orlando MSA. Demand generated by job growth could be as much as 7.9 million square feet by 2030. It is submitted that this would be the upward limit of demand potentials and is contingent on job growth and focused economic development strategies (Table TA1.1-12).

Note that existing and planned DRIs outside of the planning area are proposing over 6 million square feet of speculative office space. Netting this out of the 7.9 million square feet of countywide demand potential yields about 1.9 million square feet of unallocated space countywide (Table TA1.1-13).

High-value parcels with frontage on the Florida Turnpike or on other major thoroughfares are the most appropriate locations for Class A office buildings. Other smaller office buildings are appropriate for community center locations.

Table TA1.1-13. East of Lake Toho Planning area Office Potentials, 2009-2030

	2030		
Demand Generated by Employment Growth	7,950,000		
Planned DRI Office Space	(6,000,000)		
Unallocated Office Demand (In Sq. Ft.):	**1,950,000**		
Total Supportable Space (In Sq. Ft.)	**Baseline**	**Moderate**	**High**
Supportable Space All Sources	**1,950,000**	**1,950,000**	**1,950,000**
Study Area DRIs	(100,000)	(100,000)	(100,000)
Unallocated Supportable Space (Sq. Ft.):	**2,050,000**	**2,050,000**	**2,050,000**
Estimated Study Area Capture @	**25%**	**35%**	**50%**
Study Area Office Potentials:	**512,500**	**717,500**	**1,025,000**

Source: Woods & Poole, Inc. 2007; Economics Research Associates, 2009.

Table TA1.1-14. Orlando CBSA Employment Projections, 2000-2030

	Actual	Forecasts			Forecasted Change			
					2007-2015		2015-2030	
Category	**2000**	**2009**	**2015**	**2030**	**#**	**CAGR**	**#**	**CAGR**
Agricultural & Farm	23,340	25,047	26,531	30,277	1,484	1.0%	3,746	0.9%
Mining	931	835	900	1,065	65	1.3%	165	1.1%
Construction	67,063	93,716	100,151	116,287	6,435	1.1%	16,136	1.0%
Manufacturing	57,163	55,336	55,771	56,861	435	0.1%	1,090	0.1%
Trans./Comm./Public Utilities	53,241	58,694	69,042	95,155	10,348	2.7%	26,113	2.2%
Wholesale Trade	53,175	60,696	72,871	103,243	12,175	3.1%	30,372	2.3%
Retail Trade	190,991	247,679	279,689	360,331	32,010	2.0%	80,642	1.7%
Finance/Insurance/Real Estate	82,741	111,648	121,561	146,424	9,913	1.4%	24,863	1.2%
Services	454,610	629,198	782,528	1,170,626	153,330	3.7%	388,098	2.7%
Government (1)	97,161	125,395	148,951	208,731	23,556	2.9%	59,780	2.3%
Total:	**1,080,416**	**1,408,244**	**1,657,995**	**2,289,000**	**249,751**	**2.8%**	**631,005**	**2.2%**

(1) Includes local, state and Federal government agencies

Source: Woods & Poole, Inc., 2007; Economics Research Associates, 2009

Table TA1.1-15. Orlando CBSA Employment Projections, 2000-2030

		Total Demand for New (In 000s of Sq. Ft.)			
	% Industrial			Total	Avg. Ann'l
Employment Sector	**Users /1**	**2009-2015**	**2015-2030**	**2009-2030**	**2009-2030**
Mining & Construction	75%	1,218.8	3,056.4	4,275.2	203.6
Manufacturing	80%	139.2	348.8	488.0	23.2
Trans./Comm./Public Utilities	25%	1,034.8	2,611.3	3,646.1	173.6
Wholesale & Retail Trade	30%	5,302.2	13,321.7	18,623.9	886.9
Finance/Insurance/Real Estate	5%	99.1	248.6	347.8	16.6
Services	15%	5,749.9	14,553.7	20,303.6	966.8
Government	10%	588.9	1,494.5	2,083.4	99.2
Demand From New Employment:	**34%**	**14,132.9**	**35,635.0**	**49,767.9**	**2,369.9**
Plus Vacancy Adjustment: /2		1,060.0	2,672.6	3,732.6	177.7
Plus Cumulative Replacement Demand: /3		706.6	1,781.8	2,488.4	118.5
TOTAL DEMAND (In 000s Sq. Ft.):		**15,899.5**	**40,089.4**	**55,988.9**	**2,666.1**

1/ Reflects industrial space-using employees in each employment sector

2/ This allows for a 0.075 frictional vacancy rate in new space delivered to the market

3/ This represents new space required by existing businesses to replace obsolete or otherwise unusable space. This is assumed to represent 0.05 of total implied demand

Source: Woods & Poole, Inc., 2007; Economics Research Associates, 2009.

In the short-term, residential development will generate incremental demand for professional office space oriented to medical, professional and business services. Typically, these office tenants will be located in smaller, "garden" office buildings ranging from 10,000 to 25,000 square feet. Rental rates in such properties typically do not justify development in high value locations such as those parcels with frontage on the Florida Turnpike. However, garden office buildings will require frontage and signage on arterial and collector roads and proximity to other generators of customers (residential, retail uses).

Industrial

A similar analysis was conducted for general industrial uses as was prepared for commercial office by examining both historic annual demand as well as demand generated by future job growth in industrial-using sectors. Since industrial uses are also regional in nature (and oftentimes elements of economic development strategies), job growth in industrial sectors for the Orlando CBSA was utilized as opposed to only Osceola County.

Employment forecasts prepared by Woods & Poole, Inc.were also used, and adjusted by ratios of industrial-using jobs and space (in square feet) per employee. The methodology also nets out a vacancy allowance and adds space for replacement of aging or obsolete buildings. Results of this analysis are highlighted in Tables TA1.1-14 and TA1.1-15.

This analysis finds that there is a total of approximately 56 million square feet of industrial space between 2009 and 2030, for an average of 2.7 million per year. According to CoStar Realty data, Osceola County contains approximately 11% of the industrial inventory located in the Orlando CBSA. However, as a result of its increasingly attractive location as an employment center as well as successful recruitment efforts by the County's economic development staff, it is likely that Osceola County will enhance its share of regional industrial space over time. The County's average annual absorption is approximately 340,000 square feet per year. Historic demand would suggest a total of 7.1 million square feet of demand between 2009 and 2030, as shown in Table TA1.1-16. As with the office analysis above, both the historic demand as well as growth by employment-based demand was considered.

While the precise increase in share is not known,the County's share of the CBSA's industrial demand was increased by 1% per year through 2030. This increased share would augment the County's fair share of future demand for industrial space in the CBSA by more than 7 million square feet between 2009 and 2030, resulting in total demand for approximately 13 million square feet of general industrial space countywide by 2030.

Based on the research of proposed industrial development in the DRIs as well as capacity to accommodate additional industrial uses at Poinciana Industrial Park, the potential exists for an additional 15 million square feet of competitive general industrial space. This includes the capacity to accommodate up to 10 million square feet of industrial space on acreage already owned by Poinciana Industrial Park as well as up to 4.9 million square feet in the DRIs.

Removing all of this planned space would create a situation of negative demand. As with other analyses, a "what if" scenario was posed, to account for the possibility that all of the proposed capacity is not built out. In this instance, the "baseline" assumes 100% of capacity is built, "moderate" assumes 70% of capacity is built, and "high" assumes 50% of capacity is built. In the baseline scenario, there is no additional demand in the county. However, in the moderate and high scenarios, there are between 2.5 and 5.5 million square feet of excess demand. If the planning area were to capture a quarter of this demand, it could accommodate between 623,000 and 1.4 million square feet (Table TA1.1-17).

Currently, none of the DRIs in the planning area have planned for industrial space. It is possible that some smaller scale "flex" industrial space could be accommodated outside of the DRIs, or could be planned for as part of the commercial space within the

Table TA1.1-16. Osceola County Industrial Space Demand, 2009-2030

Market Demand	Avg Ann'l	2009-2015	2015-2030	Total Sq. Ft. 2009-2030
Osceola County Historic Market Demand	339,504	2,040,000	5,090,000	7,130,000
Demand from Job Growth-Orlando CBSA	2,666,136	15,900,000	40,090,000	55,990,000
Osceola County Current Share	10.6%	10.6%	10.6%	10.6%
Subtotal (In Sq. Ft.):		**1,690,000**	**4,270,000**	**5,960,000**
w/ Average Annual Increase of 1 %		954,000	6,013,500	6,967,500
TOTAL DEMAND (In Sq. Ft.):		**2,644,000**	**10,283,500**	**12,927,500**

Source: Woods & Poole, Inc.; CoStar Property; Economics Research Associates, 2009.

Table TA1.1-17. Study Area Industrial Demands Potentials

	Baseline *(Buildout @ 100%)*	Moderate *(Buildout @ 70%)*	High *(Buildout @ 50%)*
Demand Generated by Employment Growth	12,927,500	12,927,500	12,927,500
- Poinciana Industrial Park-Additional Capacity	(10,000,000)	(7,000,000)	(5,000,000)
- Planned DRI Industrial Space	(4,907,163)	(3,435,014)	(2,453,582)
Unallocated Industrial Demand (In Sq. Ft.):	**(1,979,663)**	**2,492,486**	**5,473,919**
Unallocated Supportable Space (Sq. Ft.):	**-**	**2,492,486**	**5,473,919**
Estimated Study Area Capture @	**25%**	**25%**	**25%**
Study Area Industrial Potentials:	**-**	**623,000**	**1,368,000**

(1) Estimate based upon conversations with Avatar, the developer of Poinciana.

Source: Woods & Poole, Inc. 2007; Economics Research Associates, 2009.

DRIs, depending on the ability to acquire the necessary approvals from the County and other agencies.

Hotel

Opportunities for new hotel development in the East of Lake Toho Planning area will be tied directly to growth in tourism as well as room-night demand generated by new office space. Osceola County benefits from its proximity to the world-class attractions of greater Orlando, with 6.1 million visitors per year. Currently, the approximately 15,000 hotel rooms located in Osceola County achieve annual occupancies of 57.8%, well below threshold occupancies of 70 to 72% required by the capital markets to finance new hotel construction. Continued growth in the County's visitor market is also critical. Visitation and occupancy decreased slightly from 2007 to 2008.

Analysis suggests that if visitor growth in Osceola County continues at its historic, long-term pace (and occupancies increase to sustained levels as required by the capital markets), opportunities for development of new hotel/lodging properties will be solid. This analysis is detailed below and illustrated in the accompanying tables.

If the number of visitors increases at an average annual rate of 3.9% (which is 70% of the Orlando metro's recent visitor growth of 6% annually), Osceola County could require a total of 34,300 hotel rooms by 2030.

There are currently just under 15,000 hotel rooms in the County and an additional 11,400 rooms are planned in various DRI projects, such as 5,050 rooms at Xentury City (Xenorida) and 2,000 rooms at Puente Romano. Both of these DRIs are significantly closer to demand generators such as Walt Disney World, the Convention Center and other attractions. There are 300 rooms planned within DRIs in the Planning area.

Any hotel development at the East of Lake Toho planning area is likely to benefit from the proximity to the Florida Turnpike, and is less likely to serve tourists or theme park visitors.

Netting out existing and planned rooms from demand potentials provides net demand of more than 5,400 rooms countywide if annual occupancies increase to 68%. Because of planned DRI projects, demand is concentrated between 2015 and 2030 (Table TA1.1-18).

It is submitted that opportunities for hotel development in Osceola County over the next three to five years will be limited (based on current occupancy levels), and future demand will be tied to significant increases in annual occupancies as noted. However, in locations accessible to interchange traffic, opportunities to capture countywide

Table TA1.1-18. Osceola County Hotel Room Demand, 2008-2030

	2008	2008-2030
Estimated Osceola County Visitors /1	6,140,000	14,246,573
x % Staying at a Hotel	64%	64%
/ No. of Persons in Party	3.2	3.2
x Length of Stay	4.4	4.4
Total Roomnight Demand:	**5,403,200**	**12,536,985**
/ 365 Days/Year	365	365
Hotel Room Demand:	**14,803**	**34,348**
Less Existing Rooms	(14,961)	(14,961)
Less Planned Rooms /2		(11,389)
Net Hotel Room Demand:	**(158)**	**7,998**
x Assumed Occupancy Rate	61%	68%
Net New Room Demand:	**(96)**	**5,439**

1/ Includes existing visitors plus an average annual growth rate of 3.9%

2/ Planned rooms include rooms proposed in various DRIs in Osceola County.

Source: Kissimmee Convention & Visitors Bureau; Orlando Convention & Visitors Bureau; Smith Travel Research; Economics Research Associates, 2009.

room-night demand will enhance market prospects over the long-term.

Analysis at assumed capture rates ranging from 10% to 30% for East of Lake Toho suggests demand potentials ranging from 800 to almost 2,300 hotel rooms by 2030, not including the 300 planned rooms. Key locations for hotel development—in light of the distance of the planning area to key visitor demand generators—suggest parcels with highway frontage and visibility will be critical (Table TA1.1-19).

Opportunities for hotel development will vary from limited-service/price-sensitive operators to full-service, business-class chains; timing/phasing and market niche will also be determined by the amount of speculative office space built in the East of Lake Toho planning area, which will serve as a demand generator.

Table TA1.1-19. East of Lake Toho Planning area Hotel Demand, 2008-2030

		2030
Room Demand Generated by Visitor Growth	(1)	19,387
- Planned DRI Hotel Rooms		(11,089)
Unallocated Hotel Rooms:		**8,298**

	Baseline	Moderate	High
Supportable Rooms All Sources	8,298	8,298	8,298
Area DRI Planned Rooms	(300)	(300)	(300)
Unallocated Rooms:	**7,998**	**7,998**	**7,998**
Estimated Study Area Capture @	**10%**	**20%**	**30%**
Study Area Hotel Potentials:	**800**	**1,600**	**2,399**

(1) Based on 2030 room demand of 35,778 less 14,443 existing rooms.

Source: Economics Research Associates, 2009.

Table TA1.1-20. Osceola County Retail Inflow

	Osceola County	Orlando MSA
Gross Retail Space	13,396,396 sf	151,144,245 sf
Full Service Retail Rents (Per Sq. Ft.-FS)	$20 per sf	$18 per sf
X Factor of 10 Rent/Sales	$200 sales/sf	$180 sales/sf
Estimated Total Annual Sales (Rounded):	**$2,679,279,000**	**$27,205,964,000**
2008 Households	98,784	813,171
Average Annual HH Retail Spending	$13,228	$16,182
Estimated Total Resident Sales (Rounded):	**$1,306,674,000**	**$13,158,359,000**
% of Total Sales-Households:	**49%**	**48%**
% of Total Sales-Other Sources ("Inflow")	**51%**	**52%**

Source: CoStar Property; ESRI Business Analyst; Economics Research Associates, 2009.

Retail

The amount of supportable retail and services is directly related to the number of households, workers, and visitors in an area, and the amount of money they have to spend. Though Osceola County households spend less than the national average, the County's strong relationship to the regional tourist economy puts it in the position to capture more inflow than the typical jurisdiction.

Table TA1.1-20 shows Osceola County and the Orlando MSA's estimated inflow of retail based on the amount of retail square footage in each area. Based upon the typical sales per square foot in the County ($20/sf), it is estimated that the average sales productivity is $200 per square foot. This suggests that the County's 13.4 million square feet of retail space generates $2.7 billion in sales. Data from ESRI shows that the County's 98,800 households spend an average of $13,200 annually on retail, for a total of $1.3 billion in retail spending by county residents. Therefore, the County's residents account for less than half of all County retail sales.

Because of the rapidly changing nature of retail store format trends and product types, the goal of analyzing the retail demand potential for master planning purposes is to identify the amount of retail that an area will likely need to accommodate to support the new households and other customers generated. To estimate the amount of supportable retail in the East of Lake Toho conceptual plan, the total number of new planning area households

in each scenario (Baseline, Moderate, and High) and estimated annual household retail spending, based upon current retail spending patterns, was used. This amounted in a total of between $329.3 and $392.8 million. Though current inflow trends to the County are 51% of all sales, it is assumed that the planning area, because of its distance from tourism generators, will have fewer inflow sales. Therefore, the analysis uses a 30% inflow factor, bringing the total sales potential to between $428.1 and $510.6 million. At an average productivity rate of $250 per square foot (which is higher than the current estimated productivity rate to account for needed rents in newly built space), this equates to between 1.7 and 2.0 million square feet regardless of location. Because some of this demand is likely to flow to other areas—either closer to tourist centers, in existing regional retail concentrations, or in other developments outside of the planning area (such as at the planned regional retail space at the Green Island DRI south of the planning area—it was estimated that the planning area could potentially capture between 40 and 60% of all sales, resulting in support for between 685,000 and 1.2 million square feet of retail (Table TA1.1-21).

Currently, the DRIs have a total of 1.2 million square feet planned. Based upon conversations with developers and discussions at the planning workshop, ERA recommends a target of the moderate scenario—938,500 square feet to be distributed among two urban centers (one at 150,000 square feet and one at 350,000 square feet), two community centers at 150,000 square feet each, and a total of up to 63,500 square feet of retail spread among the neighborhood centers. The developments must keep in mind concepts of retail positioning for maximum productivity and visibility to customers. Retailers also prefer the benefits of agglomeration, to be near other retailers, and so dispersing retail throughout the planning area in small increments separated from other retail is not likely to be successful.

Table TA1.1-21. East of Lake Toho Planning area Retail Demand Potential

	Baseline	Moderate	High
Estimated Retail Sales from Study Area Households			
New Households, by Scenario	24,893	27,294	29,694
Average Annual HH Retail Spending	$ 13,228	$ 13,228	$ 13,228
Total Annual HH Retail Spending:	**$ 329,273,000**	**$ 361,030,000**	**$ 392,786,000**
Estimated Retail Sales from Other Sources			
Inflow Factor	*30%*	*30%*	*30%*
Total Annual Retail Sales-Other Sources:	$ 428,055,000	$ 469,339,000	$ 510,622,000
Average Productivity (Sales/SF)	$ 250	$ 250	$ 250
Total Supportable Space (In Sq. Ft.)			
Supportable Space All Sources	1,712,000	1,877,000	2,042,000
Study Area Capture	40%	50%	60%
Total Supportable Study Area Space	**684,800**	**938,500**	**1,225,200**

Source: ESRI Business Analyst; Economics Research Associates, 2009.

Key Assumptions

Given current market conditions nationwide and the relatively long foreseen buildout period of the planning area, development potentials for East of Lake Toho are predicated on several critical assumptions:

- Continued near-term population and household growth in the Orlando metropolitan area and Osceola County over the next 20+ years
- Continued expansion of the regional economy over the next five years, including job growth in specific sectors (e.g., Services, Finance/Insurance/ Real Estate) that drive demand for commercial development
- Recovery of the housing market, including takedown/absorption of vacant, recently-delivered and planned residential units across Osceola County, particularly in the many DRIs planned for significant new housing development
- Development opportunities also assume full entitlements—including zoning and densities sufficient to accommodate the programs identified below,
- The urban growth boundary as currently defined by Osceola County (and which the planning area is located within) will not be substantially altered before 2030.

General & Limiting Conditions

Every reasonable effort has been made to ensure that the data contained in this report are accurate as of the date of this study; however, factors exist that are outside the control of Economics Research Associates, an AECOM company (ERA) and that may affect the estimates and/ or projections noted herein. This study is based on estimates, assumptions and other information developed by Economics Research Associates from its independent research effort, general knowledge of the industry, and information provided by and consultations with the client and the client's representatives. No responsibility is assumed for inaccuracies in reporting by the client, the client's agent and representatives, or any other data source used in preparing or presenting this study.

This report is based on information that was current as of September 2009 and Economics Research Associates has not undertaken any update of its research effort since such date.

Because future events and circumstances, many of which are not known as of the date of this study, may affect the estimates contained therein, no warranty or representation is made by Economics Research Associates that any of the projected values or results contained in this study will actually be achieved.

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This study is qualified in its entirety by, and should be considered in light of, these limitations, conditions and considerations.

TA1.2. Target Industry

Executive Summary

Introduction & Methodology

As part of the Conceptual Master Plan for East of Lake Toho, a preliminary Target Industry Analysis was prepared to identify potential job-generating opportunities that may be appropriate to locate in East of Lake Toho. This preliminary analysis is being coordinated with Osceola County's Economic Development Department for purposes of focusing on opportunities to attract industries and businesses in the future that would complement existing businesses and economic activity generators elsewhere in Osceola County and the Orlando metropolitan area. This follows, and is an update, to a similar analysis performed for the South Lake Toho Conceptual Master Plan.

This analysis consists of several subtasks to identify future opportunities for Osceola County and the East of Lake Toho Planning area. While these opportunities may not currently be a part of the County's economy, they represent opportunities for future economic activity given the strategic direction and core objectives of the Economic Development Department and expected job growth in particular sectors of the economy. These three tasks include:

- A Strengths/Weaknesses/Opportunities/Threats (SWOT) analysis
- A preliminary Target Industry Analysis with particular attention given to the State-Approved Target Industry List
- An initial analysis of potential site locations for specific clusters or economic sectors

Each of these three components is summarized below:

Step 1: "SWOT" Analysis

The SWOT Analysis examines existing industry sectors that comprise the County's economy; seeks to understand the County's current economic position; and, compares Osceola to other jurisdictions in Greater Orlando. The SWOT analysis examines general industrial location factors as well as opportunities and constraints, based on available data, of existing industry sectors and public and private business lines—effectively from a bird's-eye level.

A SWOT analysis is a qualitative process, and attempts to standardize and objectify something that is subjective. It is one tool of many in the economic development arsenal used to identify strategic attributes that a jurisdiction can emphasize to optimize business and resident attraction and development; it also identifies shortcomings so that they do not overshadow positive factors or inhibit new development in a particular jurisdiction or area. The SWOT Analysis formed the basis of a preliminary Target Industry Analysis that examines those industry clusters capable of yielding the highest degree of success and impact for Osceola County (and the East of Lake Toho planning area in particular).

Step 2: Preliminary Target Industry Analysis

Building upon the SWOT analysis, this key task examines the relative overall economic health of Osceola County. An assessment of industry sectors is, by necessity, conducted on a county-wide basis because this is the level at which data are available. Specific opportunities for East of Lake Toho are a result of industry and economic sectors identified at the County level and "drilled down" in terms of their applicability to the local level, primarily in relation to the existence of site selection variables and characteristics of East of Lake Toho (or, in some instances, the potential for these variables to exist in the future). In this analysis, particular attention has been paid to where the County's industry strengths (as illustrated with high location quotients and high employment growth) intersect with the State of Florida's Qualified Tax Incentive (QTI) approved industries.

Step 3: Site Location Analysis

The third step in this process involves an initial site location analysis that identifies prospective site and locational requirements for these industry sectors. As part of this analysis, national experience in similar engagements was utilized to understand the relative importance given to particular site location criteria, such as highway access, proximity to labor force, available "ready-to-go" sites, etc.

SWOT Analysis

Strengths, Weaknesses, Opportunities and Threats were analyzed for Osceola County generally and East of Lake Toho in particular. These categories are defined below. SWOTs were also conducted for the three identified target industries/economic strategies presented later in this report. As such, this section serves as a "foundation" for later assessment. The SWOT analysis grouped variables into the following categories (Table TA1.2-1).

Transportation, Infrastructure & Other Physical Considerations—Includes environmental aspects of Osceola County, its road and transit networks, traffic, particular land development issues, geography, and utilities.

Workforce, Education & Wages—Includes available workforce, educational attainment of the population, institutions for higher education, current wage rates, and other aspects affecting the quality of the labor pool.

Innovation, Linkages & Entrepreneurship—Includes research conducted in Osceola County, industry groups and initiatives, business environment, and new business formations.

Economic Development & Policy—Includes the County's incentives, economic development initiatives, current tax burdens, and other policies affecting the overall business climate and economic development.

Lifestyle—Includes climate, entertainment and recreation, cost of living, healthcare and other variables affecting day-to-day living of employees or that may impact a company's ability to conduct business or attract a qualified workforce.

Strengths are positive factors that are internal to Osceola County. These often refer to factors such as natural characteristics, economic advantages, and positive policies that are particularly strong, and independent of or in comparison to, other jurisdictions. Note that Osceola County is particularly strong in such areas as the amount of available and developable land, high quality-of-life, excellent regional access to other locations within metropolitan Orlando as well as the state (with ready access provided by the Florida Turnpike), proximity to internationally-renowned tourism generators, the provision of visitor services, and general affordability.

Weaknesses are the opposites of strengths. They are negative factors internal to the County, and are considered obstacles that need to be overcome or challenges that need to be improved with new initiatives in order to be competitive with other locations. Osceola's key weaknesses are its relative distance from the key economic generators and employment centers of the region (as shown in the map with concentrations of state QTI businesses), a lower level of educational attainment, a concentration of lower-wage workers in the Services sector (driven primarily by tourism), and a perception of Osceola as a "budget" destination for moderate-income families and visitors.

Opportunities are often related to strengths but can be identified as either external to the County (e.g., the arrival of a major new headquarters to an area, relocation of military personnel, or a major infrastructure improvement, etc.), or internal. They are strategic circumstances in which the County can develop new economic outcomes. For example, Osceola's immediate-term opportunities can be focused in continued strengthening of its linkages with the economy of Orlando and the region, developing an image "from scratch" in newly developed areas (or those planned for future development such as East of Lake Toho), and capitalizing on increasing the number of better-educated residents locating in the County.

Threats are the opposite of opportunities. They can be related to weaknesses, but more often are internal or external existing or impending events or conditions that expose Osceola County to negative economic impacts. These threats require mitigation to optimize economic circumstances. These threats are strategic moments to keep on-the-radar; they can be as undefined as a rumor, indicated by a national or regional trend, or a definite event that will occur. Examples of threats include: decline of an industry, increasing energy costs, or an unfriendly political climate encouraging policies affecting industrial formation or economic development. Most of the immediate threats to Osceola's economic

Table TA1.2-1. Osceola County SWOT Matrix

Category	Strengths	Weaknesses	Opportunities	Threats
Transportation, Infrastructure, & Other Physical Considerations	Excellent regional access to major Interstates (I-4, I-75, and I-95) and several other major highways including: Florida Turnpike, U.S. 192, Osceola Parkway, and State Route 417. The study area will have direct access to the Florida Turnpike with a proposed interchange at the Southport Connector. Significant acreage is available for commercial development at lower cost in an increasingly built-out metropolitan area.	Much of the study area is in existing DRIs with limited planned commercial development. Currently, the study area comprises rural/undeveloped acreage with somewhat limited access, despite its adjacency to portions of the Florida Turnpike; Air access is available but distant: Orlando International Airport (30-minutes); seaport access is provided by the Port Canaveral facility (30-minutes). Portions of the study area are environmentally constrained and may not be buildable, including wetlands and floodplain areas.	Public investment in transportation and other critical infrastructure is considered critical for long-term economic development of the study area. Portions of the study area that are environmentally sensitive suggest opportunities for environmental sustainability.	Increasing costs of raw materials such as fuel over the long-term could potentially necessitate additional public investment in transit or other alternative transportation options. Given the state's current fiscal crisis, funding of transportation and other investment in infrastructure is not guaranteed, and may delay economic development opportunities.
Workforce, Education, & Wages	Annual wages are lower than Orange County ($28,000 vs. $39,000), which is attractive to price-sensitive industries such as hospitality. Higher education facilities include Valencia Community College w/ training/workforce development & opportunities to receive 4-year degrees from University of Central FL. Additional undergraduate/graduate training available at Stetson University Ctr. at Celebration.	In 2007, the proportion of County residents with a Bachelor's Degree or above was lower than surrounding counties (21.4%), which may contribute to Osceola as a less attractive location for industries requiring an educated workforce. Like much of Florida, the lack of a critical mass of research universities, teaching hospitals, and other demand generators may limit economic development potentials.	Though it has a less educated workforce, Osceola County is gaining share among residents with a Bachelor's Degree, increasing from 15.7% in 2000 to 21.4% in 2007. Proximity to the University of Central Florida and its research capacities may be an opportunity as the university grows in the future.	Ongoing economic turmoil will impact overall economic development in the short-term. Availability & access to specific programs such as student loans may impact workforce educational opportunities. If the regional housing market continues to struggle, lower-cost housing closer to existing job centers may reduce overall housing demand in outlying parts of Osceola County
Innovation, Linkages, & Entrepreneurship	The number of new start-up companies in Osceola has remained steady at 2,800± per year between 2005-2007. Notably, start-ups in neighboring counties have decreased.	Economic development policies related to Innovation, Linkages & Entrepreneurship for specific industry groups are limited at the County level.	Opportunities to tie to regional initiatives such as "Innovation Way", Medical City, and promotion of digital media, entertainment technology, and advanced manufacturing. Contraction of larger companies may present near-term opportunity for smaller/start-up firms in similar industry clusters.	Ongoing recession & economic downturn is a significant, near-term challenge & uncertainty (e.g., limited grant funding, lack of credit/access to capital markets for industry expansion, etc.).
Economic Development & Policy	Economic development tools include EZ; 5-day fast-track permitting/coordination btw. County departments Other incentive programs include: transportation impact fee mitigation, green building incentives, qualified target industry tax refunds, quick response/incumbent work training, transportation fund for economic development, expedited permitting assistance	ELT is not located in the existing Osceola County Enterprise Zone	Stronger linkages to other economic development initiatives in metropolitan Orlando would enhance development opportunities	Significant competition from other jurisdictions in central FL as well as elsewhere around the state, and U.S.
Lifestyle	Attractive year-round warm climate Affordable cost of living: Orlando rates 99.3, less expensive than most metropolitan areas, especially for housing, utilities, & healthcare Wide array of cultural/entertainment/recreation options: Osceola Center for the Arts, Silver Spurs Rodeo, Osceola County Stadium & Sports Complex, lakes, & professional championship golf courses at ChampionsGate & Harmony	Other counties in the metropolitan area have similar amenities The flip side of lower living costs is perception that Osceola County has a lower-end image; marketability issue related to attracting higher wage workers & households	Kissimmee's downtown revitalization efforts will strengthen sense-of-place/identity Ensuring a mix of uses will create additional lifestyle opportunities at ELT Opportunity in ELT o create a unique project and environment to differentiate among area communities	County budget constraints & national/state economic downturn will limit development of new recreation & cultural opportunities in the near-term

Source: Osceola County Economic Development; Metro Orlando Economic Development Commission; ERA AECOM, Updated October 2009.

development stem from the current national and state-wide recession and economic slowdown, particularly job losses, lack of access to credit/capital, a severely weakened local and regional housing market, declining revenues at both the state and local levels, a drop in retail sales and the like. In turn, these threats impact other economic sectors such as a decline in visitors, or a decline in municipal services generated by a drop in tax revenues. Moreover, another threat specific to East of Lake Toho is the potential for limited transportation funding available from the state because of state budget cuts, which would result in limiting the planning area's marketability and extending the timeframe required for potential new (job-generating) commercial (and residential) development.

Key Findings

To assist the County Economic Development Department and the I Do Team, a preliminary Location Quotient Analysis categorized industries with location quotients above 1.15 as Emerging or Stable and five-year employment growth above 25% to be Potentially-Emerging or Emerging. Key findings are summarized below, and additional business categories and industry clusters are illustrated in the body of the report.

Emerging Industries

The analysis indicates that the strongest opportunities among "Emerging" industries in Osceola County are as follows:

- At the four-digit level of analysis, there is only one sector on the state-approved list, Data Processing/Hosting/and Related Services, that meets the target industry criteria in Osceola County, with an LQ of 1.83, and significant employment growth over the past five years (2003-08) of 2,450%. An example of such an employer in Osceola County would include Channel Intelligence.
- Depending on the locational considerations (such as security and parking requirements), this is an excellent example of a business that could be accommodated in an urban framework as that illustrated in the concept plan for East Lake Toho.
- At the three-digit level of analysis, selected sub-industries within Non-metallic Mineral Product Manufacturing are on the state-approved list. According to data provided by Info USA, County employers in this category include: Joelson Concrete Pipe Company, American Pavers, Florida Rock Industries, Mark's Custom Kits, Rinker Materials Corporation, Chart's Fiberglass, St. Cloud International Tile, Inc, and Spray Bottles Inc. Notably, such businesses may not be appropriate for an urban framework, as they may be involved in natural resource excavation, manufacturing, and/or warehousing and distribution.
- There are numerous others not on the state-approved QTI list that meet the criteria as emerging sectors, including high location quotients as well as significant growth in the number of jobs in these sectors over the last five years. Notably, these appear to be clustered among specific economic drivers, such as new residential and commercial construction, retail, medical care, and real estate and other service-related businesses, in response to the significant population and household growth occurring in Osceola County since 2000.
- For example, the retail sector has exhibited very strong growth—with LQs ranging from 1.4 to 4.02, and employment growth rates generally ranging between 40 and 90% since 2003. This reflects job growth among key retailers such as Wal-Mart and Publix Supermarkets. Moreover, recent job growth at Osceola Regional Medical Center, Florida Hospital/Kissimmee, and Celebration Health, as well as job growth at numerous smaller businesses with fewer than 50 employees are illustrative of these other sectors beyond retail.
- Notably, although Performing Arts & Sports is not on the state-approved list, this sector has experienced significant growth in Osceola County over the past five years—with jobs increasing at a rate of 1,278% and a location quotient of 2.60. This reflects such economic anchors as the County's Stadium & Sports Complex, the Silver Spurs Rodeo, and the successful efforts of the

Economic Development Department and Board of County Commissioners to attract various segments of sports-related industries to the County. Moreover, growth in this sector is directly influenced by the proximity to Disney World and other nearby major theme parks and attractions and services that cater to regional visitors.

Potentially Emerging Industries

"Potentially Emerging" industries are those with location quotients below 1.15 and five-year employment above 25%. The analysis indicates the following:

- At the four-digit level of analysis, there are five sectors on the state-approved QTI list: Other Financial Investment Activities, Printing & Related Support Activities, Lumber & Other Construction Materials Wholesalers, Miscellaneous Non-durable Goods Manufacturers, and Wholesale Electronic Markets/Agents & Brokers.
- Location quotients for these sectors vary from a low of 0.31 for Wholesale Electronics Markets (which suggests that Osceola falls below the national "concentration" of employment in this sector). Factors contributing to a low LQ may vary, such as a particular sector not historically locating in Osceola.
- Conversely, other LQs among potentially emerging industries in Osceola are high, such as 0.83 for Printing Activities and 0.91 for Lumber & Other Construction Materials. McLane Sun East, with 920 employees, is a major business in Osceola County and is part of the Wholesale Electronic Markets sector. Southern Business Forms falls in the Printing & Related Support category. The administrative functions of such businesses could be located in the East of Lake Toho planning area.
- Interestingly, Other Financial Investment Activities scores high on both the location quotient (1.02) as well as recent job growth (555%), suggesting focused recruitment efforts by the Economic Development Department would be beneficial. This could include, for example, financial services and processing. In addition, businesses/tenants in this sector could be located in an urban framework as that illustrated in the East of Lake Toho conceptual plan.
- At the three-digit level of analysis, there are several others on the state-approved list in addition to those above. These include: Food Manufacturing, as exemplified by Pepsico, Cargill Animal Nutrition, and Merita Bakeries. These concerns are not necessarily appropriate for an urban framework location, as they typically require horizontal footprints to accommodate manufacturing facilities, warehousing and/or distribution functions.

Target Industries

As noted, our preliminary target industry analysis of Osceola County includes an assessment of specific industry clusters in which the County has particular strengths that can be targeted. This also includes a review of available economic incentives that may be applied to attract such specific industry sectors or clusters.

Further, to identify potential target industries, employment data collected by the U.S. Bureau of Labor Statistics (BLS) was examined, including job growth by industry and location quotients, other quantitative data, and qualitative information. To illustrate a complete economic picture of industrial development in the County, it is necessary to review indicators and cross-reference various analyses with qualitative information garnered from published information and interviews. Note that a full and extensive analysis of target industries is beyond the scope of the Conceptual Master Plan. In particular, it would involve extensive surveying of existing businesses and significant in-depth interviews of prospects that considered, but turned down, Osceola County.

This information highlights those areas where Osceola can be most competitive—with the nation, the state, and neighboring counties. Different industries and establishments compete at different levels. In some situations, a location/site selector has already chosen metropolitan Orlando, thus focusing the Economic Development Department's task on attracting them to

Osceola County rather than a competing, neighboring County in the metropolitan area. In other cases, an industry cluster can be developed by encouraging new company formations and expansion of existing industries, including those that could support existing sectors.

State Qualified Targeted Industries

Enterprise Florida, the State's economic development arm, releases a Qualified Target Industries (QTI) list which includes those industry sectors eligible for tax refunds. Excluded from this list are retail activities, mining and other extraction activities, utilities, and activities regulated by the Division of Hotels and Restaurants. Essentially, the purpose is to attract new industries and strengthen existing key industry sectors. The list includes a diverse array of industries in the following major categories:

- Manufacturing Facilities: food and beverage; textile mills; printing; wood and paper; selected chemicals; plastics and rubber; select metal and non-metallic mineral; select machinery; electrical equipment; select computer and electronic products; select transportation equipment; furniture and related products; and surgical and medical instrument manufacturing.
- Finance and Insurance Services: credit intermediation of non-depository credit institutions; securities and commodities contracts; insurance carriers; and funds, trusts and other financial vehicles.
- Corporate Headquarters
- Information Industries: software and music publishing; select film, video, and sound recording and electronic media industries; satellite communications; data processing, hosting and related services; internet publishing and broadcasting, and web search portals.
- Professional, Scientific, and Technical: computer programming and software development; computer system design; management, scientific, and technical services; research and development; scientific and technical consulting; simulation training; testing laboratories; space launch activities; flight training services; and centralized corporate training services.
- Wholesale Trade and Distribution: distribution centers and electronic markets agents and brokers.
- Administrative and Support Services: telephone and online business service centers; customer and technical support centers; transaction processing centers; and credit bureaus.

The analysis that follows focused on identifying the industries in which Osceola County excels that are also on the state QTI list.

Location Quotients

Location quotients are a measure of the overall competitiveness of a location in relation to another location by measure of their relative employment. In this task, Osceola County industries' location quotients relative to the United States as a whole were assessed, which is the traditional method for assessing the area's industry strengths. The location quotient analysis utilized data at various levels of industry detail. One of the significant limitations of such data is that for certain geographies, detailed data are unavailable due to disclosure privacy concerns. That is, fewer employees in a certain industry sector make it easier to identify a particular employer. This is the case for Osceola County. As a result, this target industry analysis focused on a preliminary selection of industries at the three-digit levels; if additional data were available at the four- or more digit level, we conducted additional research and analysis.

Also, it is important to note that the Location Quotient illustrates an area's existing strengths. As such, it is a snapshot in time, and does not necessarily highlight the potential that could exist with efforts from economic development to target industries; it shows that there is a greater likelihood of attracting these industries, but does not preclude other businesses from locating in Osceola. Many of the industries that have made strides in the County (for example, a cluster of plastics manufacturers) do not register as a matrix strength.

Industry Strength Matrix

The methodology for initial selection of the County's industry strengths hinges on classifying these industries relative to recent and current growth as well as potential for future growth based on available data. Industries were defined according to one of

four categories: Mature, Stable, Potentially Emerging, and Emerging.

Mature Industries are those with low employment growth and low location quotients. These industries may be phasing out of the area, or holding steady in relationship to growth in other industries. Thus, the key strategy for the County Economic Development Department in these industries is focused on retaining and monitoring for dramatic changes, to prevent collateral damage in the event of companies' downsizing or closing.

Stable Industries are those that have low employment growth but high location quotients. They are the backbone of the area's economy in many ways. Again, the County Economic Development Department should focus its efforts on retention and using this strong base to leverage other investment (and to attract other companies) to the County (and to East of Lake Toho).

Potentially Emerging Industries are those with high employment growth but lower location quotients. Industries in this category are often those that the County will target, if qualitative assessments indicate that it is a desirable industry that meets the objectives (and timing) of the County's economic development strategy. Further, growth of potentially emerging industries should not be a "blip," nor conditional on the entry of one or two large firms, nor disproportionate growth generated by the overall low number of employees in that particular industry. For example, if there is an industry with only 10 employees, and that industry gains one employee (making a growth rate of 10%), this is not necessarily a high-growth industry even if that is higher than most industries' annual percentage growth.

Emerging Industries are those with high growth and high location quotients. These are industries with definite possibilities for further development and offer synergies with other industries. However, each industry should be closely examined to determine if the industry fits with the County's economic development strategies. Moreover, in light of recent and near-term national and regional economic trends, including the ongoing recession, the potential to attract an emerging industry must guarantee that it is on a path of future growth.

In addition, the location quotient analysis includes qualitative filtering. For example, retail usually follows household growth and consumer spending patterns. The retail industry has expanded in Osceola County over the past 10 to 15 years as a direct result of the County's significant growth in population and households. It is not, however, necessarily an industry that should be at the top of an economic development wish list nor as a key objective in the County's economic development strategy because retail jobs are typically low-paying. There are other similar nuances noted in the analysis below.

Target Industries in Osceola County

Industry Strengths

To gauge Osceola County's strengths, employment growth and location quotient data from the Bureau of Labor Statistics was assessed. Location quotient data was compared in relation to the U.S. as a whole, which comprise the data most frequently used for target industry analyses. Due to limited data provided for industries at the four-digit level (of the North American Industrial Classification System, or NAICS), primarily three-digit data was assessed. Even at this level, there are many industries for which data were not available. Osceola's strongest industries were evaluated to determine whether they were a state QTI. The strongest QTI industries with data available at the four-digit level were also examined.

To construct the matrix, industries with location quotients above 1.15 as Emerging or Stable and five-year employment growth above 25% to be Potentially-Emerging or Emerging were categorized. These findings are highlighted below and shown in the matrix in Table TA1.2-1.

Depending on the level explored, different strengths emerge. At a less detailed level, at the 2-digit level, Osceola County continues to be strong in Arts, Entertainment, and Recreation and Real Estate Rental and Leasing. However, none of the currently strong industries at the three-digit level show up as emerging or potentially emerging. However, when we examine the

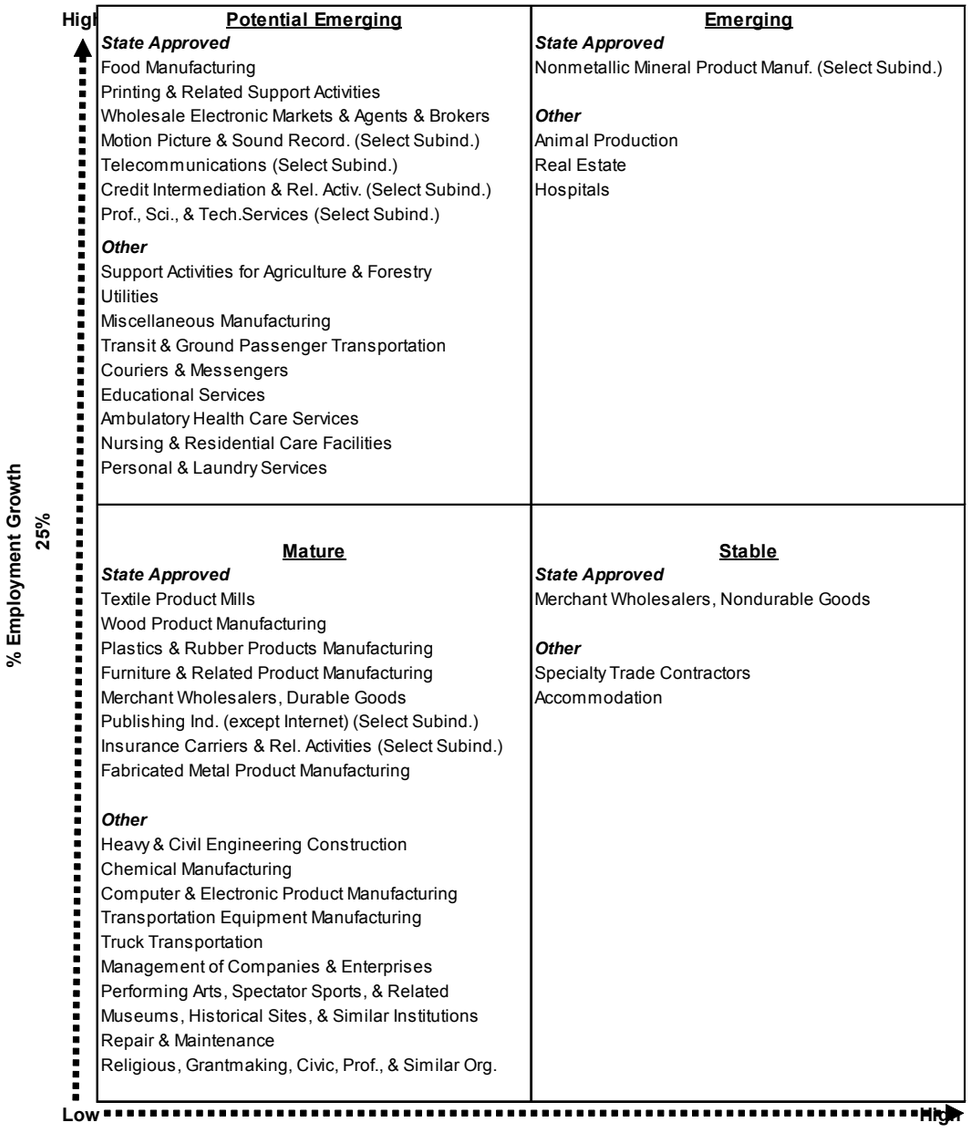
more detailed levels, strength in "Promoters of Performing Arts, Sports, and Similar Events" and "Theater Companies and Dinner Theaters" emerges. This is directly influenced by the proximity of Disney and other nearby major theme parks and attractions and services that cater to regional visitors.

Other industries are those that are directly related to recent growth in Osceola such as residential construction or resident-serving businesses, as evidenced by the next two strongest major industry clusters: Construction and Retail Trade. At the three-digit level, major growth industries within these major clusters (Table TA1.2-2) include: Appliance, Television, and Other Electronics Stores; Building Material and Garden Equipment and Supplies Dealers; Health and Personal Care Stores; Family Clothing Stores; Shoe Stores; Sporting Goods, Hobby, and Musical Instrument Stores; General Merchandise Stores; Office Supplies and Stationery Stores. Continued growth in these industries will be tied to recovery (and demand) in the housing market generated by increasing population growth in the County. While having retail as services for residents and visitors is important, it is primarily the goal of economic development to grow higher-wage jobs which in turn spin off external economic activity. Therefore, these industries were removed from the tables and matrix below.

Another Emerging Industry at the three-digit level is Non-metallic Mineral Product Manufacturing, falls into the Emerging

TABLE TA1.2-2. OSCEOLA COUNTY TOP 3-DIGIT NAICS INDUSTRIES BY LOCATION QUOTIENT

Potential Emerging		**Emerging**
State Approved		***State Approved***
Food Manufacturing		Nonmetallic Mineral Product Manuf. (Select Subind.)
Printing & Related Support Activities		
Wholesale Electronic Markets & Agents & Brokers		***Other***
Motion Picture & Sound Record. (Select Subind.)		Animal Production
Telecommunications (Select Subind.)		Real Estate
Credit Intermediation & Rel. Activ. (Select Subind.)		Hospitals
Prof., Sci., & Tech.Services (Select Subind.)		
Other		
Support Activities for Agriculture & Forestry		
Utilities		
Miscellaneous Manufacturing		
Transit & Ground Passenger Transportation		
Couriers & Messengers		
Educational Services		
Ambulatory Health Care Services		
Nursing & Residential Care Facilities		
Personal & Laundry Services		
Mature		**Stable**
State Approved		***State Approved***
Textile Product Mills		Merchant Wholesalers, Nondurable Goods
Wood Product Manufacturing		
Plastics & Rubber Products Manufacturing		***Other***
Furniture & Related Product Manufacturing		Specialty Trade Contractors
Merchant Wholesalers, Durable Goods		Accommodation
Publishing Ind. (except Internet) (Select Subind.)		
Insurance Carriers & Rel. Activities (Select Subind.)		
Fabricated Metal Product Manufacturing		
Other		
Heavy & Civil Engineering Construction		
Chemical Manufacturing		
Computer & Electronic Product Manufacturing		
Transportation Equipment Manufacturing		
Truck Transportation		
Management of Companies & Enterprises		
Performing Arts, Spectator Sports, & Related		
Museums, Historical Sites, & Similar Institutions		
Repair & Maintenance		
Religious, Grantmaking, Civic, Prof., & Similar Org.		



Potential Emerging	Growth more than 25%; LQ less than 1.15
Mature	Growth less than 25%; LQ less than 1.15
Emerging	Growth more than 25%; LQ more than 1.15
Stable	Growth less than 25%; LQ more than 1.15

Note: Certain population-dependent industries such as retail removed. Employment Data for Osceola County is unavailable for the following identified 3-digit State Targeted Industries:
Beverage & Tobacco Product Manuf.; Textile Mills; Apparel Manuf.; Leather & Allied Product Manuf.; Paper Manuf.; Electical Equip., Appliance, & Component Manuf.; Data Processing, Hosting & Related Services; Securities, Commodity Contracts, and Other Financial Investments & Related Activities; and Funds, Trusts, and Other Financial Vehicles.

Source: Bureau of Labor Statistics QCEW, 2008; Economics Research Associates, 2009.

Industry cluster at the three-digit level. However, there were only 337 jobs in this category in 2007. According to data provided by Info USA, County employers in this category include: Joelson Concrete Pipe Company, American Pavers, Florida Rock Industries, Mark's Custom Kits, Rinker Materials Corporation, Chart's Fiberglass, St. Cloud International Tile, Inc, and Spray Bottles Inc.

At the four-digit level (Table TA1.2-3), the industry with the strongest "Emerging" potential is Data Processing, Hosting, and Related Services, which is a state QTI. Other "Emerging" industries at the four-digit level include Promoters of Performing Arts, Sports and Similar Events and Performing Arts Groups. Additionally, there are many industries which are related to recent population growth.

There are also several "Potentially Emerging" industries at the four-digit level which are on the state QTI list. These include: Other Financial Investment Activities; Printing and Related Support Activities; Lumber and Other Construction Materials Merchant Wholesalers; Miscellaneous Nondurable Goods Merchant Wholesalers; and Wholesale Electronic Markets and Agents and Brokers.

TABLE TA1.2-3. OSCEOLA COUNTY TOP 4-DIGIT NAICS INDUSTRIES BY LOCATION QUOTIENT

Emerging Industries

NAICS	Industry	LQ	Emp % Growth
5182	Data Processing, Hosting, & Related Services	1.83	2450%
7113	Promoters of Performing Arts/Sports/Similar Events	2.60	1278%
4922	Local Messengers & Local Delivery	1.41	483%
8129	Other Personal Services	1.64	232%
5617	Services to Buildings & Dwellings	2.15	116%
1121	Cattle Ranching & Farming	2.28	70%
2383	Building Finishing Contractors	1.44	55%
2389	Other Specialty Trade Contractors	2.93	54%
7111	Performing Arts Companies	7.03	45%
6211	Offices of Physicians	1.33	39%
6231	Nursing Care Facilities	1.65	37%
5311	Lessors of Real Estate	1.23	28%
4412	Other Motor Vehicle Dealers	1.34	27%
5312	Offices of Real Estate Agents & Brokers	6.30	27%
5313	Activities Related to Real Estate	2.79	25%

Potential Emerging Industries

NAICS	Industry	LQ	Emp % Growth
5239	Other Financial Investment Activities	1.02	555%
3231	Printing & Related Support Activities	0.83	72%
4233	Lumber & Other Construction Mat. Merchant Wholesalers	0.91	68%
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	0.60	36%
4251	Wholesale Electronic Markets & Agents & Brokers	0.31	25%
5172	Wireless Telecommunications Carriers (except Satellite)	0.68	943%
5613	Employment Services	0.49	528%
5324	Commercial & Ind. Machinery & Equip. Rental & Leasing	0.85	480%
6215	Medical & Diagnostic Laboratories	0.61	312%
5616	Investigation & Security Services	0.67	135%
5614	Business Support Services	0.52	133%
4853	Taxi & Limousine Service	0.83	129%
3327	Machine Shops/Turned Prod./Screw, Nut, & Bolt Manuf.	0.05	125%
8112	Electronic & Precision Equipment Repair & Maintenance	0.36	122%
6214	Outpatient Care Centers	0.59	108%
5415	Computer Systems Design & Related Services	0.26	70%
6213	Offices of Other Health Practitioners	0.66	55%
5221	Depository Credit Intermediation	0.59	42%
5412	Accounting/Tax Prep./Bookkeeping/Payroll Serv.	0.60	40%
5419	Other Prof., Sci., & Tech. Services	0.92	38%
8131	Religious Organizations	0.55	31%
6116	Other Schools & Instruction	0.57	31%
6212	Offices of Dentists	0.94	31%
8134	Civic & Social Organizations	0.15	26%

Note: State Qualified Target Industries (QTI) are highlighted

Source: Bureau of Labor Statistics QCEW, 2008; Economics Research Associates, 2009.

Location of Current QTI Businesses

Business information for establishments meeting the industry criteria of the QTI was mapped. These businesses might not qualify based on other qualifying factors for specific grants. This exercise was to illustrate where these businesses concentrated. The maps illustrate that establishments on the QTI that have located in Osceola County are small and scattered. The increase in employment has likely been from individual new establishments and incremental increases—not large-scale addition of employment.

Mapping the concentration of industries per zip code (Figure TA1.2-1) illustrates that a high concentration of targeted industries are located in the northern part of the metro area. Osceola County must be poised to accept growth in these industries when it happens, and to actively pursue them with incentives when possible.

Potential Target Industries in Osceola County

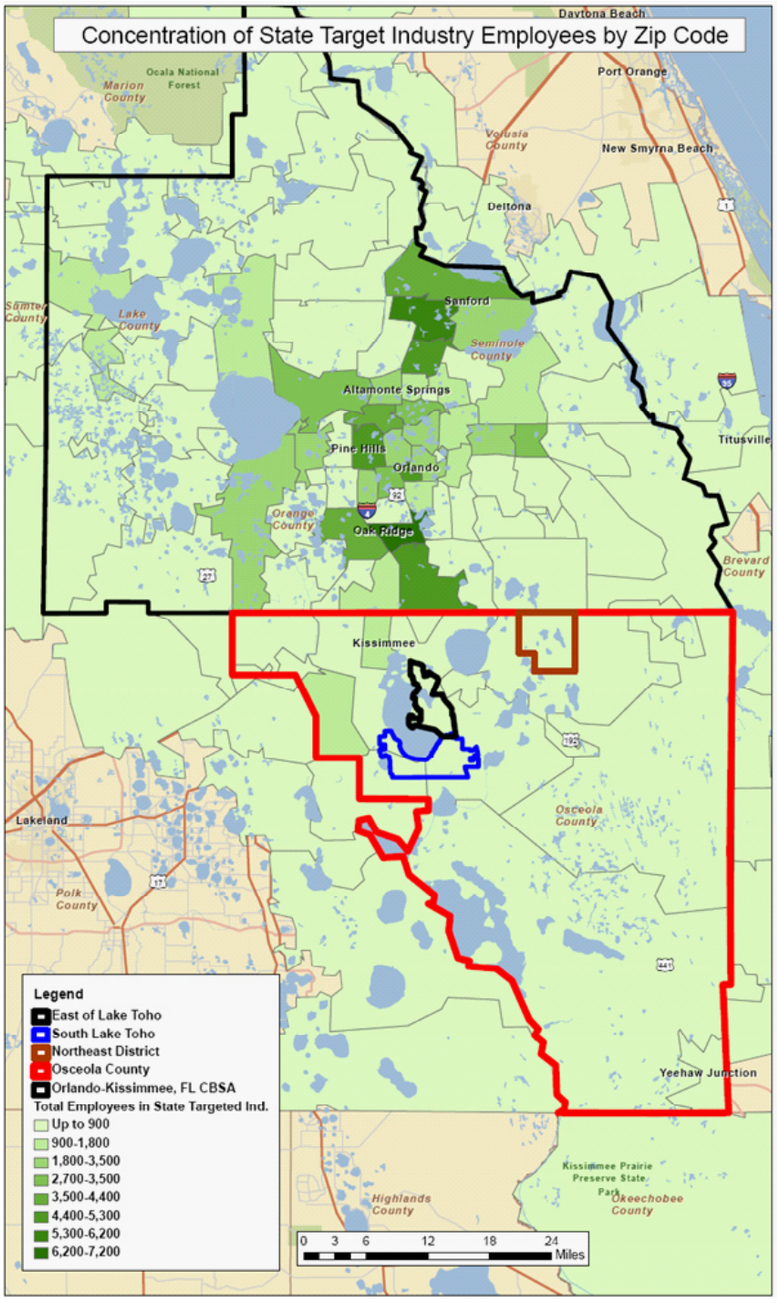
Based upon the analysis of Osceola's current strengths as measured with the location quotient and employment growth and the SWOT analysis, the key industry sectors with potential in Osceola County that are also on state QTI list shown in Table TA1.2-4 (grouped by major type) are:

Table TA1.2-4. Osceola County State Targeted Industries by Qualification

NAICS	Industry	LQ	Emp Growth
Emerging			
522298	All Other Non-depository Credit Intermediation	2.52	114%
42493	Flower, Nursery Stock, & Florists' Supplies Merchant Wholesalers	2.42	59%
42391	Sporting & Recreational Goods & Supplies Merchant Wholesalers	2.07	135%
5182	Data Processing, Hosting, & Related Services	1.83	2450%
Potential Emerging			
5239	Other Financial Investment Activities	1.02	555%
4233	Lumber & Other Construction Materials Merchant Wholesalers	0.91	68%
32311	Printing	0.89	72%
3231	Printing & Related Support Activities	0.83	72%
323114	Quick Printing	0.81	145%
541611	Administrative Mgt. & General Mgt. Consulting Services	0.71	407%
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	0.60	36%
54161	Mgt. Consulting Services	0.52	25%
42361	Electrical App./Equip./Wiring Suppl./Rel. Equip. Merchant Wholeslr.	0.50	71%
425	Wholesale Electronic Markets & Agents & Brokers	0.31	25%
541512	Computer Systems Design Services	0.30	126%
42343	Computer/Peripheral Equip. & Software Merchant Wholesl.	0.22	38%
311	Food Manufacturing	0.17	36%
Stable			
4244	Grocery & Related Product Merchant Wholesalers	3.34	5%
42373	Warm Air Heating/Air-Cond. Equip. & Supplies Merchant Wholesl.	1.36	22%
Mature			
56145	Credit Bureaus	0.85	-23%
42	Wholesale Trade	0.71	13%
52229	Other Non-depository Credit Intermediation	0.67	-11%
42499	Other Miscellaneous Nondurable Goods Merchant Wholesalers	0.65	11%
541613	Marketing Consulting Services	0.64	-56%
4237	Hardware, & Plumbing & Heating Equip. & Supplies Merchant Wholesl.	0.60	17%
5222	Non-depository Credit Intermediation	0.48	-5%
5416	Mgt., Scientific, & Technical Consulting Services	0.47	22%
42382	Farm & Garden Machinery & Equip. Merchant Wholesalers	0.44	-17%
4239	Miscellaneous Durable Goods Merchant Wholesalers	0.42	-52%
3261	Plastics Product Manuf.	0.42	-35%
321	Wood Product Manuf.	0.41	-49%
541618	Other Mgt. Consulting Services	0.40	5%
522292	Real Estate Credit	0.34	-68%
326	Plastics & Rubber Products Manuf.	0.34	-35%
42332	Brick, Stone, & Rel. Construction Material Merchant Wholesl.	0.31	-9%
4231	Motor Vehicle & Motor Vehicle Parts & Supplies Merchant Wholsl.	0.31	-5%
423	Merchant Wholesalers, Durable Goods	0.30	-3%
42372	Plumbing & Heating Equip. & Supplies (Hydronics) Merchant Wholesl.	0.18	-25%
42345	Medical/Dental/Hospital Equip. & Supplies Merchant Wholesl.	0.17	13%
4243	Apparel, Piece Goods, & Notions Merchant Wholesalers	0.16	-24%
4234	Prof. & Commercial Equip. & Supplies Merchant Wholesl	0.15	13%
337	Furniture & Related Product Manuf.	0.15	-3%
524126	Direct Property & Casualty Insurance Carriers	0.13	3%
4238	Machinery, Equip., & Supplies Merchant Wholesalers	0.10	-53%
5241	Insurance Carriers	0.08	13%
42383	Industrial Machinery & Equip. Merchant Wholesalers	0.07	-56%

Source: Bureau of Labor Statistics QCEW, 2008; Economics Research Associates, 2009.

Figure TA1.2-1. Concentration of State Target Industry Employees by Zip Code



Specialized Manufacturing and Light Industry

- Nonmetallic Mineral Product Manufacturing (Select Sub-industries), Emerging: the state QTI included sub-industry is "Ultra High Purity Silicon Manufacturing." This is NOT where Osceola currently has the greatest number of establishments. However, it is still one of Osceola's industry strengths and suggestion that there is greater potential for development.
- Food Manufacturing, Potential Emerging: this is a strong industry in employment growth, and potential could exist for future development. This would have a positive tie with any supply chain strengths (explored later in this document).
- Printing and Related Support Activities, Potential Emerging: this is an industry that would work particularly well in transitioning employment areas, since it is a light manufacturing tenant who can be accommodated in flex space.

Motion Picture Production and Entertainment Services

- Motion Picture and Sound Recording Industries (Select Sub-industries), Potential Emerging: the sub-industries included are non-temporary (i.e. not "on location" filming) production, postproduction services, and integrated record production/distribution. With proximity to Disney and with a regional emphasis on attracting development in this industry, this is a positive new industry to attract for the County.

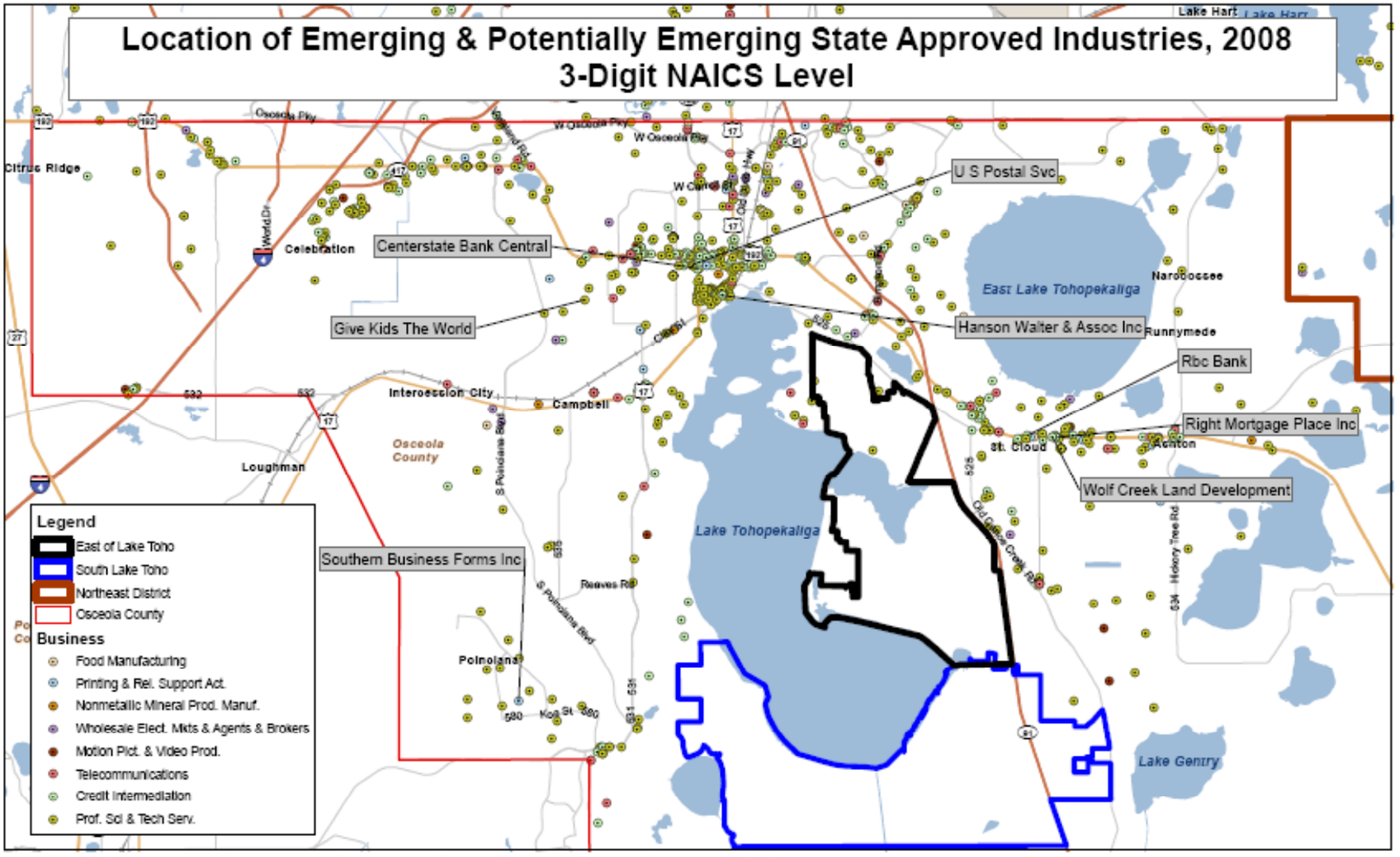


FIGURE TA1.2-2. LOCATION OF EMERGING AND POTENTIALLY EMERGING STATE APPROVED INDUSTRIES, 2008

Wholesale Trade/Supply Chain

- Merchant Wholesalers, Nondurable Goods, Stable: Though classified as a "stable" industry, This industry was included as a potential target because of its applicability to the County and relationship to other target industries. Cultivating it could also be a gateway for other supply chain technology development.

Professional Services and Technology

- Wholesale Electronic Markets and Agents and Brokers, Potential Emerging: This is another industry that relates to the supply chain, an industry strength in the County. It is a relatively high wage industry, with potential for future expansion, as employment growth in the County has represented. This is included in the "professional services and technology" grouping because it is not as likely to need large warehouse space (though clients of this industry do).

- Telecommunications (Select Sub-industries), Potential Emerging: The sub-industry included in the state QTI includes Satellite Communications. At the 4-digit level, strength in Osceola is shown primarily in non-satellite category. So, emphasis should be on attracting talent and establishments in that area in particular.
- Credit Intermediation and Related Activities (Select Sub-industries), Potential Emerging: The included sub-industry is "Non-depository Credit Institutions," which includes Credit Card Issuing, Sales Financing, Consumer Lending, International Trade Financing, and Secondary Market Financing. There is not available data at this level for Osceola. The three digit sector, at which Osceola shows strength, includes all financial depository and non-depository credit establishments. A note of caution: the included QTI industry (NAICS code 5222) includes establishments such as pawn shops. 5223 includes check cashing services.
- Professional, Scientific, and Technical Services (Select Sub-industries), Potential Emerging: This category includes a wide range of activities. Those included in the state QTI are computer programming/software development, computer system design, management, scientific, and technical services, research & development, scientific and technical consulting services, simulation training, and testing laboratories. Detailed data is not available for all sub-industries for Osceola, particularly back to 2003 (and therefore, unable to be classified). However, those showing the greatest location quotient are computer systems design (which would likely qualify as a QTI), landscape architecture, management consulting, drafting services, and tax preparation. Scientific Research and Development Services has a location quotient of 0.06—therefore, the County only has a slightly greater concentration than the U.S. as a whole. However, most of the employment in these industries is high wage, and development is less dependent on "silver bullet" attraction of a large employer and more on small business development and homegrown cultivation, meaning that these industries could be attracted and grown with only minor intervention.
- Telephone Call Centers: This is a Potential Emerging industry, as classified at the five-digit level.

Other related industries could also potentially be developed in conjunction with the industry strengths Osceola shows in these industries. For example, while data is not available for Plastics Manufacturing, it is known that this is an area in which Osceola excels. This would be compatible with the Specialized Manufacturing and Supply Chain cluster of target industries.

Site & Locational Considerations

There are fundamental locational characteristics and criteria that businesses require when locating to a new site. Every company considers multiple factors, but industries vary where they place the greatest weight. In many cases, the decision lies with factors that are inherent to an area and may not necessarily be affected by the availability of economic or financial incentives. Where the County Economic Development Department can have the greatest impact is in creating awareness among the business community and when a site selector has narrowed the decision to the regional level, thus ensuring that there are no unreasonable barriers in place; if there are, economic or financial incentives can be provided to overcome these barriers.

Market and preliminary target industry analyses for the East of Lake Toho Conceptual Master Plan are not intended to examine the depth and breadth of economic incentives available in Osceola County. Instead, our study is intended to examine the key location decision factors of target industries, and to advise Osceola County on how the Conceptual Master Plan can best address future development potentials in East of Lake Toho so that the planning area is competitively positioned to meet key location criteria as well as objectives identified by the Economic Development Department in its economic development strategies.

For each of the four key industry sectors that have potential in Osceola County, relevant

information was assembled informing site and locational considerations, including: general industry overviews; industry success factors and requirements (such as land use, labor, and incentives); and the competitive position of Osceola County as it relates to these factors and site and locational considerations for East of Lake Toho.

Specialized Manufacturing & Light Industry

Industry Overview

Specialized manufacturing can be contained within traditional manufacturing industry sectors; it can also contain employment from other, non-manufacturing sector industries. These could include, for example, research and engineering/design jobs involved in designing high-tech products. Specialized manufacturing can be focused on medical equipment design, fiber-optics, computer components and equipment, containers of various materials, aerospace and military products, as well as multiple other products.

Included were industries which support the distribution of products as part of Specialized/Advanced Manufacturing, as one key locational attribute of the manufacturing industry is the need for to easily and efficiently move goods. Osceola County has obvious key strengths in transportation (because of its excellent highway network and central regional location) and warehousing, and this strength is a keen advantage to manufacturers. Based on the preliminary target industry analysis, there appear to be opportunities to expand this focus in conjunction with the development of a cluster of advanced manufacturers.

In addition, the nature of transportation of goods and materials is also changing. Technological changes are producing more efficient inventory storage at lower costs, resulting in reduced need for excess warehouse space. Further, retail store sales and inventories are linked directly to warehouse inventories; in turn, alerts to slow or increase production and/or transport have produced just-in-time deliveries, and recent increases and fluctuations in fuel costs are contributing to the critical need for access to alternative modes of transport (such as heavy rail), and for localized distribution centers which are convenient to key markets.

Industry Success Factors & Major Requirements

Land Use

Manufacturing in the United States today typically requires less physical space than it did during its heyday in the 20th century. Products are often components of other products manufactured elsewhere (including many off-shore), and are assembled using complex machinery which does more with less space. Of course, while some manufacturing industries will continue to require large tracts of land (such as the automobile industry), the clear direction is toward less investment in real property and greater investment in technology, including an emphasis on research and development. As such, proximity to institutions of higher learning is crucial as a means of fostering start-up firms in specialized manufacturing and distribution.

Often, firms producing small computer components or digital technology will start up in small, incubator space—sometimes even the founder's basement. These concerns may also utilize industrial-flex buildings which provide them front-end office/administrative space to meet with customers and back-end space to produce and store products with a loading dock accessible for distribution. Therefore, from a land use perspective, the availability of a range of space/buildings to accommodate such uses is key for retention of such operations. If the company expands and there is not adequate land or building availability, it could seek alternative locations.

Labor

Technological advances have increased productivity and have changed the face of manufacturing employment. Often, factories resemble computer or scientific labs as much as assembly lines. Advanced manufacturing requires a different skill set, including computer literacy and problem-solving, and mathematic and technical design skills. The complexity of modern manufacturing requires those with technical backgrounds for high-level design decisions that take place in research and development

departments of such companies. These include materials engineers, mechanical engineers, computer scientists, IT professionals, scientists and others with college degrees or higher education. In addition, for production of materials, skilled labor is needed for operations, which frequently necessitates ongoing job training. Some areas have high school level curricula to train students for careers in today's manufacturing industry, while others have community college programs oriented to advanced-manufacturing training.

Some of these skills are also needed in the distribution industries; however, this industry continues to require a stream of less expensive labor for driving, loading and unloading trucks; stacking pallets; and other manual labor.

Tools, Resources & Incentives

Major resources and incentives to attract advanced manufacturing include tax reduction measures for both new start-up companies and company relocation and expansion. Some of these incentives are in-place in Osceola County and should continue to be marketed by the Economic Development Department to new companies as well as emphasized within key industries in the region and state. The existence of knowledge transfer programs to cultivate new business are also key, so the creation of a local association should be focused on enhancing a more fertile environment to foster additional development of such programs. Such an association can contain economic development officials, educators, and company executives.

Maintaining contacts with specific departments and programs that specialize in technology at the university level will ensure that the research that happens at such institutions filters down to the company level in an effective way. For example:

The University of Central Florida's College of Engineering and Science's programs in computer engineering, computer science, and electrical engineering graduate nearly 1,000 engineers and computer scientists annually, creating a pool of knowledge workers for the advanced manufacturing industry each year

Valencia Community College also has the capability to enhance educational opportunities with its Associate of Science Degree program emphasizing micro-electronic manufacturing

Note that County officials should explore options to locate a satellite location in Osceola of the University of Central Florida to enhance the County's education options as well as enhance existing programs at Valencia Community College, as job training incentives for existing employers and emphasis of community-based training initiatives will enable companies to know that a willing and able workforce exists in Osceola County (and the larger region).

Competitive Position of Osceola County

Osceola County already has a cluster of major manufacturers, particularly in the plastics industry. This gives the County a firm foundation upon which to build the industry. Moving into more technical manufacturing would be a key step to maintaining the manufacturing sector as an industry in the County. Those places with heavy "old-fashioned" manufacturing are those incurring the greatest job losses in the manufacturing sector year after year. Other positive attributes for Osceola County include excellent access to multiple transportation options, with freight rail lines and inland ports accessible and an excellent interstate highway network through the County. As noted in the market analysis, there is also ample land available to accommodate new industrial development, including sufficient land to accommodate up to 10 million square feet of new industrial space in the Poinciana Industrial Park, and in several DRIs.

Lower wage rates in Osceola County are also attractive, particularly for companies needing a greater number of employees or those that experience high turnover. However, the need for lower-wage workers needs to be balanced with a ready workforce offering greater skills and high levels of education. While the lower level of educational attainment of County residents is not necessarily a detriment, skills education and continuing skills training needs to be emphasized and balanced against the lower wage rates in the County today.

East of Lake Toho Site/Locational Considerations

The appropriateness of large-scale manufacturing would need to be evaluated on a case by case basis for East of Lake Toho. As of now, much of the land programmed within DRIs does not include industrial space. Additionally, specific location criteria—such as minimum site size, environmental/buffer considerations, the provision of ample land for future expansion, utility requirements (including electric, water and sewer) vary by tenant/user and would need to be individually considered in any recruitment efforts by the Economic Development Department and the County I Do Team.

Despite the current relative lack of industrial space (or indicated large-scale demand), it is recommended that multiple sites (ranging in size from 25 to 100 acres or more) be identified in specific locations of East of Lake Toho and set aside to accommodate future economic development initiatives in these specific sectors, most likely for a particular user. While a precise number of sites cannot be identified at this time, it is suggested that three to five sites ranging in size from 25 to 100 acres each be identified for this purpose.

Motion Picture Production and Entertainment Services

Industry Overview

Businesses in the Motion Picture & Sound Recording Industries sub-sector (NAICS 512) include establishments involved in the production and distribution of motion pictures and sound recordings. In addition to motion pictures, this industry also includes production of product for television broadcasting. Many additional occupations, such as voiceover recording for cinema, television and radio may also be included. Production is typically a complex process that involves several distinct types of establishments that are engaged in activities, such as contracting with performers, creating the film or sound content, and providing technical, post-production services. Film distribution is often to exhibitors, such as theaters and broadcasters, rather than through the wholesale and retail distribution chain, although some product is distributed directly to video and not through exhibitors.

In the U.S., several large studios continue to dominate the industry for feature films and recorded television programs. Cable television, digital video recorders, computer graphics and editing software, and the Internet have fostered growth among small and medium-sized independent filmmaking companies. In addition to producing feature films and filmed television programs, the industry produces made-for-television movies, music videos, and commercials. Post-production services to the motion picture industry include such activities as editing, film and tape transfers, titling and sub-titling, credits, closed captioning, computer-produced graphics, and animation and special effects. Some motion picture and video companies produce films for limited, or specialized, audiences. Among these films are documentaries and educational films.

Filmmaking is a high-risk industry with few films actually seeing wide release or making a full return on their investment from domestic box office revenues. Increasingly, filmmaking companies rely on profits from other markets, such as broadcast and cable television, videocassette and DVD sales and rentals, and foreign distribution to generate necessary return-on-investment (ROI). Cost pressures have reduced the number of film production companies to seven major studios, which produce most of the filmed television programs and movies released nationally. Small and independent filmmakers often find it difficult to finance new productions and pay for a film's distribution because they must compete with large motion picture production companies for talent and available movie screens. However, digital technology is lowering production costs for some small-budget films, enabling more independents to succeed in getting their films released nationally.

Studios and production companies are typically responsible for financing, producing, publicizing and distributing films and programs. Independent companies and contractors hired by the studios on a film-by-film basis usually do filmmaking. Services involved in making a

film may include equipment rental, lighting, special effects, set construction, and costume design. Individuals contracted for specific services will perform creative and technical services. The industry also contracts with other industries that supply support services to film crews, such as truck drivers, caterers, electricians, and makeup artists.

Most motion pictures are still made on film; however, digital technology and computer-generated imaging are rapidly becoming a standard in the industry. Digital technology also makes it possible to create special affects that otherwise would be too costly or impossible to recreate using actual sets or performers. Digital-effects studios may be located wherever talent and skills are available. Digital distribution of movies to theaters through the use of satellites or fiber-optic cable is increasing and is further decentralizing the industry. As a result, the costs associated with producing and distributing bulky films are likely to be sharply reduced.

Many in the film industry are self-employed, selling their services on a per-production basis. Competition for these jobs is intense, and many employees are unable to earn a living solely from freelance work. University and college-level film schools as well as technical education in film production crafts provide a steady supply of workers for technical positions.

Film & Entertainment Services in Osceola County & Orlando

The state of Florida (and Orlando in particular) has significant strength in the film and entertainment industry. Key facts of the industry's impact in the region are highlighted below:

- Statewide, the industry's impact increased from nearly $27 billion in 2003 to $29 billion in 2007, generating annual taxes of $500 million, an increase of 5.5% over 2003.
- Florida is ranked as a "Top 10 Places for Film Production in the U.S." by P3/Production Update magazine and the Orlando metropolitan area is ranked in the top five "Cities for Moviemakers" by Movie-Maker Magazine.
- Over the past 17 years, the film industry in metropolitan Orlando has jumped from $2.5 million to $845.5 million in annual production.
- Metropolitan Orlando has close to 400 production companies with over 2,000 employees, and 10 soundstages, ensuring that Orlando is one of the largest film production centers outside of New York or Los Angeles.
- Between 1995 and 2001, the metropolitan area generated more than 90% of all digital media-related venture capital investment, totaling over $70 million. (Digital media extends beyond traditional films to provide new technologies for a variety of fields, including: modeling and simulation for military training, video game design, and theme park ride design. One example is a local media production firm selected by NASA to produce a kiosk using 3D Flash animation and video for use at the Kennedy Space Center and tradeshows).
- Metropolitan Orlando is also home to a variety of educational institutions centered on film and media education, including: Full Sail, University of Central Florida, and Valencia Community College, and Orlando Tech and the Orange County Public Schools offer adult education for employment in the television industry.

Tools, Resources & Incentives

- The State of Florida offers several incentives designed to encourage filmmakers to use sites in Florida. Beginning in 2007, Florida has offered a cash reimbursement (not a tax credit) based on the amount expended on a "first come, first served" basis.
  - Films, television, and music videos with qualified expenditures of at least $625,000 may be eligible for a 15 to 22% rebate.
  - Multiple commercials and music videos with $500,000 or more in combined qualified expenditures and with a minimum of $100,000 in qualified expenditures per production may be eligible for a 15 to 20% rebate.
  - Indie Florida feature films or documentaries 70 minutes or longer with qualified expenditures of $100,000 to $625,000 may be eligible for a 15 to 17% rebate.

  - Digital media projects may be eligible for a 10% rebate on qualified expenditures.
- Florida also offers tax exemption on sales and use tax on the purchase or lease of items used exclusively as a part of production activities in Florida. In addition, the state offers exemptions on the sale or lease of motion picture, video, and sound equipment; the lease of real property for production; labor for production; and artistic or copyright materials on master tapes, master films, master records, and master video tapes.
- The local Metropolitan Orlando Film & Entertainment Commission assists in permitting by acting as a liaison between production companies and city, county and state services. The commission also assists in securing arrangements for other services such as traffic and fire services provided by the local municipalities. The Commission also produces the Orlando Filmbook, which provides guidance on the production industry in the region, and maintains a web site with links to available locations, staff, and other resources.

Competitive Position of Osceola County

The significant strengths in film production and digital media as well as the entertainment industry in general provide the metropolitan area (and Osceola by extension) sizable opportunities to expand this industry cluster. With regard to Osceola County (and East of Lake Toho), facilities required for motion picture and television production vary in size and amenities depending upon the specific aspect of pre-production, production or post-production activity. Generally, facility and locational considerations for production sound stages include the following:

- Production sound stages may range from 7,000 square feet up to 35,000 square feet (or more) with ceiling clearance from 15 ft. (minimum) to 40 ft. (ideal) clear span.
- Class "B" industrial space is typically used for stages. Most studios provide a variety of sizes of stage buildings for rental, providing greater flexibility and competitive fee structure. Additional space is needed for production offices, warehouses for storage of sets, costumes, equipment and props.
- Large set construction facilities are needed near sound stages. The structures should be alarmed and sound insulated, with loading bays and lighting grids. Sound stage lots should have 24-hour security.

East of Lake Toho Site/Locational Considerations

- These locational criteria suggest that lower-cost warehousing and distribution buildings or industrial park locations with ample opportunity to accommodate horizontal requirements (such as that required to build large construction sets) could serve the functional requirements of the film and entertainment services industry.
- Film and entertainment industry clusters could best be accommodated in areas zoned for such use, such as the Poinciana Industrial Park, or at other, smaller industrial parks elsewhere in the County providing proximity to Orange County.
- For East of Lake Toho, while such (price-sensitive) uses may not be appropriate for high-value parcels or locations adjacent to the Florida Turnpike that provide excellent visibility or direct access that are identified for commercial use, lower-cost parcels without direct access or frontage could be appropriate.
- On the other hand, specialty or niche sectors within this cluster, such as sound recording studios, require facilities with specific fitout requirements, such as soundproofing, higher-quality finishes and design, and the like. Such higher-quality facilities may generate higher rents/values and, as such, could be appropriately located in areas of East of Lake Toho with stronger amenities such as views, proximity to a pedestrian-scale business district, etc.

Wholesale Trade and Supply Chain Services

Industry Overview

Related to the creation of new goods is their effective transport to consumers, and warehousing, trucking, transportation, and delivery services are key components in bringing merchandise goods and materials to market. This industry includes a variety of components, such as third-party logistics, trucking, warehousing, manufacturing/assembly, and inventory tracking—as well as the development of

technologies that optimize these tasks. To successfully integrate these components, the warehousing and supply chain sectors require a variety of labor skill sets ranging from engineers to manual labor.

Industry Success Factors & Major Requirements

Land Use

Like manufacturing, warehousing and transportation has undergone significant improvements and changes in process. The needs of the industry, though similar to years past, have evolved to become more sophisticated. Businesses balance a multitude of factors, including: access to the greatest number of customers and potential customers (or in the case of specific retailers, to their retail outlets); well-connected transportation networks; available infrastructure/utilities; proximity to qualified labor (and its associated costs); economic incentives; and, taking these into account, the appropriateness of available sites.

Transportation is one of the largest cost-dependent factors in this industry, and so efficient access to transportation networks and customers on those networks is of primary importance. While labor costs have always been paramount, long-term increases in fuel and transport costs, which subsequently impact utility costs, are becoming increasingly important criteria in site location and land use decisions in these industry sectors.

Labor

Although these industry sectors typically use less-educated workers, a well-trained workforce is necessary to increase efficiency and productivity gains; notably, advances in logistics have necessitated training beyond basic education. While large regional distribution centers (such as Lowe's in Osceola County) can employ 500 or more, many are viable operating with a significantly smaller workforce as a result of increasing technological efficiencies.

Moreover, "material handling" jobs have changed to include technically-demanding positions focused on systems operations. Even with technological advances, the warehousing industry still typically seeks a pool of relatively low-skilled labor. Many of these operations have relatively high turnover (of 20% or more); therefore, the regional labor pool must be sufficiently large to support a company's ongoing hiring needs.

A large supply of lower-skilled employees needs to be supplemented by effective training. Because labor is often such a large expense for such operations, particularly at a new facility, if a municipality or state can provide specialized training and other incentives, it can be a key asset in the economic development arsenal to attract these firms.

Tools, Resources & Incentives

In addition to training incentives, there are a host of other potential incentives that can be identified for a company through a site selection process. They include ad valorem tax abatements, corporate income tax credits, sales/use tax exemptions, land acquisition, site improvements, facility financing, relocation assistance, infrastructure assistance, hiring assistance, power reliability, and several others.

In addition, any improvements in transportation infrastructure which can reduce time and enhance networking are also key advantages. The easy movement of goods is very critical to this industry (more so than others), and enhancements to the speed and ease of transport are attractive elements when corporations are making site location decisions.

In Florida, the primary incentives offered include Enterprise Zone employee tax credits and other applicable incentives identified in the state EZ legislation. In addition, companies can take advantage of Florida High Tech Corridor Council Matching Grants, if applicable. Osceola County successfully employed several of its available incentives through its I Do team to attract a Lowe's Home Improvement regional distribution center. These incentives included:

- County support of $1.06 million toward impact and permitting fees, plus $360,000 if Lowe's reaches specific

employment goals of 600 jobs at more than $26,000 per year
- State economic development funds of $1.4 million for meeting employment and income targets plus another $2 million toward road improvements;
- City support of $300,000 for road upgrades to the site; and
- A $75,000 grant from Progress Energy (formerly known as Florida Power) for road improvements.

Competitive Position of Osceola County

Osceola County and the surrounding metropolitan area have a range of key locational attributes, including an excellent regional transportation network (road, rail, air, and nearby sea transport). The nearby Orlando International Airport (MCO) has ample commercial and air cargo operations, and the airport can accommodate Class 6 aircraft, which enables optimum cargo processing. Osceola is also located within two hours of two major ports: Port Canaveral and Port of Tampa, Florida's largest seaport. Highway access also enables the movement of goods across land, and the regional highway network allows companies coverage of a major portion of Florida within several hours. Notably, trucking in Florida is deregulated, reduced costs by up to 10% below the national average.

Osceola County's transportation assets combine with the availability of affordable land to elevate its overall attractiveness to transportation logistics and warehousing—as evidenced by the recent development of the Lowe's Regional Distribution Center and numerous other companies elsewhere in the County. Notably, the January 2009 edition of Site Selection magazine refers to Orlando as a possible "emerging" logistics hub. This suggests sufficient opportunities for Osceola County to market its locational advantages—including lower land costs—to these industry sectors.

Note that presence in a Foreign Trade Zone (FTZ) is required for large-scale logistics operations. While Osceola County is not currently in a Foreign Trade Zone, FTZ #42, surrounding Orlando International Airport, could provide local companies with some advantages, such as satellite facilities, to take advantage of the tax incentives that are provided within a FTZ. In addition, technology and services firms catering to large operations at the airport or at the nearby seaport in Tampa may present opportunities for Osceola County.

East of Lake Toho Site/Locational Considerations

As a means of jump-starting economic development potentials, Osceola County may want to consider designating some portion of East of Lake Toho for appropriate Federal, state and/or local programs such as a Foreign Trade Zone (FTZ), presuming that East of Lake Toho meets all applicable qualifying criteria. The County Economic Development Department and the I Do Team will be able to determine overall eligibility.

At a minimum, lower land costs, which are attractive for companies in this industry cluster, should be used in the early years of development of East of Lake Toho as a means of marketing/establishing brand identity for workplace uses within the cluster.

Because companies in this cluster are price-sensitive, frontage and visibility may be less critical. However, immediate access to their markets—as provided by the Florida Turnpike—will be required. Site sizes will vary according to owner-user criteria; minimum site sizes ranging from one to 10 acres (or more depending on user criteria); full utilities should be provided; and, roadways should be of sufficient width to provide truck-turning radii and adequate egress to loading docks, and easy-in and easy-out access to the Florida Turnpike.

Professional Services and Technology

Industry Overview

This grouping is not a distinct industry, but rather includes a variety of industries that are both strong in Osceola County and are typically office or flex space users. As detailed above, the industries at the three-digit level with the greatest strength in Osceola that have been included in this category are Wholesale Electronic Markets and Agents and Brokers; Telecommunications; Credit Intermediation and Related Activities; and Professional, Scientific, and Technical Services.

In general, services have been the fastest growing sector in the American economy, as manufacturing has relocated to off-shore locations. While overall manufacturing employment in the US has remained stagnant since the early 1970s, services employment has tripled, indicating that the American employment landscape is changing. Services in general can include education, health, personal services; however, in this case, professional services indicate a relatively high degree of education and the need for support of other local business. While this sector had long been considered immune to the pressures of industries moving overseas, in more recent years, areas of India and China with a highly educated, highly motivated, and lower-wage workforce have managed to compete for some areas that are not dependent on being in one particular geography for their customer base. Most notably, this has included customer support call centers. However, other consulting services have also gone off-shore.

Success Factors & Major Requirements

Land Use

The sub-industries in this category will typically use office or tech/flex space, depending on the tenant. Some of the professional industries—such as law offices or consulting firms—can range from small 1,000 square foot individual practices to large multinational practices requiring multiple floors of multitenant office buildings. The sub-industries that are targeted as part of the QTI in professional services are scientific and technical consulting services, computer programming and software development, computer system design and other technology-based uses. These users are more amenable to either a garden-style technology park, where they can achieve a symbiotic relationship with other similar users, or in flex-tech space, a type of light industrial space that can also accommodate office space. This space may have office space in front with assembly and testing space in back, along with loading bays to load items for shipping or for delivery of materials. This type of space is also likely to need a more visible location than warehousing, but less visible than Class A office.

These industries—with the exception of those companies needing highly technical lab space—are some of the most flexible and mobile. This is both an opportunity and threat. From an economic development perspective, they can be easy to attract and just as easy to lose. The key is to have a strong base and cluster of like companies so that the impact of one individual company is not as severe.

Quality of life is a larger consideration for these companies, because the workforce demands it. Additionally, good telecommunications infrastructure (e.g., high speed internet) is critical.

Labor

This category of employment requires access to a workforce that is young and highly educated, particularly for the more technical industries. Call centers are more cost sensitive, and depending on the customers they are servicing, do not require advanced education. High tech firms require a stream of available educated workers, and connections with universities and centers of learning to take advantage of an entrepreneurial infrastructure.

Tools, Resources & Incentives

The incentives for firms in professional services and technology are much like that for other industries. However, it could be a question of scale. In many ways, attracting these firms can be “organic” in nature, and consist more of providing cost-effective site location and providing small business assistance so that the firms can develop, flourish, and stay in Osceola County. Some tools that could be effective and areas to highlight in marketing to these firms:

- Specialized workforce training and recruitment
- Ties with educational institutions for ongoing staff development and technology transfer
- Ad valorem, corporate, and sales/use tax relief
- Assistance with land acquisition, site improvements, facility financing, infrastructure improvement
- Enhanced telecommunications infrastructure
- A continuity of space needs (from small to large) for future expansion
- Small business assistance
- Specialized marketing information: succinct data to assist firms in making their location choices in a cost-efficient manner

If the company qualifies, it could be eligible for Florida Enterprise Zone employee tax credits and other applicable incentives identified in the state EZ legislation. In addition, companies can take advantage of Florida High Tech Corridor Council Matching Grants, if applicable.

Competitive Position of Osceola County

Osceola County has many positive quality of life benefits that can be important in attractive a workforce. However, the County's primary weakness for future development of this industry group is a workforce consisting of a lower educational attainment. The County's image as a "budget" location—for everything from tourism to housing—hinders its development as a premier location for professional office space. This is not permanent. Efforts to enhance quality of life and to make the existing quality of life assets known to the regional population as well as potential new incoming employers is key, as well as development of the existing workforce's capabilities. Lower-wage workers can be an asset for some industries that are price competitive; this is true of call centers. When targeting this sub-industry, the goal should be to attract "incoming" calls (i.e. customer care centers) versus "outgoing" (i.e. telemarketing) call centers—the latter typically offers lower wages.

East of Lake Toho Site/Locational Considerations

The East of Lake Toho area is more "tied in" to the greater Orlando area's centers of employment than South Lake Toho. For future development, accessibility and visibility, as for most industries, is key, particularly for those specific sub-industries which benefit from proximity to their client base. This is true of many technical consulting firms that may need to be visible to larger tech firms elsewhere in the area.

Beyond those primary concerns, space should be allowed for both start-up professional firms and for the companies to expand as they grow. Creating clusters of similar users will create the type of "creative" environment required as well as enhancing the businesses' marketability. Emphasis on quality of life amenities is also of importance. New development should maximize the positive assets of Osceola County and the area and act as a branding mechanism for the types of desired economic development.

General & Limiting Conditions

Every reasonable effort has been made to ensure that the data contained in this report are accurate as of the date of this study; however, factors exist that are outside the control of Economics Research Associates, an AECOM company (ERA) and that may affect the estimates and/or projections noted herein. This study is based on estimates, assumptions and other information developed by Economics Research Associates from its independent research effort, general knowledge of the industry, and information provided by and consultations with the client and the client's representatives. No responsibility is assumed for inaccuracies in reporting by the client, the client's agent and representatives, or any other data source used in preparing or presenting this study.

This report is based on information that was current as of October 2009 and Economics Research Associates has not undertaken any update of its research effort since such date.

Because future events and circumstances, many of which are not known as of the date of this study, may affect the estimates contained therein, no warranty or representation is made by Economics Research Associates that any of the projected values or results contained in this study will actually be achieved.

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This study is qualified in its entirety by, and should be considered in light of, these limitations, conditions and considerations.

TECHNICAL APPENDIX 02: TRANSPORTATION ANALYSIS

TA2.1. Transportation Analysis

Introduction

Policy 1.1.9 of the County's Future Land Use Element identified specific development intensities for residential, commercial and employment uses for nine mixed-use Lake Toho planning areas. Policy 1.1.10 describes the County's intent to prepare a Conceptual Master Plan for the East of Lake Toho planning area to identify the public facilities needed above and beyond that currently accounted for by the development programs identified in Policy 1.1.9. This report documents the data and analysis to support the development of the transportation facilities associated with the Conceptual Master Plan for the East of Lake Toho planning area.

Proposed Change

The East of Lake Toho planning area represents all of Mixed Use Districts 1 and 2 as described in the County's Comprehensive Plan. Table TA2.1-1, *Existing and Proposed Development Levels*, summarizes the amount of development in the existing Comprehensive Plan 2025 and the amount of development proposed in the East of Lake Toho planning area for 2025. Proposed development levels for build out are also provided, and shown in further detail in Chapter 3, *The Master Plan*.

At build out, the East of Lake Toho planning area is projected to include approximately 33,500 dwelling units with a population of 82,000 residents and 24,700 employees. At this time, a projected year of the build out has not been projected.

Table TA2.1-1. Existing & Proposed Development Levels

Land Use	Existing 2025 Development	Proposed 2025 Development	Proposed Build out Development
Single Family Units	13,425	12,550	18,200
Multi Family Units	8,570	7,340	15,300
Employment (Jobs)	2,035	6,670	24,700
Commercial/Service (SF)	1,284,500	1,670,000	4,900,000
Population	60,670	55,700	82,000

Planning Area

The East of Lake Toho planning area is comprised of five developments of regional impact (DRIs), located along the eastern shoreline of Lake Tohopekaliga (Toho). The five DRIs include Toho Preserve, Tohoqua, Edgewater, Bella Tara and Friar's Cove. The area is bounded at the east by Florida's Turnpike, the west by Lake Toho, the north by Neptune Road and the south by Friar's Cove Road. The planning area will have access to Florida's Turnpike, Neptune Road, Kissimmee Park Road and Friar's Cove Road. Refer to Chapter 2, *Planning Context*, for a more detailed description of the East of Lake Toho planning area.

Existing Conditions

Table TA2.1-2 , *Existing Conditions*, presents the existing conditions for roadway segments in the analysis area of the East of Lake Toho planning area. These conditions are based on the most recently available (year 2009 and year 2008) daily and peak hour directional traffic counts from Osceola County and the Florida Department of Transportation. Level of service (LOS) conditions are based on comparison of the comparison of the peak hour directional volumes to generalized service volumes. Adopted levels of service are identified for roadways within the planning area, along with a determination of whether the existing LOS meets the adopted standard. Based on this analysis, the following roadway segments currently exceed their generalized service volume at the County's adopted LOS standard:

- Cypress Parkway, from Marigold Avenue to Pleasant Hill Road
- Marigold Avenue, from Cypress Parkway to Koa Street
- Narcoossee Road, from US 192 to Orange County
- Neptune Road, from Lakeshore Boulevard to Kissimmee Park Road
- Old Canoe Creek Road, from Kissimmee Park Road to Canoe Creek Road
- Poinciana Boulevard, from Crescent Lakes Way to US 17/92
- Simpson Road, from Boggy Creek Road to US 192-441
- US 192-441, from Shady Lane to Partin Settlement Road
- US 17/92, from Pleasant Hill Road to Penfield Street

The generalized service volumes provide a general assessment of existing operating conditions. However, a more detailed analysis is required to determine if existing roadway conditions actually exceed the adopted LOS standard. Specific operating conditions (both traffic characteristics and intersection laneage) can result in significant increases above the generalized service volumes. Following is an assessment of the above listed deficiencies and a recommended approach for addressing them:

Cypress Parkway, from Marigold Avenue to Pleasant Hill Road. This 4-lane roadway is currently operating at LOS "F" and exceeds its generalized service volume (at LOS "D") by approximately 25%. The 2030 LRTP includes widening from 4 to 6 lanes in the year 2025. A major factor in

the travel demand on this roadway is the lack of alternative routes from Poinciana to the north. The planned construction of Poinciana Parkway will provide an alternate route and will reduce the demand placed on this portion of Cypress Parkway, resulting in acceptable conditions on this roadway.

Marigold Avenue, from Cypress Parkway to Koa Street. This roadway is planned to be improved to 4-lanes as part of the construction of Poinciana Parkway.

Narcoossee Road, from US 192 to Orange County. This roadway is planned to be widened to 4-lanes by 2015 and to 6-lanes by 2020.

Neptune Road, from Lakeshore Boulevard to Kissimmee Park Road. Funds for the planned widening to 4 lanes from Partin Settlement Road to Kissimmee Park Road were recently removed from the Capital Improvement Program (which goes through 2014). This project will likely re-enter the Capital Improvement Program when funds become available. Widening of the portion from Partin Settlement Rd to Lakeshore Boulevard to 4 lanes is anticipated to be complete by 2010.

Old Canoe Creek Road, from Kissimmee Park Road to Canoe Creek Road. Funds for the planned widening to 4-lanes were recently removed from the Capital Improvement Program (which is through 2014). This project will likely re-enter the Capital Program as funds become available.

Poinciana Boulevard, from Crescent Lakes Way to US 17/92. Widening to 4 lanes is currently programmed for construction and is anticipated to be completed in 2011.

Simpson Road, from Boggy Creek Road to US 192-441. This 2-lane roadway is currently operating with volumes approximately three percent higher than the general service volume at LOS "D". It is likely that actual operating conditions are at or above its adopted LOS standard. The County will evaluate this roadway to determine the extent of any deficiency and identify strategies to address any problems.

US 192-441, from Shady Lane to Partin Settlement Road. This segment is approximately 0.6 miles in length, of which approximately 0.2 miles is currently 6-lanes. This includes the portion through the intersection of US 192 and Shady Lane. FDOT has programmed (#2396821) preliminary engineering for a longer improvement (from the end of the existing 6-lanes, south to Buddinger Avenue) which includes widening this portion of the road to 6-lanes. This project is number 12 on METROPLAN ORLANDO's list of priorities and it is anticipated to be funded for construction in 2030.

US 17/92, from Pleasant Hill Road to Penfield Street. FDOT is currently conducting a Project Development and Environmental Study (#4184031) for a longer improvement (from Pleasant Hill Road to US 192) which includes widening this portion of the road to 6-lanes.

Table TA2.1-2. Existing Conditions

Roadway	From	To	Existing Lanes	AADT	PM Peak Hour		Adopted LOS	Deficient?
					PHPD	LOS		
Canoe Creek Road (CR 523)	US 441	Mildred Bass Road	2	1,400	70	A	C	
Canoe Creek Road (CR 523)	Mildred Bass Road	Deer Run Road	2	4,800	210	B	D	
Canoe Creek Road (CR 523)	Deer Run Road	Old Canoe Road	2	12,800	610	C	D	
Canoe Creek Road (CR 523)	Old Canoe Road	Nolte Road	2	10,900	530	C	D	
Canoe Creek Road (CR 523)	Nolte Road	US 192/441	2	13,100	620	C	D	
Creek Woods Drive	Canoe Creek Road	Michigan Avenue	2	4,500	260	D	D	
Cypress Parkway	Marigold Avenue	Pleasant Hill Road	4	50,832	2,316	F	D	Deficient
Deer Run Road	Canoe Creek Road (CR 423)	Hickory Tree Road	2	4,000	230	C	D	
Florida's Turnpike	Indian River County	Kissimmee Park Road	4	26,000	1,590	B	C	
Florida's Turnpike	Kissimmee Park Road	US 192/441 Exit	4	32,800	2,010	B	D	
Florida's Turnpike	US 192/441 Exit	Osceola Parkway	4	47,900	2,940	C	D	
Friars Cove Road	Florida's Turnpike	Canoe Creek Road (CR 532)	2	N/A	N/A	N/A	D	
Ham Brown Road	Reaves Road	Cattle Drive Lane	2	4,700	390	B	D	
Ham Brown Road	Cattle Drive Lane	US 17/92	2	10,000	460	C	D	
Hickory Tree Road	Nolte Road	US 192 (West)	2	4,900	260	C	D	
Hickory Tree Road	Deer Run Road	Nolte Road	2	N/A	N/A	N/A	D	
Hickory Tree Road	US 192 (East)	Deer Run Road	2	2,500	130	B	D	
Kings Highway	Pine Island Road	Neptune Road	2	5,200	290	D	D	
Kissimmee Park Road	Neptune Road	Old Canoe Creek Road	4	23,577	1,135	B	D	
Kissimmee Park Road	Old Canoe Creek Road	Lake Tohopekaliga	2	2,600	120	A	D	
Marigold Avenue	Cypress Parkway	Koa Street	2	17,063	837	F	D	Deficient
Michigan Avenue (St. Cloud)	US 192	New Nolte Road	2	6,200	320	D	D	
Michigan Avenue (St. Cloud)	New Nolte Road	Creek Woods Drive	2	3,537	219	C	D	
Narcoossee Road (CR 15)	US 192/441	10th Street	2	15,800	730	D	D	
Narcoossee Road (CR 15)	10th Street	Rummell Road	2	15,900	770	F	D	Deficient
Narcoossee Road (CR 15)	Rummell Road	Jones Road	2	19,000	930	F	D	Deficient
Narcoossee Road (CR 15)	Jones Road	Orange County Line	2	17,900	1,060	F	D	Deficient
Neptune Road	Lakeshre Boulevard	Kings Highway	2	20,100	1,150	F	D	Deficient
Neptune Road	Kings Highway	Partin Settlement Road	2	22,500	1,010	F	D	Deficient
Neptune Road	Partin Settlement Road	Kissimmee Park Road	2	17,900	950	F	D	Deficient
Nova Road (CR 532)	Eden Drive	Orange County Line	2	1,000	60	A	D	
Old Canoe Creek Road	US 192	Neptune Road	4	16,100	700	B	D	
Old Canoe Creek Road	Neptune Road	Kissimmee Park Road	4	23,600	1,050	B	D	
Old Canoe Creek Road	Kissimmee Park Road	Canoe Creek Road (CR 523)	2	16,900	1,020	F	D	Deficient

Table TA2.1-2. Existing Conditions

Roadway	From	To	Existing Lanes	AADT	PM Peak Hour		Adopted LOS	Deficient?
					PHPD	LOS		
Old Hickory Tree Road	Nolte Road	US 192	2	3,600	210	C	D	
Osceola Polk Line Road (CR	US 17/92	Lake Wilson Road	2	18,600	830	D	D	
Partin Settlement Road	Neptune Road	US 192-441	2	7,000	330	C	D	
Partin Settlement Road	US 192-441	Lakeshore Boulevard	2	10,800	650	D	D	
Pine Grove Road	US 192-441	Nova Road (CR 532)	2	2,800	190	C	D	
Pine Tree Road	Canoe Creek Road	Hickory Tree Road	2	7,100	440	C	D	
Pleasant Hill Road	Cypress Parkway	Poinciana Boulevard	6	49,800	2,270	B	D	
Pleasant Hill Road	Poinciana Boulevard	Grasmere View Parkway	4	36,700	1,700	B	D	
Pleasant Hill Road	Grasmere View Parkway	US 17/92	4	45,700	2,210	C	D	
Pleasant Hill Road	US 17/92	Clay Street	2	18,600	840	D	D	
Poinciana Boulevard	Pleasant Hill Road	Crescent Lakes Way	2	17,600	1,070	D	D	
Poinciana Boulevard	Crescent Lakes Way	US 17/92	2	22,500	1,210	F	D	Deficient
Poinciana Boulevard	US 17/92	One Mile North of CSX RR	4	23,300	1,020	A	D	
Reaves Road	Poinciana Boulevard	Pleasant Hill Road	2	3,100	160	C	D	
Shady Lane	Partin Settlement Road	US 192-441 (Bronson Highway)	2	7,900	400	D	D	
Simpson Road	Boggy Creek Road	US 192-441	2	19,100	780	E	D	Deficient
Southport Road	Pleasant Hill Road	Southport	2	2,800	140	C	D	
US 192-441	Michigan Avenue	Boggy Creek Road	6	59,000	2,530	C	D	
US 192-441	Boggy Creek Road	Shady Lane	6	51,800	1,940	B	D	
US 192-441	Shady Lane	Partin Settlement Road	4	52,100	2,030	F	D	Deficient
US 192-441	Partin Settlement Road	Commerce Center Drive	4	44,300	1,660	C	D	
US 192-441	Commerce Center Drive	Columbia Avenue	4	4,800	500	B	D	
US 192-441	Columbia Avenue	Mississippi Avenue	6	41,800	1,790	B	D	
US 192-441	Mississippi Avenue	Narcoossee Road (CR 15)	4	28,800	1,110	B	D	
US 192-441	Narcoossee Road (CR 15)	Nova Road (CR 532)	4	24,300	1,040	A	D	
US 192-441	Nova Road (CR 532)	Old Melbourne Highway	4	18,700	830	A	D	
US 192-441	Old Melbourne Highway	SR 15/Holopaw Road	4	N/A	N/A	N/A	C	
US 17/92	Polk County Line	Osceola Polk Line Road (CR 532)	2	9,700	600	B	D	
US 17/92	Osceola Polk Line Rd. (CR 532)	Old Tampa Highway	2	20,400	840	D	D	
US 17/92	Old Tampa Highway	Poinciana Boulevard	2	20,400	840	D	D	
US 17/92	Poinciana Boulevard	Ham Brown Road	2	22,400	800	D	D	
US 17/92	Ham Brown Road	Pleasant Hill Road	4	28,200	1,050	B	D	
US 17/92	Pleasant Hill Road	Penfield Street	4	55,700	2,210	F	D	Deficient

Funded Transportation Improvements

Several roadway improvements are included in the latest Osceola County Transportation Improvement Program. These projects will help provided needed capacity to the surrounding roadways. Map TA2.1-1, *Funded Transportation Improvements*, illustrates the funded improvements that are assumed for future conditions. These improvements are as follows:

- Shady Lane, from Neptune Road to US 192. This roadway is being extended as a four-lane roadway from Neptune Road to Partin Settlement Road, with a subsequent widening to 5 lanes from Partin Settlement Road to US 192.
- Old Canoe Creek Road, from Kissimmee Park Road to Canoe Creek Road. This roadway is being widened from two to four lanes.
- Canoe Creek Road, from 1,000 feet north of Old Creek Road to Deer Run Road. This roadway is being widened from two to four lanes.

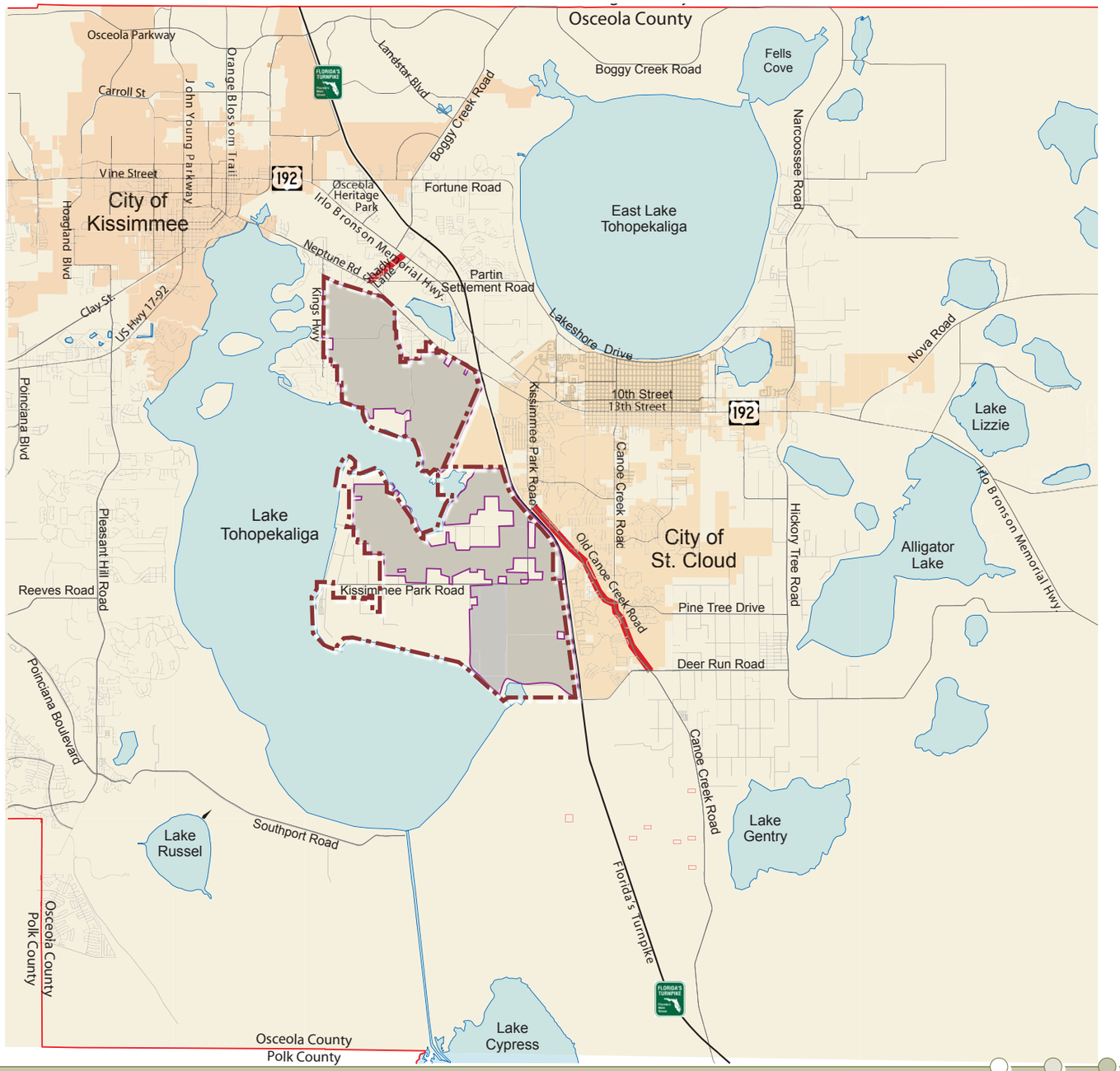
Future Conditions – Travel Demand Modeling

The transportation analysis utilized the adopted 2025 METROPLAN ORLANDO model. The socioeconomic data was updated to be consistent with the Future Land Use Map Amendment 2025 land uses for Orange and Osceola Counties. Several changes to the roadway network were made, including:

- Interchange at Florida's Turnpike and Kissimmee Park Road (half diamond, existing but not in the adopted model)
- Added the Southport Connector by 2025 (identified in Osceola County's 20-year Roadway Program)

Socioeconomic data for Osceola County was adjusted to include the proposed development program for the East of Lake Toho planning area, as well as the South Lake Toho and Northeast District planning areas. The framework streets for the planning area were added into the model and the area/facility types were adjusted to match the context and development patterns of the proposed place types. The roadway network for the build out analysis included the following connections between the planning area and surrounding areas:

- Three framework street connections and several local street connections north to Neptune Road
- One connection across Florida's Turnpike at the northern Edgewater DRI boulevard
- One connection to Kissimmee Park Road at the Florida's Turnpike interchange
- Three framework street connections, and several local street connections to the south, providing an additional connection to Florida's Turnpike at the Green Island DRI, as well as the South Lake Toho planning area.
- One connection east at Friar's Cove Road



MAP TA2.1-1. FUNDED TRANSPORTATION IMPROVEMENTS

EXISTING ROADWAYS
- Existing Roadways

FUTURE IMPROVEMENTS
- Funded Improvements

MISCELLANEOUS
- East of Lake Toho Planning Area
- Water Body

0 3,300' 6,600' 13,200'

Near-Term (2015) Analysis

The development program used for the East of Lake Toho planning area for the near-term year 2015 analysis includes build out of both the Friar's Cove and Bella Tara DRIs. Also included are portions of the Edgewater, Tohoqua and Toho Preserve DRIs, as well as additional densification and infill of these areas.

Internal and External Trips

Recognizing that the County seeks to encourage internal trips within the East of Lake Toho planning area through an appropriate mix of land uses, the model results were evaluated to determine the rate of internal trips projected by the travel demand model. These results are shown in Table TA2.1-3, *East of Lake Toho Planning Area 2015 Daily Trips*.

Of the total 201,766 daily trips, 57,599 (28.5%) are projected to be satisfied within the immediately surrounding area. These could be via walking, biking, transit or automobile. This percentage of trips is consistent with the intent of the master plan and the transportation system is designed accordingly. An additional 47,296 (23.4%) daily trips are projected between various developments within the East of Lake Toho planning area. These have been accounted for in the model as automobile trips; however, they are candidate transit trips for transit service within the East of Lake Toho planning area.

Internal Impacts

An assessment of the internal transportation system needed for Phase 1 (2015) of the East of Lake Toho planning area is provided in Section TA2.2, *Transportation Infrastructure Evaluation*.

External Impacts

The data and analysis to support the development levels for 2015 are summarized in the studies conducted for the Friar's Cove DRI and the Bella Tara DRI.

TA2.1-3. East of Lake Toho Planning Area 2015 Daily Trips

Type Trip	Number of Trips	Percentage
Total Trips – By Development in the Planning Area	201,766	100%
Intrazonal Trips – Internal to Zones in the Planning Area	57,599	28.5%
Interzonal Trips – Between Zones in the Planning Area	47,296	23.4%
Total Trips Internal to the Planning Area	104,895	52.0%
Total Trips External to the Planning Area	96,871	48.0%

Long-Term (2025) Analysis

The long-term, year 2025 analysis includes the development used for 2015 with additional development. The socioeconomic data includes build out of the Friar's Cove, Bella Tara, Edgewater and Tohoqua DRIs, as well as portions of the Toho Preserve DRI. The analysis was conducted using the regional travel demand model as previously described.

Internal and External Trips

Recognizing that the County seeks to encourage internal trips within the East of Lake Toho planning area through an appropriate mix of land uses, the model results were evaluated to determine the share of internal trips projected by the travel demand model. These results are shown in Table TA2.1-4, *East of Lake Toho Planning Area 2025 Daily Trips*.

Of the total 292,472 daily trips, 60,563 (20.7%) are projected to be satisfied within the immediately surrounding area. These could be via walking, biking, transit or automobile. This percentage of trips is consistent with the intent of the master plan and the transportation system will be designed accordingly. An additional 66,423 (22.7%) daily trips are projected between various developments within the East of Lake Toho planning area. These have been accounted for in the model as automobile trips; however, they are candidate transit trips for transit service within the East of Lake Toho planning area.

Internal Impacts

An assessment of the internal transportation system needed for Phase 2 (2025) of the East of Lake Toho planning area is provided in Section TA2.2, *Transportation Infrastructure Evaluation*.

External Impacts

Model results were adjusted to represent annual average daily traffic (AADT) volumes. The peak hour peak direction (PHPD) volumes were projected based on the daily traffic volumes, the measured "K" and "D" factors. It should be noted that maximum "K" factors of 9% and maximum "D" factors of 55% were used to represent more balanced traffic conditions in 2025, consistent with the County's objective to promote growth which more efficiently utilizes the transportation system. Table TA2.1-5, *Projected 2025 Conditions*, summarizes both daily and PHPD traffic volumes projected for 2025, as well as projected operating conditions. LOS conditions are based on the comparison of the FDOT generalized service volumes for peak-hour peak-direction conditions. Adopted LOS are identified for roadways within the planning area along with a determination if the LOS meets the adopted LOS. It should be noted that the actual service volumes may be higher than generalized service volumes.

Based on this analysis, the following roadways are projected to exceed their generalized service volume at the adopted LOS in 2025:

- Canoe Creek Road, from Southport Connector to Mildred Bass Road
- Kings Highway, from Pine Island Road to Neptune Road
- US 192, from Michigan Avenue to Partin Settlement Road
- US 192, from Mississippi Avenue to Narcoossee Road
- US 17/92, from Osceola Polk Line Road (CR 532) to Poinciana Boulevard
- US 17/92, from Pleasant Hill Road to Penfield Street

TA2.1-4. East of Lake Toho Planning Area 2025 Daily Trips

Type Trip	Number of Trips	Percentage
Total Trips – By Development in the Planning Area	292,472	100%
Intrazonal Trips – Internal to Zones in the Planning Area	60,563	20.7%
Interzonal Trips – Between Zones in the Planning Area	66,423	22.7%
Total Trips Internal to the Planning Area	126,986	43.4%
Total Trips External to the Planning Area	165,486	56.6%

Table TA2.1-5. Projected 2025 Conditions

Roadway	From	To	Existing Lanes	Planned Lanes	AADT	PM Peak Hour		Adopted LOS	Deficient?
						PHPD	LOS		
Canoe Creek Road (CR 523)	US 441	Southport Connector	2	2	600	30	A	C	
Canoe Creek Road (CR 523)	Southport Connector	Transit Boulevard (New)	2	2	12,600	610	D	C	Deficient
Canoe Creek Road (CR 523)	Transit Boulevard (New)	Mildred Bass Road	2	2	12,900	620	D	C	Deficient
Canoe Creek Road (CR 523)	Mildred Bass Road	Deer Run Road	2	2	9,600	430	C	D	
Canoe Creek Road (CR 523)	Deer Run Road	Old Canoe Road	2	2	14,600	690	C	D	
Canoe Creek Road (CR 523)	Old Canoe Road	Nolte Road	2	2	14,600	680	C	D	
Canoe Creek Road (CR 523)	Nolte Road	US 192/441	2	4	17,100	760	B	D	
Creek Woods Drive	Canoe Creek Road	Michigan Avenue	2	2	8,500	420	D	D	
Cypress Parkway	Marigold Avenue	Pleasant Hill Road	4	6	45,800	1,900	B	D	
Deer Run Road	Canoe Creek Road (CR 523)	Hickory Tree Road	2	2	4,600	230	C	D	
Florida's Turnpike	Indian River County	New Boulevard Interchange	4	4	49,800	2,460	C	C	
Florida's Turnpike	New Boulevard Interchange	Kissimmee Park Road	4	4	36,700	1,820	B	C	
Florida's Turnpike	Kissimmee Park Road	US 192/441 Exit	4	4	67,900	3,360	D	D	
Florida's Turnpike	US 192/441 Exit	Osceola Parkway	4	4	66,900	3,310	D	D	
Friars Cove Road	Florida's Turnpike	Canoe Creek Road (CR 523)	2	2	11,100	550	C	D	
Ham Brown Road	Reaves Road	Cattle Drive Lane	2	2	7,300	360	B	D	
Ham Brown Road	Cattle Drive Lane	US 17/92	2	2	7,300	330	B	D	
Hickory Tree Road	Nolte Road	US 192 (West)	2	2	15,400	760	D	D	
Hickory Tree Road	Deer Run Road	Nolte Road	2	2	8900	440	B	D	
Hickory Tree Road	US 192 (East)	Deer Run Road	2	2	12,600	570	B	D	
Kings Highway	Pine Island Road	Neptune Road	2	2	16,200	800	F	D	Deficient
Kissimmee Park Road	Neptune Road	Old Canoe Creek Road	4	4	34,536	1577	B	D	
Kissimmee Park Road	Old Canoe Creek Road	Lake Tohopekaliga	2	4	29,200	1,320	B	D	
Marigold Avenue	Cypress Parkway	Koa Street	2	4	30,800	1,390	D	D	
Michigan Avenue (St. Cloud)	US 192	New Nolte Road	2	2	6,100	290	D	D	
Michigan Avenue (St. Cloud)	New Nolte Road	Creek Woods Drive	2	2	6,100	300	D	D	
Narcoossee Road (CR 15)	US 192/441	10th Street	2	6	41,000	1,890	B	D	
Narcoossee Road (CR 15)	10th Street	Rummell Road	2	6	41,000	1,970	B	D	
Narcoossee Road (CR 15)	Rummell Road	Jones Road	2	6	41,500	1,950	B	D	
Narcoossee Road (CR 15)	Jones Road	Orange County Line	2	6	60,200	2,980	C	D	
Neptune Road	Lakeshre Boulevard	Kings Highway	2	4	34,700	1,720	C	D	
Neptune Road	Kings Highway	Partin Settlement Road	2	4	27,200	1,180	B	D	
Neptune Road	Partin Settlement Road	Kissimmee Park Road	2	4	22,400	1,100	B	D	
Nova Road (CR 532)	Eden Drive	Orange County Line	2	2	10,600	520	D	D	
Old Canoe Creek Road	US 192	Neptune Road	4	4	3,000	1,330	B	D	
Old Canoe Creek Road	Neptune Road	Kissimmee Park Road	4	4	20,700	900	B	D	
Old Canoe Creek Road	Kissimmee Park Road	Canoe Creek Road (CR 523)	2	2	11,000	540	C	D	
Old Hickory Tree Road	Nolte Road	US 192	2	2	4,900	240	C	D	
Osceola Polk Line Road (CR	US 17/92	Lake Wilson Road	2	4	20,500	870	B	D	

Table TA2.1-5. Projected 2025 Conditions

Roadway	From	To	Existing Lanes	Planned Lanes	AADT	PM Peak Hour PHPD	PM Peak Hour LOS	Adopted LOS	Deficient?
Partin Settlement Road	Neptune Road	US 192-441	2	2	10,500	480	C	D	
Partin Settlement Road	US 192-441	Lakeshore Boulevard	2	2	10,600	520	D	D	
Pine Grove Road	US 192-441	Nova Road (CR 532)	2	2	5,400	270	C	D	
Pine Tree Road	Canoe Creek Road	Hickory Tree Road	2	2	5,500	280	C	D	
Pleasant Hill Road	Cypress Parkway	Poinciana Boulevard	6	6	26,400	1,090	B	D	
Pleasant Hill Road	Poinciana Boulevard	Grasmere View Parkway	4	4	33,700	1,420	B	D	
Pleasant Hill Road	Grasmere View Parkway	US 17/92	4	4	42,800	1,830	C	D	
Pleasant Hill Road	US 17/92	Clay Street	2	2	10,400	450	C	D	
Poinciana Boulevard	Pleasant Hill Road	Crescent Lakes Way	2	2	13,800	680	C	D	
Poinciana Boulevard	Crescent Lakes Way	US 17/92	2	4	17,400	830	B	D	
Poinciana Boulevard	US 17/92	One Mile North of CSX RR	4	4	44,800	1,810	C	D	
Poinciana Parkway	US 17/92	Koa Street	0	4	30,800	1,520	B	D	
Reaves Road	Poinciana Boulevard	Pleasant Hill Road	2	2	8,000	400	D	D	
Shady Lane	Partin Settlement Road	US 192-441 (Bronson Highway)	2	4	22,600	1,090	D	D	
Simpson Road	Boggy Creek Road	US 192-441	2	4	13,600	520	C	D	
Southport Road	Pleasant Hill Road	South Lake Toho Planning Area	2	2	18,300	810	D	D	
Southport Connector	Pleasant Hill Road	South Lake Toho W1 Interchange	0	4	37,700	1,860	C	D	
Southport Connector	South Lake Toho W1 Interchange	South Lake Toho W2 Interchange	0	4	40,000	1,980	C	D	
Southport Connector	South Lake Toho W2 Interchange	South Lake Toho E Interchange	0	4	28,300	1,400	B	D	
Southport Connector	South Lake Toho E Interchange	Canoe Creek Road (CR 523)	0	4	33,400	1,660	B	D	
Southport Connector	Canoe Creek Road (CR 523)	Deer Run Road	0	4	39,400	1,950	B	D	
Southport Connector	Deer Run Road	US 192-441	0	4	36,600	1,810	B	D	
Southport Connector	US 192-441	Jones Road	0	4	44,400	2,200	C	D	
US 192-441	Michigan Avenue	Boggy Creek Road	6	6	71,800	2,990	F	D	Deficient
US 192-441	Boggy Creek Road	Shady Lane	6	6	83,800	3,060	F	D	Deficient
US 192-441	Shady Lane	Partin Settlement Road	4	6	75,400	2,880	F	D	Deficient
US 192-441	Partin Settlement Road	Commerce Center Drive	4	6	63,000	2,300	B	D	
US 192-441	Commerce Center Drive	Columbia Avenue	4	6	66,800	2,560	B	D	
US 192-441	Columbia Avenue	Mississippi Avenue	6	6	52,600	2,160	B	D	
US 192-441	Mississippi Avenue	Narcoossee Road (CR 15)	4	4	53,300	2,030	F	D	Deficient
US 192-441	Narcoossee Road (CR 15)	Nova Road (CR 532)	4	4	50,600	2,110	C	D	
US 192-441	Nova Road (CR 532)	Old Melbourne Highway	4	4	41,200	1,780	C	D	
US 192-441	Old Melbourne Highway	SR 15/Holopaw Road	4	4	25600	1270	B	C	
US 17/92	Polk County Line	Osceola Polk Line Road (CR 532)	2	4	34,000	1,650	C	D	
US 17/92	Osceola Polk Line Road (CR 532)	Old Tampa Highway	2	4	61,200	2,490	F	D	Deficient
US 17/92	Old Tampa Highway	Poinciana Boulevard	2	4	46,000	1,870	F	D	Deficient
US 17/92	Poinciana Boulevard	Ham Brown Road	2	4	38,800	1,340	B	D	
US 17/92	Ham Brown Road	Pleasant Hill Road	4	4	40,900	1,470	B	D	
US 17/92	Pleasant Hill Road	Penfield Street	4	4	66,200	2,540	F	D	Deficient

For the purpose of evaluating future conditions for a comprehensive plan amendment, the generalized service volumes provide a general assessment of existing operating conditions. However, specific operating conditions (both traffic characteristics and intersection laneage) can result in significant increases above the generalized service volumes. Following is an assessment of the above projected deficiencies and a recommended approach to addressing them.

Canoe Creek Road, from Southport Connector to Mildred Bass Road. This roadway is planned to be widened to 4-lanes as part of the Green Island DRI.

Kings Highway, from Pine Island Road to Neptune Road. This future deficiency is projected based on development which is anticipated to use this roadway to access Neptune Road. The development of the South Lake Toho planning area is not expected to impact this roadway. The County will continue to monitor this roadway as well as development impacting this roadway to ensure adequate improvements are implemented as development occurs to achieve and maintain the adopted LOS.

US 192, from Michigan Avenue to Partin Settlement Road. This 6-lane roadway is projected to operate at LOS "F" but only exceed its generalized service volume (at LOS "D") by approximately 3 to 10%. It is unlikely that the County, or others, will pursue widening beyond 6-lanes; thus, other strategies will be explored. It is likely that operational improvements will be able to achieve the 10% additional capacity needed to achieve its adopted LOS. Specific strategies will be identified once the roadway begins to approach its capacity.

US 192, from Mississippi Avenue to Narcoossee Road. This 4-lane roadway is projected to operate at LOS "F" but only exceed its generalized service volume (at LOS "D") by approximately 9%. FDOT has programmed (#2396831) preliminary engineering, environmental and right-of-way funds for a longer improvement (from Mississippi Avenue/Eastern Avenue to CR 532 which includes widening this portion of the road to 6-lanes. This project is number 12 on METROPLAN ORLANDO's list of priorities and it is anticipated to be funded for construction in 2030.

US 17/92, from Osceola Polk Line Road (CR 532) to Poinciana Boulevard. This existing 2-lane road is planned to be widened to 4-lanes; however, in 2025 it is projected to operate at LOS "F" and exceed its generalized service volume (at LOS "D" for an arterial roadway with up to 2 signals per mile) by up to 34%. Due to limited adjacent lot sizes (due to a parallel railroad to the north and wetlands to the south), there is an opportunity to construct the new 4-lane section at near uninterrupted conditions (minimal signals and strict access management). Full uninterrupted conditions would represent an increase of 74% over the assumed arterial service volume. Thus, it is likely that minimal signals and strict access management can achieve the needed 34% increase in the service volume. Therefore, the County will work closely with FDOT in an effort to maximize the efficiency and capacity provided by the planned 4-lane improvement.

US 17/92, from Pleasant Hill Road to Penfield Street. This existing 4-lane road is planned to be widened to 6 lanes. However, in 2025, it is projected to operate at an LOS of "F" and exceed its generalized service volume (at LOS "B") by up to 37%. This improvement is currently listed as the 21st priority of the year 2030 LRTP. The County will work to improve the priority of this project.

Build Out Analysis

Although not required for the Comprehensive Plan amendment, build out conditions were analyzed in an effort to plan the appropriate transportation system to serve the area within the East of Lake Toho planning area. The build out analysis was conducted using the regional travel demand model as previously described. For the purpose of this analysis, development within the East of Lake Toho planning area was adjusted to represent build out conditions while the remaining portion of the model represents 2025 conditions. This was necessary because 2025 represents the longest range forecast of development levels with an accompanying approved plan for transportation improvements (i.e., the METROPLAN ORLANDO Long Range Transportation Plan).

Internal and External Trips

Recognizing that the County seeks to encourage internal trips within the East of Lake Toho planning area through an appropriate mix of land uses, the model results were evaluated to determine the share of internal trips projected by the travel demand model. These results are shown in Table TA2.1-6, *East of Lake Toho Planning Area Build Out Daily Trips*.

Of the total 356,716 daily trips, 70,853 (19.9%) are projected to be satisfied within the immediately surrounding area. These could be via walking, biking, transit or automobile. This percentage of trips is consistent with the intent of the master plan and the transportation system is designed accordingly. An additional 80,059 (22.4%) daily trips are projected between various developments within the East of Lake Toho planning area. These have been accounted for in the model as automobile trips; however, they are candidate transit trips for transit service within the East of Lake Toho planning area.

Internal Impacts

An assessment of the internal transportation system needed for Phase 3 (Build Out) of the East of Lake Toho planning area is provided in Section TA2.2, *Transportation Infrastructure Evaluation*.

External Impacts

Table TA 2.1-7, *Projected Build Out Conditions*, summarizes both daily and PHPD traffic volumes projected for build out, as well as projected operating conditions. Based on this analysis, no roadways are projected to exceed their generalized service volume at the adopted LOS at the build out of the planning area.

Table TA2.1-6. East of Lake Toho Planning Area Build Out Daily Trips

Type Trip	Number of Trips	Percentage
Total Trips – By Development in the Planning Area	356,716	100%
Intrazonal Trips – Internal to Zones in the Planning Area	70,853	19.9%
Interzonal Trips – Between Zones in the Planning Area	80,059	22.4%
Total Trips Internal to the Planning Area	150,912	42.3%
Total Trips External to the Planning Area	205,804	57.7%

Table TA2.1-7. Buildout Conditions

Roadway	From	To	Existing Lanes	Planned Lanes	AADT	PM Peak Hour		Adopted LOS	Deficient?
						PHPD	LOS		
Canoe Creek Road (CR 523)	US 441	Southport Connector	2	2	600	30	A	C	
Canoe Creek Road (CR 523)	Southport Connector	Transit Boulevard (New)	2	4	19,200	920	B	C	
Canoe Creek Road (CR 523)	Transit Boulevard (New)	Mildred Bass Road	2	4	15,100	720	B	C	
Canoe Creek Road (CR 523)	Mildred Bass Road	Deer Run Road	2	2	11,400	510	C	D	
Canoe Creek Road (CR 523)	Deer Run Road	Old Canoe Road	2	2	15,400	730	D	D	
Cypress Parkway	Marigold Avenue	Pleasant Hill Road	4	6	49,400	2,050	B	D	
Deer Run Road	Canoe Creek Road (CR 523)	Hickory Tree Road	2	2	12,400	610	D	D	
Florida's Turnpike	Indian River County	Southport Connector	4	4	38,800	1,920	B	C	
Florida's Turnpike	Southport Connector	New Boulevard Interchange	4	4	36,800	1,820	B	C	
Florida's Turnpike	New Boulevard Interchange	Kissimmee Park Road	4	4	52,700	2,610	C	C	
Florida's Turnpike	Kissimmee Park Road	US 192/441 Exit	4	4	69,200	3,430	D	D	
Friars Cove Road	Florida's Turnpike	Canoe Creek Road (CR 523)	2	2	13600	670	C	D	
Kissimmee Park Road	Neptune Road	Old Canoe Creek Road	4	4	34,536	1577	B	D	
Neptune Road	Lakeshre Boulevard	Kings Highway	2	4	28,500	1,410	B	D	
Neptune Road	Kings Highway	Partin Settlement Road	2	4	22,300	1,090	B	D	
Neptune Road	Partin Settlement Road	Kissimmee Park Road	2	4	22,400	1,100	B	D	
Pleasant Hill Road	Cypress Parkway	Poinciana Boulevard	6	6	26,900	1,110	B	D	
Pleasant Hill Road	Poinciana Boulevard	Grasmere View Parkway	4	4	28,600	1,200	B	D	
Pleasant Hill Road	Grasmere View Parkway	US 17/92	4	4	25,200	1,080	B	D	
Poinciana Boulevard	Pleasant Hill Road	Crescent Lakes Way	2	2	13,200	650	C	D	
Poinciana Boulevard	Crescent Lakes Way	US 17/92	2	4	14,200	670	B	D	
Poinciana Parkway	US 17/92	Koa Street	0	4	27,400	1,360	B	D	
Southport Road	Pleasant Hill Road	South Lake Toho Planning Area	2	2	18,300	810	D	D	
Southport Connector	Pleasant Hill Road	South Lake Toho W1 Interchange	0	4	63,200	3,130	D	D	
Southport Connector	South Lake Toho W1 Interchange	South Lake Toho W2 Interchange	0	4	64,200	3,180	D	D	
Southport Connector	South Lake Toho W2 Interchange	South Lake Toho E Interchange	0	4	62,000	2,590	C	D	
Southport Connector	South Lake Toho E Interchange	Florida's Turnpike	0	4	63,500	3,150	D	D	
Southport Connector	Florida's Turnpike	Canoe Creek Road (CR 523)	0	4	57,500	2,850	D	D	
Southport Connector	Canoe Creek Road (CR 523)	Deer Run Road	0	4	56,500	2,800	C	D	

Comparison of Conventional Street Network and Smart Growth Network

In comparison to the conventional street network, associated with four-lane arterials and a cul-de-sac pattern of local streets, the fine grain network performs better due to the following factors:

Fewer Pedestrian Barriers

The high speeds (45 mph or more) and volumes (35,000 vehicles per day) found on the four-lane arterial streets in the conventional street network serve as a major barrier to pedestrian circulation and safety. As a result, potential short-distance pedestrian trips are likely to occur instead by automobile, increasing overall traffic impacts. The framework streets within the fine grain network are designed to accommodate safe pedestrian crossings, increasing the travelshed for pedestrians and reducing internal traffic impacts.

Street Connectivity

The cul-de-sac pattern associated with the conventional street network results in out-of-direction travel and increased travel distances. In comparison, the fine grain network promotes smaller blocks and direct, highly connected routes. For pedestrian trips, the improved connectivity is critical, as it places more residents within a five-minute walk of neighborhood centers. For transit trips, the improved connectivity allows the proposed transit corridor to be viable, as more residents and employees are within walking distance.

Reduced Traffic Volumes

The conventional street network does not provide local street connections as an alternative to the arterial streets to accommodate short-distance trips. As a result, all trips between neighborhoods must use arterial streets. At build out, this would equate to 150,000 daily trips using arterial streets instead of local routes, reducing the overall capacity of the street network. The fine grain network provides local street connections to allow internal trips to occur without using the primary north-south through routes. The ability for these trips to occur via walking, bicycling and transit also reduces overall traffic volumes.

Multimodal Strategy

Osceola County's Transportation Element includes the following goal:

"Osceola County shall establish a multimodal transportation system that promotes the values of sustainable development articulated in the Future Land Use Element, increasing mobility options and promoting accessibility to economic, educational, cultural and recreational opportunities for residents and visitors alike. In developing a transportation network, the County shall work to ensure that transportation improvements will minimize environmental impacts and protect natural resources."

Consistent with this goal, the development of the multimodal network to serve the East of Lake Toho planning area includes the following elements:

Framework and Local Streets

Within the planning area, a network of two-lane framework streets is planned, consisting of the following:

- Multimodal Corridor
- Multimodal Corridor (Transit Only)
- Multimodal Corridor (Traffic Only)
- Boulevards
- Avenues

A multimodal corridor is planned as one of two north-south spine roads extending the length of the planning area. This corridor includes dedicated lanes for bus rapid transit (BRT); the design of the BRT will maintain the option of converting to light rail (LRT) in the future. The transit alignment will extend from downtown Kissimmee through the planning area to the South Lake Toho planning area. Bus Rapid Transit (BRT) stations are to be provided at approximately every 0.5 miles. Multiple bus transit routes are planned to provide feeder service to the BRT. The multimodal corridor will include pedestrian walkways and on-street parking where the adjacent property is developed.

Within neighborhood centers in the planning area, the multimodal corridor splits, with one right-of-way for vehicular traffic and one right-of-way for transit only.

Multiple two-lane boulevards will be located at approximately 0.5 mile spacing. Boulevards will include pedestrian walkways and dedicated bicycle lanes. On street parking will be provided.

Avenues will be generally oriented north and south, perpendicular to the boulevards. Two-lane avenues will include pedestrian walkways. On street parking will be provided.

In addition to the framework streets, a fine grain network of local streets is planned within neighborhoods and neighborhood centers. The streets will form a grid between avenues and boulevards. Streets will accommodate shorter distance trips within and between neighborhoods and will include pedestrian walkways. On-street parking may be provided.

Pedestrian and Bicycle Circulation

Pedestrian and bicycle circulation are promoted through the design of streets within the East of Lake Toho planning area. Local streets are designed as slow-speed facilities with sidewalks and bicycle accommodations as part of the shared travelway. Higher-volume framework streets contain features such as on-street parking, street trees and bulbouts at intersections to improve pedestrian safety and comfort; these sections also contain designated bicycle lanes. To prevent the framework streets from serving as barriers to pedestrian movement, operating speeds along these streets will be low (25 to 30 miles per hour), instead of the 45 to 50 miles per hour typically found on suburban collector and arterial roadways. Pedestrian and bicycle accommodations are also supplemented by a system of off-street multiuse trails that connect open space areas.

Pedestrian and bicycle circulation are also supported through the scale and form of the East of Lake Toho planning area, which is organized around a series of walkable neighborhoods. The size of each neighborhood allows residents to be within a 5-minute walk (1/4 mile) of the neighborhood center. Additionally, a fine grain network of local streets and the designation of higher-density mixed use centers within the area help to shorten travel distances, making walking and bicycling more attractive.

Transit Circulation

A north-south multimodal corridor is provided as part of the East of Lake Toho framework street network. This corridor connects the higher-density mixed use centers and provides right-of-way for dedicated transit lanes. The transit lanes could accommodate fixed route bus service, Bus Rapid Transit (BRT) service, or a future light rail transit (LRT) system. Additionally, many of the design elements that improve pedestrian circulation also support the transit network. Pedestrian-oriented and transit-oriented design elements will be integrated into the design of streets, buildings, and public spaces. Also, the highest development intensities are oriented around the multimodal corridor to place more residents and employees within walking distance of transit service. Within these mixed use centers, residential densities of 12 to more than 25 units per acre are anticipated.

Level of Service Standards

Recognizing that the East of Lake Toho planning area will be master planned, the County will incorporate multimodal standards into the design of the multimodal transportation system. The LOS standard for pedestrians and bicycle modes will be achieved by the implementation of the standards and will not require specific monitoring to determine acceptable conditions.

The LOS standard for automobiles will be consistent with the existing Comprehensive Plan policies, as follows:

- Multimodal Corridor – LOS "D"
- Boulevard – LOS "D"
- Avenue – LOS "D"

As with the standards for pedestrian and bicycle modes, the master plan includes the desired roadway network (type and connectivity); therefore, it is anticipated that the County may move toward defining acceptable roadway levels of service, as achieved by the implementation of the identified roadway system, in conjunction with the implementation of the other elements of the multimodal system.

Transit will be incorporated into the master plan; however, no transit service is anticipated to be provided until sufficient development has occurred within the centers to support transit. Upon transit service being initiated, the following transit LOS standards will be implemented:

- Bus Rapid Transit (BRT) – LOS "C" with headways between 15 and 20 minutes, operating 14 to 16 hours per day.
- BRT Service Area – BRT stations are to be located at approximately 0.5 mile intervals and serve areas along the multimodal corridor which have a population density of 15 units per acre and/or a floor area ratio (FAR) of 1.0.
- Bus Transit (feeding the BRT) – LOS "D" with headways between 21 and 30 minutes, operating 12 to 13 hours per day.
- Bus Transit Service Area – Bus service is to be provided along boulevards and/or avenues such that routes are not separated by more than one mile, and stops provided with no more than one mile separation. This standard is intended to provide bus transit service within approximately 0.5 miles walking distance from any given origin or destination.
- Light Rail Transit (LRT) – LOS "C" with headways between 8 and 20 minutes, operating 14 to 18 hours per day
- Light Rail Service Area – Light rail stations are to be located at approximately 1 mile intervals and serve areas along the multimodal corridor which have a population density of 15 units per acre and/or a floor area ratio (FAR) of 1.0.

Multimodal Network Connectivity

The East of Lake Toho planning area will have an Urban Center, five Community Centers and several Neighborhood Centers. The transportation system serving the East of Lake Toho planning area at build out is illustrated in Map TA2.2-1, Cordon Line Locations, and Table TA2.1-7, *Build Out Conditions*.

The County will use the polygon methodology for measuring network connectivity within each center. Adequate connectivity is provided when the number of closed polygons is 50 or more per square mile. The network connectivity for roadways, pedestrian and bicycles shall each be 50 or more polygons per square mile.

TA2.2 Transportation Infrastructure Evaluation

Overview

The development of the East of Lake Toho planning area will include the following transportation infrastructure elements.

Framework Streets

- Multimodal Corridor – Two lane roadways including dedicated lanes for bus rapid transit (BRT) with the option to replace with light rail (LRT); these corridors split within urban centers, with one right-of-way for vehicular traffic and one right-of-way for transit
- Boulevard – Two lane divided roadways including bus pull out bays, on-street parking, pedestrian walkways, and dedicated bicycle lanes
- Avenue – Two lane roadways including on-street parking, pedestrian walkways, dedicated bicycle lanes; may include bus pull-out bays

Local Streets

- Street – Two lane roadways including pedestrian walkways

Together, these infrastructure elements will form a fine grain multimodal network providing mobility throughout the East of Lake Toho planning area. Development of this network will be market driven and is anticipated to occur in the following phases.

Development of the East of Lake Toho planning area is expected to occur in three phases, as follows:

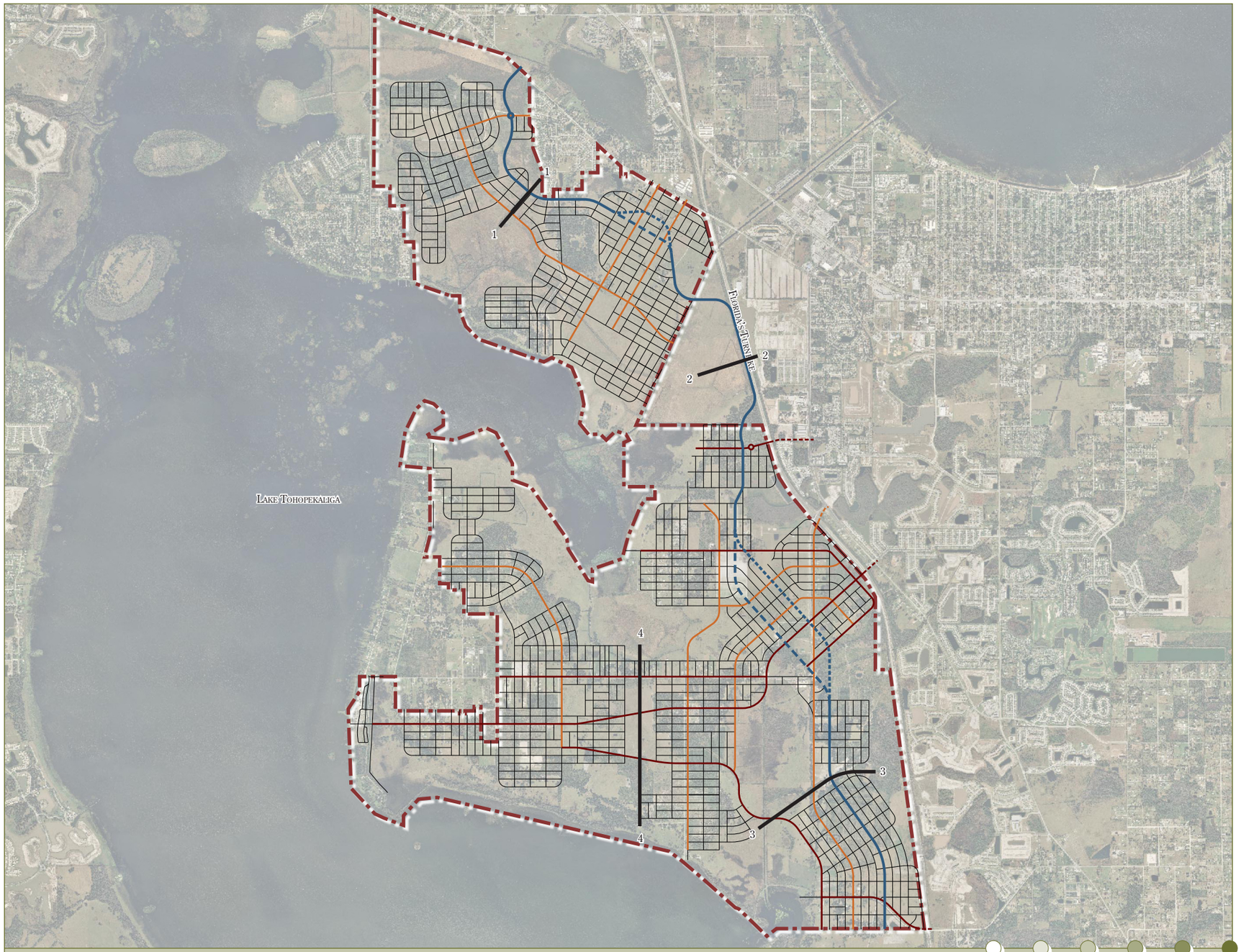
- Phase 1 – 2015
- Phase 2 – 2025
- Phase 3 – Build Out

For each phase, a needs assessment of the primary transportation system was conducted to identify the projected travel demands and operating conditions on roadways accessing the East of Lake Toho planning area. The transportation analysis utilized the METROPLAN ORLANDO model. The roadway network within the model was modified to include the Turnpike/Kissimmee Park Road half diamond interchange (existing), which was not included in the adopted model.

The analysis results by phase include a summary of the projected annual average daily traffic (AADT) volume, number of travel lanes needed and the resulting level of service for each roadway entering the East of Lake Toho planning area (referred to as "cordon line" locations). AADT volumes are also shown for four internal cutline locations that represent key capacity constraints within the East of Lake Toho planning area. These four locations are shown in Map TA2-2.1, *Cordon Line Locations*.

Levels of service are described by letters from "A" to "F", with "A" representing free-flow conditions and "F" representing over-capacity conditions. The County has adopted LOS "D" for all roadways within the Urban Growth Boundary (UGB), with the exception of LOS "C" for the portion of Florida's Turnpike from Friar's Cove Road to the UGB.

Using the FDOT generalized level of service capacity thresholds for daily conditions, the framework streets are projected to operate at or below capacity as two-lane facilities (i.e., LOS "D" or 16,500 vehicles) with the exception of Kissimmee Park Road immediately adjacent to the Turnpike interchange, which requires a four-lane section. Discussion of the analysis results for each phase is in the following sections.



Map TA2.2-1. Cordon Line Locations

Framework Streets
- Multimodal Corridor
- Multimodal Corridor (Transit Only)
- Multimodal Corridor (Traffic Only)
- Boulevard
- Avenue

Local Streets
- Local Streets

Miscellaneous
- Cordon Lines
- 4 Cordon Line Number

0 1,320' 2,640' 5,280'

Table TA2.2-1. Phase 1 (2015) Transportation Needs

Roadway & Cordon Line Location	AADT	2015 Number of Lanes	LOS
Internal Cordon Line Locations			
North to Neptune Road			
Multimodal Corridor	16,400	2-lane	D
Avenue	8,200	2-lane	B
Avenue	8,200	2-lane	B
East to Turnpike			
Avenue (Kissimmee Park Road)	30,000	4-lane*	C
Boulevard (Friar's Cove Road)	8,700	2-lane	B
Boulevard (Edgewater Boulevard)	N/A	N/A	N/A
South to Southport Connector			
Multimodal Corridor	3,500	2-lane	B
Avenue	1,700	2-lane	B
Boulevard	1,700	2-lane	B
Internal Cordon Line Locations			
1 - Between Toho Preserve DRI & Tohoqua DRI			
Multimodal Corridor	13,700	2-lane	C
Avenue	N/A	N/A	N/A
2 - Between Tohoqua DRI & Edgewater DRI			
Multimodal Corridor	13,700	2-lane	C
Avenue	N/A	N/A	N/A
3 - Between Edgewater DRI & Friar's Cove DRI			
Multimodal Corridor	10,800	2-lane	C
Avenue	2,100	2-lane	B
Boulevard	2,100	2-lane	B
4 - Between Bella Tara DRI & Whaley Platt PD			
Boulevard	N/A	N/A	N/A
Boulevard	N/A	N/A	N/A
Boulevard	N/A	N/A	N/A

**The projected 4-lane need is only for the area immediately adjacent to the Turnpike interchange. West of the first intersection within the planning area, a two-lane demand is projected.*

Phase 1 (2015)

The initial phase of development for the East of Lake Toho planning area is anticipated to take place throughout the planning area, mostly adjacent to existing transportation connections at Neptune Road and Florida's Turnpike. Portions of the north planning area near Neptune Road are planned to be developed as Phase 1 of both the Tohoqua and Toho Preserve Developments of Regional Impact (DRIs). Development within the central planning area will result from the build out of the Bella Tara and Friar's Cove DRIs along with portions of the Edgewater DRI.

Map TA2-2.2, *Phase 1 (2015) Transportation System*, shows the proposed roadway network to serve Phase 1 of the East of Lake Toho planning area. For Phase 1, primary access to the East of Lake Toho planning area will be via the multimodal corridor running north-south from Neptune Road to the Southport Connector and two east-west connections: one at Kissimmee Park Road, and one at the Friar's Cove Road overpass. Secondary access will be provided from the north via two additional Avenues connecting to Neptune Road and from the south via an Avenue and a Boulevard connecting to the Southport Connector.

Table 2-2.1, *Phase 1 (2015) Transportation Needs*, summarizes the AADT volumes and level of service associated with Phase 1 development. All locations operate at an LOS of "D" or better; the primary Phase 1 constraints are as follows:

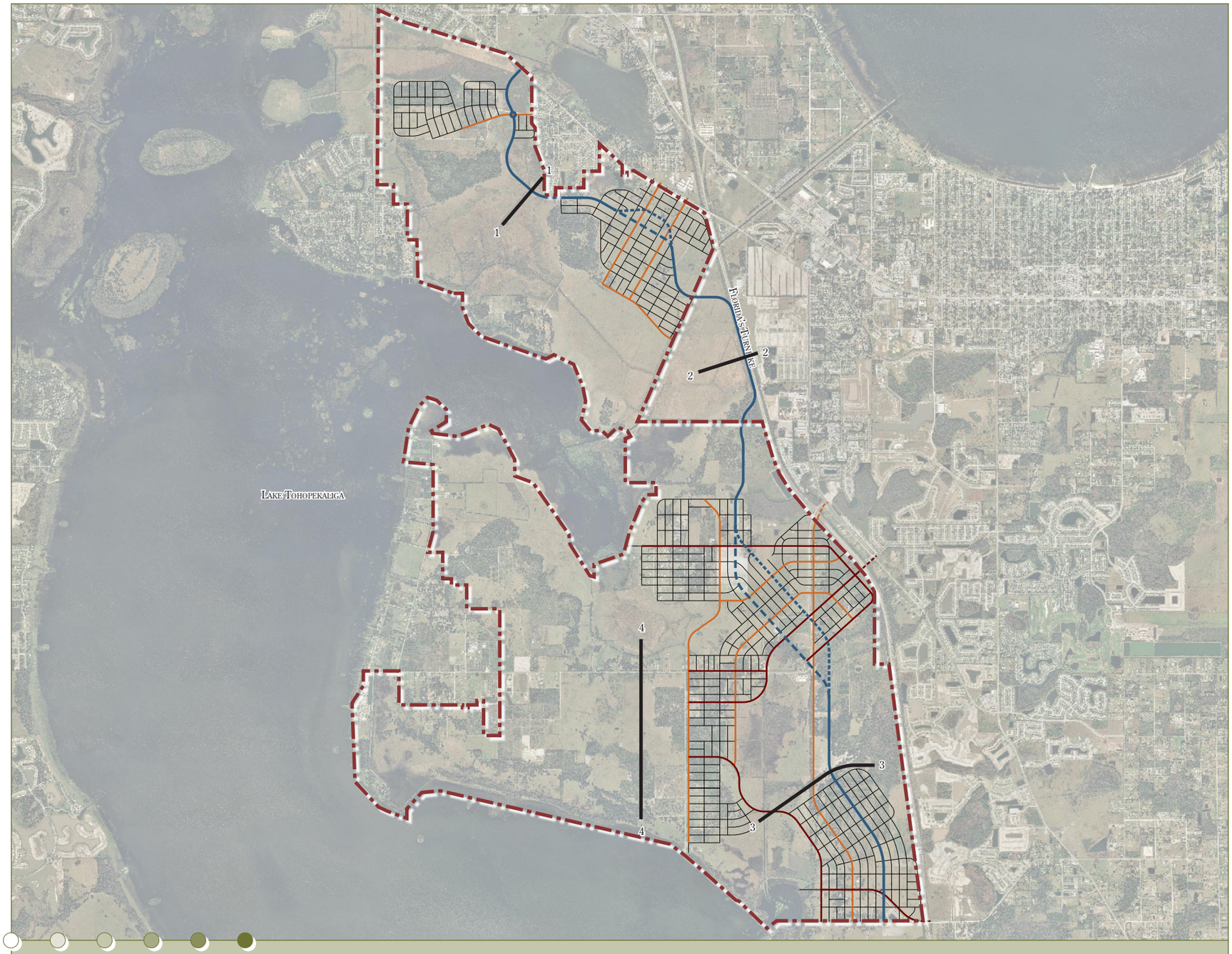
Multimodal Corridor, from north of the Edgewater DRI to Neptune Road. The multimodal corridor represents one of two, continuous north-south spine roads that are planned in the build out scenario. For Phase 1, it represents the only connection between the north and south portions of the planning area. The two-lane segment of the multimodal corridor south of Neptune Road is projected to operate at an LOS of "D". Additional capacity is provided by two additional Avenues, both of which operate at an LOS of "B".

Kissimmee Park Road, from the turnpike interchange west to the first intersection within the planning area. This segment of Kissimmee Park Road is forecasted to have a demand for a four-lane capacity between the turnpike interchange and the first intersection in the planning area. West of this intersection, the traffic is dispersed onto three two-lane roadways.

Table TA 2.2-2, *Phase 1 (2015) Construction Costs*, summarizes the total miles and cost of the transportation infrastructure elements to be implemented in Phase 1. Costs are based on typical cross sections for each roadway type. Map TA2.2-2, *Phase 1 Transportation System*, illustrates the overall Phase 1 transportation system.

Table TA2.2-2. Phase 1 (2015) Construction Costs

Roadway	Miles (Number)	Cost ($mil./mile)	Cost ($mil.)
Multimodal Corridor	6.3	$9.30	$58.59
Multimodal Corridor (Transit Only)	2.4	$6.10	$14.64
Multimodal Corridor (Traffic Only)	2.3	$6.10	$14.03
Boulevard	8.2	$6.00	$49.80
Avenue	12.4	$5.40	$66.96
Total	31.60		$204.02



Map TA2.2-2. Phase 1 (2015) Transportation System

Framework Streets
- Multimodal Corridor
- Multimodal Corridor (Transit Only)
- Multimodal Corridor (Traffic Only)
- Boulevard
- Avenue

Local Streets
- Local Streets

0 1,320' 2,640' 5,280'

Phase 2 (2025)

The second phase of development for the East of Lake Toho planning area will continue to build upon the development in Phase 1. The central and south portion of the planning area will be built out and additional phases of the Tohoqua, Toho Preserve and Edgewater DRIs will continue to be developed. As part of Phase 2, the north Edgewater Boulevard overpass across the Turnpike will be completed to provide additional access to the planning area from the east.

For Phase 2, primary access to the East of Lake Toho planning area will be as follows:

- North – three framework street connections, as well as several local street connections north to Neptune Road, including the multimodal corridor
- East – three connections across Florida's Turnpike: one at the north Edgewater Boulevard overpass, one at the Kissimmee Park Road interchange, and one at the Friar's Cove Road overpass
- South - three framework street connections, as well as several local street connections, providing additional access to Florida's Turnpike via the Green Island interchange

Table 2.2-3, *Phase 2 (2025) Transportation Needs*, summarizes the AADT volumes and level of service associated with Phase 2 development. All locations operate at an LOS of "D" or better; the primary Phase 2 constraints are as follows:

Table TA2.2-3. Phase 2 (2025) Transportation Needs

Roadway & Cordon Line Location	AADT	2025 Number of Lanes	LOS
Internal Cordon Line Locations			
North to Neptune Road			
Multimodal Corridor	16,500	2-lane	D
Avenue	11,300	2-lane	C
Avenue	11,300	2-lane	C
East to Turnpike			
Avenue (Kissimmee Park Road)	33,100	4-lane*	C
Boulevard (Friar's Cove Road)	12,200	2-lane	C
Boulevard (Edgewater Boulevard)	6,100	2-lane	B
South to Southport Connector			
Multimodal Corridor	13,900	2-lane	C
Avenue	12,200	2-lane	C
Boulevard	13,700	2-lane	C
Internal Cordon Line Locations			
1 - Between Toho Preserve DRI & Tohoqua DRI			
Multimodal Corridor	13,800	2-lane	C
Avenue	10,800	2-lane	C
2 - Between Tohoqua DRI & Edgewater DRI			
Multimodal Corridor	15,700	2-lane	D
Avenue	12,700	2-lane	C
3 - Between Edgewater DRI & Friar's Cove DRI			
Multimodal Corridor	13,500	2-lane	C
Avenue	9,100	2-lane	B
Boulevard	15,800	2-lane	D
4 - Between Bella Tara DRI & Whaley Platt PD			
Boulevard	8,600	2-lane	B
Boulevard	N/A	N/A	N/A
Boulevard	N/A	N/A	N/A

**The projected 4-lane need is only for the area immediately adjacent to the Turnpike interchange. West of the first intersection within the planning area, a two-lane demand is projected.*

Multimodal Corridor, from north of the Edgewater DRI to Neptune Road. As previously discussed, the multimodal corridor represents one of two continuous north-south spine roads that are planned in the build out scenario. The transportation demand for this roadway section is addressed through two avenue connections to Neptune Road to the east. The multimodal corridor is projected to operate at capacity (LOS "D"), while additional capacity is available through the two parallel avenues, both of which will operate at an LOS of "C".

Kissimmee Park Road, from the Turnpike interchange west to the first intersection. As previously discussed, this segment of Kissimmee Park Road is forecasted to have a demand for a four-lane capacity between the turnpike interchange and the first intersection within the planning area. From this intersection west, the traffic is dispersed onto three two-lane roadways. For Phase 2, a third connection across the Turnpike (Edgewater Boulevard) provides additional roadway capacity. As a result, all three east-west connections operate at an LOS of "C" or better.

Table TA 2.2-4, *Phase 2 (2025) Construction Costs*, summarizes the total miles and cost of the transportation infrastructure elements to be implemented in Phase 2. Costs are based on typical cross sections for each roadway type. Map TA2.2-3, *Phase 2 Transportation System*, illustrates the overall Phase 2 transportation system.

Table TA2.2-4. Phase 2 (2025) Construction Costs

Roadway	Miles (Number)	Cost ($Mil./mile)	Cost ($Mil.)
Multimodal Corridor	0	$9.30	$0
Multimodal Corridor (Transit Only)	0	$6.10	$0
Multimodal Corridor (Traffic Only)	0	$6.10	$0
Boulevard	2.1	$6.00	$12.60
Avenue	5.6	$5.40	$30.24
Total	7.7	N/A	$42.84

Map TA2.2-3. Phase 2 (2025) Transportation System

Framework Streets
- Multimodal Corridor
- Multimodal Corridor (Transit Only)
- Multimodal Corridor (Traffic Only)
- Boulevard
- Avenue

Local Streets
- Local Streets

0 1,320' 2,640' 5,280'

Phase 3 (Build Out)

For Phase 3, primary access to the East of Lake Toho development district planning area is the same as described for Phase 2. Internal to the planning area, the framework street system will be built out, and the local street network will be completed to support development.

Table 2.2-5, *Phase 3 (Build Out) Transportation Needs*, summarizes the AADT volumes and level of service associated with Phase 3 development. All locations operate at an LOS of "D" or better; the primary Phase 2 constraints are as follows:

Multimodal Corridor, north of the Edgewater DRI to Neptune Road. As previously discussed, the multimodal corridor represents one of two continuous north-south spine roads that are planned in the build out scenario. The transportation demand for this roadway section is addressed through two avenue connections to Neptune Road to the east. The multimodal corridor is projected to operate at capacity (LOS "D"), while additional capacity is available through the two parallel avenues, both of which will operate at an LOS of "C".

Kissimmee Park Road, from the Turnpike interchange west to the first intersection. As previously discussed, this segment of Kissimmee Park Road is forecasted to have a demand for a four-lane capacity between the turnpike interchange and the first intersection within the planning area. From this intersection west, the traffic is dispersed

Table TA2.2-5. Phase 3 (Build Out) Transportation Needs

Roadway & Cordon Line Location	AADT	Build Out Number of Lanes	LOS
Internal Cordon Line Locations			
North to Neptune Road			
Multimodal Corridor	16,500	2-lane	D
Avenue	10,300	2-lane	C
Avenue	10,300	2-lane	C
East to Turnpike			
Avenue (Kissimmee Park Road)	36,700	4-lane	D
Boulevard (Friar's Cove Road)	13,600	2-lane	C
Boulevard (Edgewater Boulevard)	6,000	2-lane	B
South to Southport Connector			
Multimodal Corridor	14,500	2-lane	C
Avenue	8,900	2-lane	B
Boulevard	9,700	2-lane	C
Internal Cordon Line Locations			
1 - Between Toho Preserve DRI & Tohoqua DRI			
Multimodal Corridor	14,200	2-lane	C
Avenue	10,100	2-lane	C
2 - Between Tohoqua DRI & Edgewater DRI			
Multimodal Corridor	15,100	2-lane	C
Avenue	7,800	2-lane	B
3 - Between Edgewater DRI & Friar's Cove DRI			
Multimodal Corridor	11,300	2-lane	C
Avenue	7,900	2-lane	B
Boulevard	2,100	2-lane	B
4 - Between Bella Tara DRI & Whaley Platt PD			
Boulevard	12,400	2-lane	C
Boulevard	9,200	2-lane	B
Boulevard	10,300	2-lane	C

**The projected 4-lane need is only for the area immediately adjacent to the Turnpike interchange. West of the first intersection within the planning area, a two-lane demand is projected.*

onto three two-lane roadways. For Phase 3, the four-lane segment will operate at capacity (LOS "D"). The second and third connections across the Turnpike (Friar's Cove Road and Edgewater Boulevard) provide additional roadway capacity and are both projected to operate at an LOS of "C" or better.

Table TA 2.2-6, *Phase 3 (Build Out) Construction Costs*, summarizes the total miles and cost of the transportation infrastructure elements to be implemented in Phase 3. The costs are based on the typical sections of each roadway type. Map TA2.2-4, *Phase 3 (Build Out) Transportation System*, illustrates the Phase 3 Transportation System.

Table TA 2.2-7, *Total Construction Costs*, summarizes the total miles and cost of the transportation infrastructure elements to be implemented over all three phases. The costs are based on the typical sections of each roadway type.

Transit service will be an integral part of the transportation system serving the East of Lake Toho planning area. In an effort to appropriately size the transit service, the trips internal to the East of Lake Toho planning area were identified as candidate trips to be served using transit. Of the total trips generated within the East of Lake Toho planning area, approximately 42% begin and end within the East of Lake Toho planning area. These internal trips can be served by walking, biking, transit, or vehicle.

Table TA2.2-6. Phase 3 (Build Out) Construction Costs

Roadway	Miles (Number)	Cost ($mil./mile)	Cost ($mil.)
Multimodal Corridor	0	$9.30	$0
Multimodal Corridor (Transit Only)	0	$6.10	$0
Multimodal Corridor (Traffic Only)	0	$6.10	$0
Boulevard	3.5	$6.00	$21.0
Avenue	0.6	$5.40	$3.24
Total	4.1	N/A	$24.24

Table TA2.2-7. Cumulative Construction Costs

Roadway	Miles (Number)	Cost ($mil./mile)	Cost ($mil.)
Multimodal Corridor	6.3	$9.30	$58.59
Multimodal Corridor (Transit Only)	2.4	$6.10	$14.64
Multimodal Corridor (Traffic Only)	2.3	$6.10	$14.03
Boulevard	13.8	$6.00	$82.80
Avenue	18.5	$5.40	$99.90
Total	43.3	N/A	$269.96

Map TA2.2-4. Phase 3 (Build Out) Transportation System

Framework Streets

- Multimodal Corridor
- Multimodal Corridor (Transit Only)
- Multimodal Corridor (Traffic Only)
- Boulevard
- Avenue

Local Streets

- Local Streets

0 1,320' 2,640' 5,280'

TA2.3 Implementation

In recognition of the recent passage of Senate Bill 360 (2009) and the emphasis on mobility within dense urban land areas instead of concurrency, Osceola County intends to establish the foundation for mobility within the East of Lake Toho planning area prior to the district becoming a dense urban land area. The County will accomplish this by establishing a multimodal transportation mobility strategy (MMTMS) for the area with associated goals, objectives and policies identified within its Comprehensive Plan. The County will continue to enforce concurrency within the East of Lake Toho planning area; however, alternative concurrency strategies may be considered in the future. These could include Transportation Concurrency Exception Areas, Transportation Concurrency Management Areas, Long Term Transportation Concurrency Management Systems, or Multi Modal Transportation Districts (MMTDs) for the East of Lake Toho planning areas.

The Conceptual Master Plan shall consist of an integrated system of roadways which provide access to and serves the development within the East of Lake Toho planning area. This system shall include

- multimodal corridors;
- boulevards;
- avenues; and
- local streets.

Prior to the development of alternative concurrency strategies, development within the East of Lake Toho planning area shall be subject to transportation concurrency consistent with other areas of the County.

By 2015, adopt a mobility plan that identifies how mobility within the East of Lake Toho planning area will be maintained within the development timeframe. The plan will identify and list strategies to improve mobility within the district along with an associated time frame and funding plan. Some of the recommended elements of the plan could include (but not be limited to):

- identification of sidewalk deficiencies and timeline for completion of an interconnected sidewalk network;
- identification of pedestrian amenities and features and proposed locations;
- development of a designated bicycle routes and implementation plan connecting to integral regional bicycle routes;
- provision of bicycle parking areas, and bicycle lockers and shower facilities in buildings;
- identification of transit needs and proposed transit improvements through coordination with the transit provider;
- identification of opportunities for enhancing pedestrian connections to transit stops and major trip generators;
- strategic targeted operational improvements to the existing roadway infrastructure; and low cost, low impact transportation systems management (TSM) and transportation demand management (TDM) strategies designed

TECHNICAL APPENDIX 03. INFRASTRUCTURE ANALYSIS

TA3.1 Overview

The East of Lake Toho planning area is generally defined as an 11,250 acre area extending north-south from Neptune Road east of Lake Tohopekaliga (Lake Toho) to the northern limits of the Green Island DRI. Refer to Chapter 2, *Planning Context* for a more detailed description of the East of Lake Toho planning area. Water, wastewater and reclaimed water services for the planning area are provided by two utilities: the City of St. Cloud and the Tohopekaliga Water Authority (TWA). Refer to Map TA3.1-1, *Utility Service Areas,* for the East of Lake Toho Utility Service Areas Map.

Proposed Development

At ultimate buildout, the East of Lake Toho planning area is anticipated to accommodate over 32,000 dwelling units, over 5 million square feet of commercial/office space, and approximately 1,000 hotel rooms. The ultimate overall population of the area is estimated at over 82,000 residents and over 24,000 employees. Refer to Chapter 3, *The Master Plan*, for a more detailed development program.

Demand Estimates

In accordance with the City of St. Cloud, potable water, wastewater, and reclaimed water demands were estimated using the City of St. Cloud standards. Refer to the tables throughout this chapter for the values used in the demand calculations for Table TA3.1-1, *East of Lake Toho Demand Summary*. The 2009 Edition of TWA's Standards, Specification and Details was utilized for the potable water, wastewater, and reclaimed water demands for DRIs within the TWA service area. Unit counts were obtained from the Proposed Development Program located in Chapter 3, *The Master Plan*.

Map TA3.1-1. Utility Service Areas

Land Use Districts

- Urban Center
- Community Center
- Neighborhood Center
- Neighborhood Type 1
- Neighborhood Type 2
- Employment Center
- Special District
- Open Space District

Miscellaneous

- Roadways
- Preserved Wetlands
- Stormwater Ponds
- Service Area Division Line

0 1,320' 2,640' 5,280'

Table TA3.1-1. East of Lake Toho Planning Area Demand Summary

	Cumulative Flow in Million Gallons per Day (MGD) at Annual Average Daily Flow (AADF)		
Project	5 Year	10 Year	Ultimate Build Out
Water			
Bella Tara	1.35	1.35	1.35
Edgewater	3.14	3.66	3.66
Friar's Cove	0.96	0.96	0.96
Toho Preserve	0.32	0.99	1.47
Tohoqua	1.23	1.47	1.47
Whaley Platt Area	0	0	1.50
Water Total	**7.00**	**8.43**	**10.41**
Wastewater			
Bella Tara	1.35	1.35	1.35
Edgewater	3.14	3.66	3.66
Friar's Cove	0.96	0.96	0.96
Toho Preserve	0.30	0.92	1.37
Tohoqua	1.23	1.47	1.47
Whaley Platt Area	0	0	1.50
Wastewater Total	**6.98**	**8.36**	**10.31**
Reclaimed Water			
Bella Tara	2.52	2.52	2.52
Edgewater	5.53	6.41	6.41
Friar's Cove	1.79	1.79	1.79
Toho Preserve	0.58	1.81	2.60
Whaley Platt Area	2.47	2.93	2.93
Tohoqua	0	0	2.66
Reclaimed Water Total	**12.89**	**15.46**	**18.91**

3.2 City of St. Cloud

The City of St. Cloud utility service territory covers approximately 128 square miles, which includes areas within the City limits and adjacent areas of unincorporated Osceola County. The utility service area is bordered to the north by East of Lake Toho, to the east by Outback Road/US 192, to the west by Lake Toho, and to the south by a planning boundary through Lake Gentry.

The East of Lake Toho planning area comprises a small portion of the overall City service territory. Table TA3.2-1, *St. Cloud Service Territory Demand Projections*, shows the planning area demand projections that are within the City's service territory.

Water

The City of St. Cloud water supply and treatment system currently consists of four (4) water treatment plants and associated ground water supply wells. The potable water treatment system is permitted for 17 MGD and is expandable to 20 MGD. The potable water supply system is permitted for 9.7 MGD. The water transmission system is composed of many miles of pipeline. Most of the main line pipe diameters range from 12-inches to 24-inches in diameter.

The City of St. Cloud prepared a water, wastewater and non-potable (reclaimed) water master plan update in May 2007. However, due to the changing water supply regulatory environment and the economic slowdown, the May 2007 report was revised in October 2008. According to the October 2008 Master Plan Update (October 2008 Report), the City of St. Cloud service territory projected potable water AADF is expected to increase from 5.54 MGD in 2008 to 17.94 MGD by 2025.

In November 2008, Osceola County completed the 10-Year Water Supply Plan. The purpose of this document was to identify and plan for the water supply sources and facilities needed to serve existing and new development within the County's jurisdiction from 2008 through 2018. Table TA3.2-2, *St. Cloud Water Demand Projections*, compares the planning area projected demands to the Osceola County 10-year Water Supply Plan and the City of St. Cloud October 2008 Utility Master Plan. Tables TA3.2-2a through TA3.2-2d show a detailed breakdown of the values used to calculate the demand projections.

These demand projections are only based upon the future planned developments and do not account for other vacant land within the City's service area. Therefore, infill areas within the planning area are not included in the estimated demands.

Water Supply

The Central Florida Coordination Area (CFCA) new rule was adopted by three water management districts that serve Central Florida (SJRWMD, SWFWMD and SFWMD). According to CFCA rule, withdrawals from traditional use zones of the Florida Aquifer are limited to their 2013 quantities. Therefore future water demands, after 2013, will need to be met utilizing alternative water supplies (AWS). The October 2008 St. Cloud Master Plan Update incorporated the rule in the master plan.

According to the October 2008 Master Plan Update, the City of St. Cloud's 2013 permitted potable water supply from traditional sources is 9.7 MGD. This quantity is lower than the 11.60 MGD projected by the Osceola County 10-year Water Supply Plan. However, the City is required by the recent South Florida Water Management District (SFWMD) water use permit (WUP) to actively develop specific AWS projects. The following AWS projects are identified in the Osceola County 10-year Water Supply Plan:

- Withdrawal of surface water from the Kissimmee River Basin
- Cypress Lake Brackish Groundwater Wellfield (joint effort with TWA)

Both of these projects were identified within the Kissimmee Basin Water Supply Plan 2005 – 2006 Update. According to the Osceola County 10-Year Water Supply Plan, the WUP's for both the TWA and the City of St. Cloud include provisions that by December 31, 2013, a minimum of 15 MGD from combined AWS projects will be available for use within the water utility service areas of TWA, City of St. Cloud, and Polk County. Of this amount, the Cypress Lake Wellfield is estimated to yield 5 to 7 MGD. Additional AWS projects are listed in the December 2008 Osceola County 10-Year Water Supply Plan.

Table TA3.2-1. St. Cloud Service Territory Demand Projections

Project	Cumulative Flow in Million Gallons per Day (MGD) at Annual Average Daily Flow (AADF) 5 Year	10 Year	Ultimate Build-out
Water			
Bella Tara	1.35	1.35	1.35
Edgewater	3.14	3.66	3.66
Friar's Cove	0.96	0.96	0.96
Tohoqua	1.23	1.47	1.47
Whaley Platt Area	0	0	1.50
Water Total	6.68	7.44	8.94
Wastewater			
Bella Tara	1.35	1.35	1.35
Edgewater	3.14	3.66	3.66
Friar's Cove	0.96	0.96	0.96
Tohoqua	1.23	1.47	1.47
Whaley Platt Area	0	0	1.50
Wastewater Total	6.68	7.44	8.94
Reclaimed Water			
Bella Tara	2.52	2.52	2.52
Edgewater	5.53	6.41	6.41
Friar's Cove	1.79	1.79	1.79
Tohoqua	2.47	2.93	2.93
Whaley Platt Area	0	0	2.66
Reclaimed Water Total	12.31	13.65	16.31

Table TA3.2-2. St. Cloud Water Demand Projections

Year	East of Lake Toho Demand Projections	2008 Updated St. Cloud Master Plan Projected Demands	Osceola County 10-Year Water Supply Plan
2013	6.68	9.67	11.604
2018	7.44	14.85	15.434
2025	8.94	17.94	20.044

Note: Projected demands are in MGD at AADF

Water Capital Improvements

The October 2008 Utility Master Plan Update identifies Capital Improvement Projects (CIP) that are recommended to meet the projected potable water demand within the City of St. Cloud service territory. These projects are shown in Map TA3.2-1, *City of St. Cloud Water Master Plan, Water Infrastructure*. The following projects are assumed to be directly or indirectly related to providing adequate water supply and treatment for the planning area:

- Construction of the Edgewater WTP
- Development of the Cypress Lake Wellfield
- Construction of the Green Island WTP
- Construction of WTP #3
- Stormwater treatment (reclaimed water source)

Water Cost Estimates

Infrastructure upgrades required to support growth within the planning area include construction of the Edgewater WTP, establishment of the Lake Toho Surface water facility and Cypress Lake well fields along with various water transmission line upgrades and new installations. Due to the CFCA rule, the additional potable water supply source will need to come from an AWS. Since the Cypress Lake Wellfield capacity is estimated at only 5 to 7 MGD, the AWS source could be a future Lake Toho Surface Water Supply Facility. However, the WTP cost estimate below assumes the same source used in the original 2007 Master Plan Update estimate.

Table TA3.2.2a. St. Cloud Projected Overall Water Demand

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Bella Tara			
2,902	Detached Residential	300	870,600
1,562	Attached Residential	300	468,600
600	Elementary School	10 GPD/ Student	6,000
Total			**1,345,200**
Edgewater			
6,494	Detached Residential	300	1,948,200
4,298	Attached Residential	300	1,289,400
1,022,100	Commercial	0.1 GPD/ SF	102,210
1,916,500	Office	0.15 GPD/ SF	287,475
1,800	Elementary School	10 GPD/ Student	18,000
1,700	High School	10 GPD/ Student	17,000
Total			**3,662,285**
Friar's Cove			
1,823	Detached Residential	300	546,900
1,201	Attached Residential	300	360,300
125,800	Commercial	0.1 GPD/SF	12,580
173,000	Office	0.15 GPD/ SF	25,950
600	Elementary School	10 GPD/ Student	6,000
1,300	Middle School	10 GPD/ Student	13,000
Total			**964,730**
Tohoqua			
2,457	Detached Residential	300	737,100
2,111	Attached Residential	300	633,300
162,000	Commercial	0.1 GPD/SF	16,200
306,600	Office	0.15 GPD/ SF	45,990
600	Elementary School	10 GPD/Student	6,000
1,300	Middle School	10 GPD/ Student	13,000
1,700	High School	10 GPD/ Student	17,000
Total			**1,468,590**
Whaley Platt Area			
2,400	Detached Residential	300.0	720,000
2,372	Attached Residential	300.0	711,600
216,200	Commercial	0.1 GPD/SF	21,620
246,100	Office	0.15 GPD/ SF	36,915
600	Elementary School	10 GPD/ Student	6,000
Total			**1,496,135**

Table TA3.2.2b. St. Cloud Projected Water Demand, Phase I (2015)

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Bella Tara			
2,902	Detached Residential	300	870,600
1,562	Attached Residential	300	468,600
600	Elementary School	10 GPD/ Student	6,000
Total			**1,345,200**
Edgewater			
5,650	Detached Residential	300	1,695,000
3,782	Attached Residential	300	1,134,600
766,575	Commercial	0.1 GPD/ SF	76,658
1,437,375	Office	0.15 GPD/ SF	215,606
600	Elementary School	10 GPD/ Student	6,000
1,700	High School	10 GPD/ Student	17,000
Total			**3,144,864**
Friar's Cove			
1,823	Detached Residential	300	546,900
1,201	Attached Residential	300	360,300
125,800	Commercial	0.1 GPD/SF	12,580
173,000	Office	0.15 GPD/ SF	25,950
600	Elementary School	10 GPD/ Student	6,000
1,300	Middle School	10 GPD/ Student	13,000
Total			**964,730**
Tohoqua			
2,113	Detached Residential	300	633,900
1,710	Attached Residential	300	513,000
149,040	Commercial	0.1 GPD/SF	14,904
282,072	Office	0.15 GPD/ SF	42,311
0	Elementary School	10 GPD/Student	0
1,300	Middle School	10 GPD/ Student	13,000
1,700	High School	10 GPD/ Student	17,000
Total			**1,234,115**
Whaley Platt Area			
0	Detached Residential	300.0	0
0	Attached Residential	300.0	0
0	Commercial	0.1 GPD/SF	0
0	Office	0.15 GPD/ SF	0
0	Elementary School	10 GPD/ Student	0
Total			**0**

Table TA3.2.2c. St. Cloud Projected Water Demand, Phase II (2020)

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Bella Tara			
0	Detached Residential	300	0
0	Attached Residential	300	0
0	Elementary School	10 GPD/ Student	0
Total			**0**
Edgewater			
844	Detached Residential	300	253,200
516	Attached Residential	300	154,800
255,525	Commercial	0.1 GPD/ SF	25,553
479,125	Office	0.15 GPD/ SF	71,869
1,200	Elementary School	10 GPD/ Student	12,000
0	High School	10 GPD/ Student	0
Total			**517,421**
Friar's Cove			
0	Detached Residential	300	0
0	Attached Residential	300	0
0	Commercial	0.1 GPD/SF	0
0	Office	0.15 GPD/ SF	0
0	Elementary School	10 GPD/ Student	0
0	Middle School	10 GPD/ Student	0
Total			**0**
Tohoqua			
344	Detached Residential	300	103,200
401	Attached Residential	300	120,300
12,960	Commercial	0.1 GPD/SF	1,296
24,528	Office	0.15 GPD/ SF	3,679
600	Elementary School	10 GPD/Student	6,000
0	Middle School	10 GPD/ Student	0
0	High School	10 GPD/ Student	0
Total			**234,475**
Whaley Platt Area			
0	Detached Residential	300.0	0
0	Attached Residential	300.0	0
0	Commercial	0.1 GPD/SF	0
0	Office	0.15 GPD/ SF	0
0	Elementary School	10 GPD/ Student	0
Total			**0**

Table TA3.2.2d. St. Cloud Projected Water Demand, Build Out

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Bella Tara			
0	Detached Residential	300	0
0	Attached Residential	300	0
0	Elementary School	10 GPD/ Student	0
Total			**0**
Edgewater			
0	Detached Residential	300	0
0	Attached Residential	300	0
0	Commercial	0.1 GPD/ SF	0
0	Office	0.15 GPD/ SF	0
0	Elementary School	10 GPD/ Student	0
0	High School	10 GPD/ Student	0
Total			**0**
Friar's Cove			
0	Detached Residential	300	0
0	Attached Residential	300	0
0	Commercial	0.1 GPD/SF	0
0	Office	0.15 GPD/ SF	0
0	Elementary School	10 GPD/ Student	0
0	Middle School	10 GPD/ Student	0
Total			**0**
Tohoqua			
0	Detached Residential	300	0
0	Attached Residential	300	0
0	Commercial	0.1 GPD/SF	0
0	Office	0.15 GPD/ SF	0
0	Elementary School	10 GPD/Student	0
0	Middle School	10 GPD/ Student	0
0	High School	10 GPD/ Student	0
Total			**0**
Whaley Platt Area			
2,400	Detached Residential	300.0	720,000
2,372	Attached Residential	300.0	711,600
216,200	Commercial	0.1 GPD/SF	21,620
246,100	Office	0.15 GPD/ SF	36,915
600	Elementary School	10 GPD/ Student	6,000
Total			**1,496,135**

Table TA3.2-3. St. Cloud Water Quantities

Roadway	Pipe Size (Inches)	Feet	Miles	Cost per Mile	Cost
Bella Tara					
Street	8	8,534	1.62	$316,800	$512,040
	12	11,874	2.25	$459,360	$1,033,038
	16	0	0.00	$897,600	$-
Boulevard	20	3,633	0.69	$897,600	$617,610
	24	0	0.00	$897,600	$-
Total					**$2,162,688**
Edgewater					
Street	8	58,959	11.17	$316,800	$3,537,540
	12	61,304	11.61	$459,360	$5,333,448
	16	15,447	2.93	$897,600	$2,625,990
Boulevard	20	25,144	4.76	$897,600	$4,274,480
	24	8,470	1.60	$897,600	$1,439,900
Total					**$17,211,358**
Friar's Cove					
Street	8	7,878	1.49	$316,800	$472,680
	12	14,583	2.76	$459,360	$1,268,721
	16	0	0.00	$897,600	$-
Boulevard	20	7,419	1.41	$897,600	$1,261,230
	24	0	0.00	$897,600	$-
Total					**$3,002,631**
Tohoqua					
Street	8	12,383	2.35	$316,800	$742,980
	12	23,043	4.36	$459,360	$2,004,741
	16	16,955	3.21	$897,600	$2,882,350
Boulevard	20	10	0.00	$897,600	$1,700
	24	0	0.00	$897,600	$-
Total					**$5,631,771**
Whaley Platt Area					
Street	8	8,255	1.56	$316,800	$495,300
	12	22,412	4.24	$459,360	$1,949,844
	16	0	0.00	$897,600	$-
Boulevard	20	14,282	2.70	$897,600	$2,427,940
	24	0	0.00	$897,600	$-
Total					**$4,873,084**
St. Cloud Total		320,585	60.72	N/A	$32,881,532

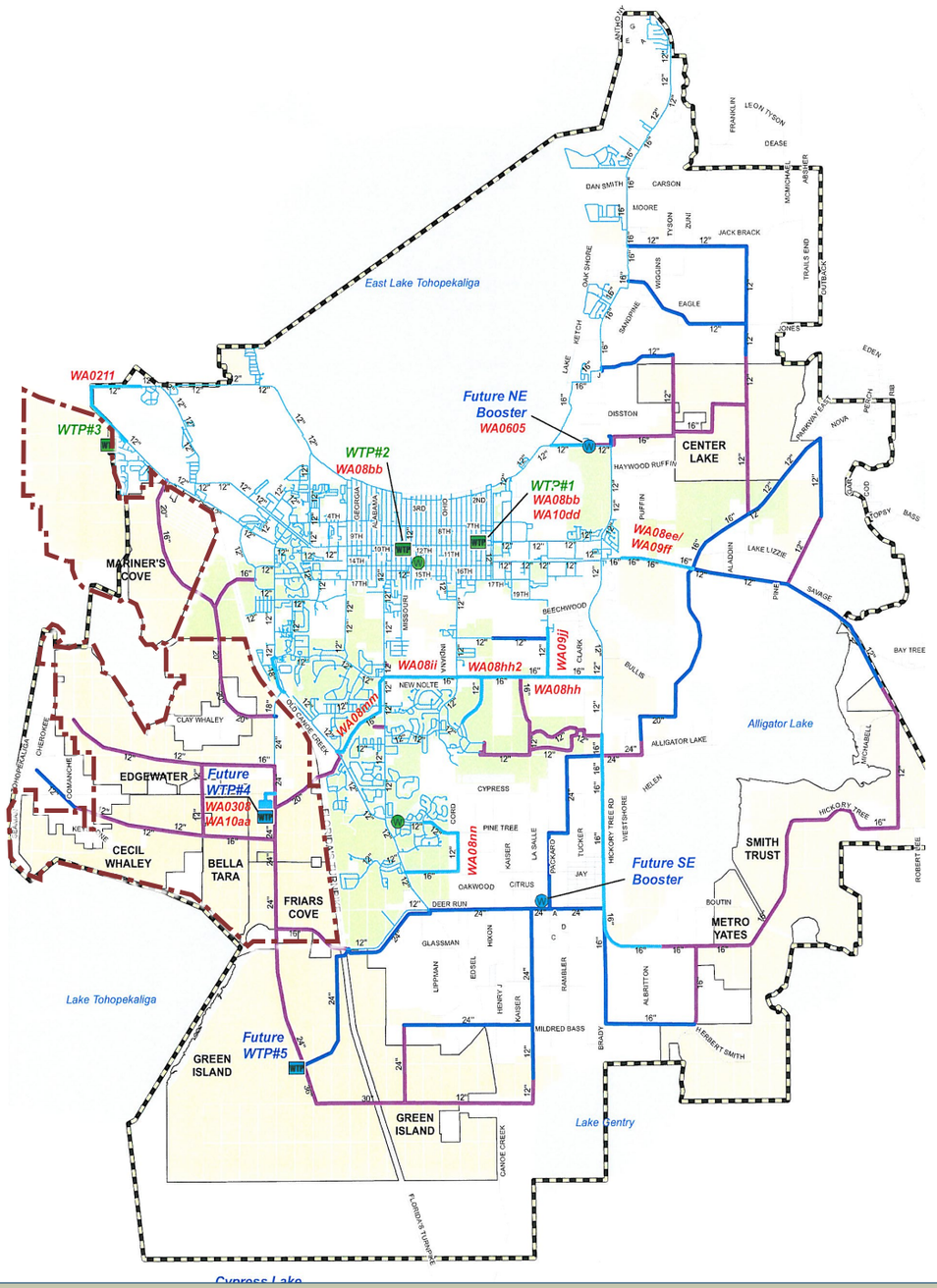
The new water transmission lines required for development within the planning area are also presented below. The following is the methodology used to determine the construction cost estimate for the unaccounted for water transmission lines:

- Water transmission line sizes for Toho Preserve were estimated based on the conceptual plan provided by RJ Whidden and Associates, Inc.
- The length of each water transmission line size was multiplied by the price per linear foot used by the 2007 Utility Master Plan Update to determine the total cost. See Table TA3.2-3, *St. Cloud Water Quantities*, for the detailed water transmission line cost estimate.

Table TA3.2-4, *St. Cloud Water Capital Costs*, shows the adjusted opinion of probable construction cost estimate for the future Edgewater WTP and water transmission lines within the planning area.

Table TA3.2-4. St. Cloud Water Capital Costs

Capital Project	Units	Unit Cost	Cost
Cypress Lake Wellfield	N/A	N/A	$26,750,000
Edgewater WTP	18.00 MGD	$2.51/ Gallon	$45,180,000
8" Pipe	18.18 Miles	$316,800/ Mile	$5,760,540
12" Pipe	25.23 Miles	$459,360/ Mile	$11,589,792
16" Pipe	6.14 Miles	$897,600/ Mile	$5,508,340
20" Pipe	9.56 Miles	$897,600/ Mile	$8,582,960
24" Pipe	1.6 Miles	$897,600/ Mile	$1,439,900
Total			$104,811,532



Map TA3.2-1, City of St. Cloud Water Master Plan, Water Infrastructure

Water Infrastructure

- Water Tank/Repump
- Future Water Tank/Repump
- Water Treatment Plan
- Future Water Treatment Plant
- Existing Pipe
- 5-Year CIP Pipe
- City Pipe Corridor
- Developer Pipe Corridor

Development Areas

- Major Development Areas
- Planned Developments
- SubDivisions

Boundaries

- East of Lake Toho Planning Area
- W & WW Service Boundary

Wastewater

The City of St. Cloud wastewater collection and treatment system currently consists of two (2) wastewater treatment plants (WWTPs) and associated conventional (gravity and force main) collection system. The wastewater treatment system is permitted for 4 MGD at three month average daily flow (TMADF).

The City of St. Cloud recently completed a master plan update in October 2008 that projected wastewater demands through 2025. According to the Master Plan Update (October 2008), the City of St. Cloud service territory projected wastewater demands are expected to increase from 2.5 MGD to over 10 MGD TMADF in the next 20 years.

Table TA3.2-5, *St. Cloud Wastewater Demand Projections*, compares the planning area projected demands to the City of St. Cloud October 2008 Master Plan Update. Tables TA3.2-5a through TA3.2-5d show a detailed breakdown of the values used to calculate the demand projections.

Like the water demand estimates previously discussed, it is important to note that the wastewater demand projections from the October 2008 Master Plan Update also do not include the demands from vacant land within the City's services territory. Therefore, the infill portions of the Planning area were also not included in the wastewater demand projections. The total projected wastewater demand for the City of St. Cloud service territory, including infill development from Green Island, is approximately 10.00 MGD.

Wastewater Capital Improvements

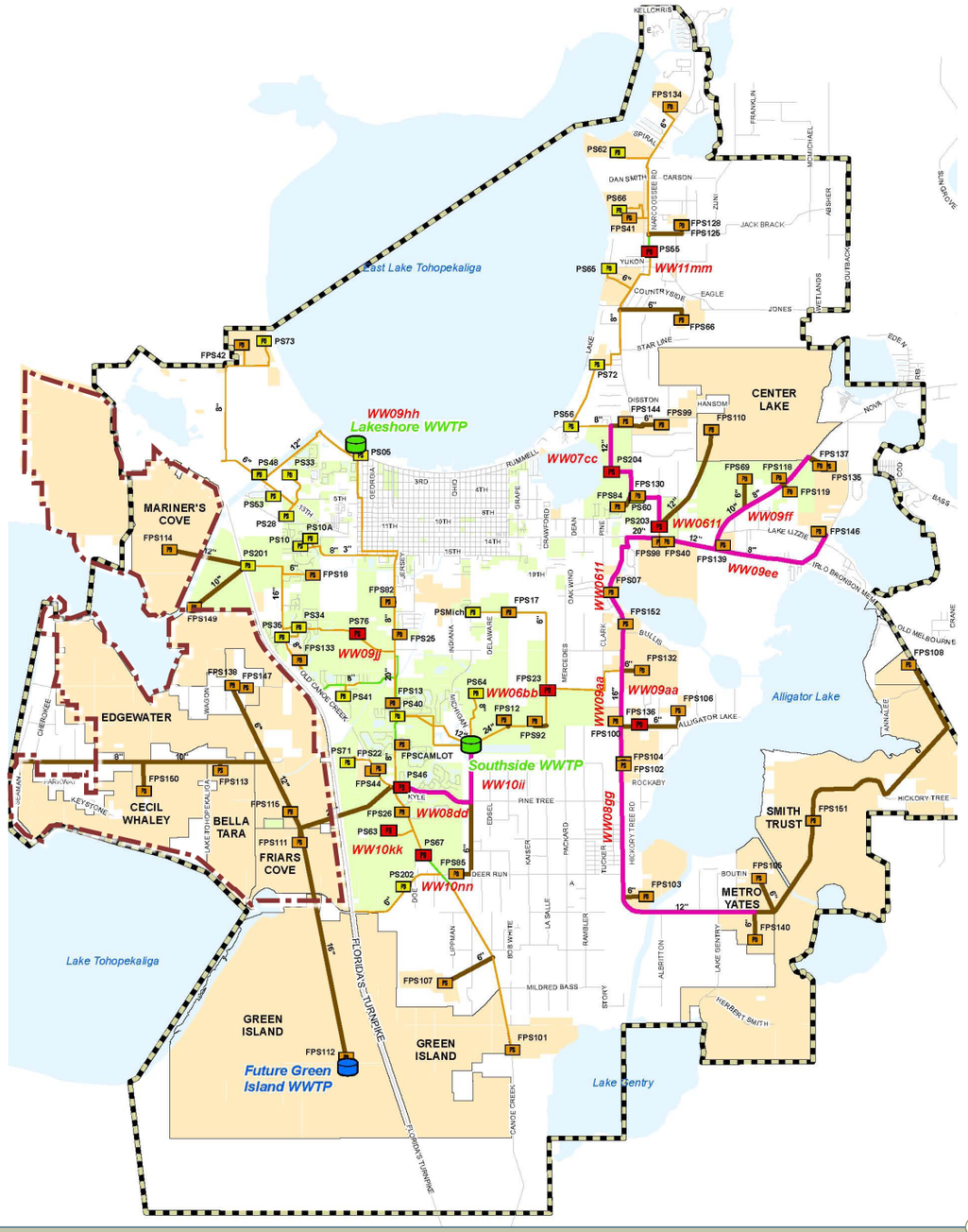
According to the October 2008 Utility Master Plan Update, the existing and proposed infrastructure required to meet the projected wastewater demand is shown in Map TA3.2-2, *City of St. Cloud Wastewater Master Plan, Wastewater Infrastructur*e. The following is a partial list of the proposed infrastructure improvements taken from the May 2007 Utility Master Plan Update:

- Retire the Lakeshore Wastewater Treatment Plant (WWTP)
- Expand the existing Southside WWTP to 10.0 MGD at ultimate build out
- Construction of the Green Island WWTP
- Multiple lift station upgrades and transmission pipe improvements

Table TA3.2-5. St. Cloud Wastewater Demand Projections

	East of Lake Toho Demand Projections	2008 Updated City of St. Cloud Master Plan Projected Demands
5-year (2015)	6.68	6.00
10-year (2020)	7.44	9.00
Ultimate Build out (2025)	8.94	10.00

Note: Planning Area projected demands are in MGD at AADF. The 2008 Updated Master Plan demands are in TMADF.



MAP TA3.2-2. CITY OF ST. CLOUD WASTEWATER MASTER PLAN, WASTEWATER INFRASTRUCTURE

WASTEWATER INFRASTRUCTURE

- Future WW Treatment Plant
- Existing WW Treatment Plant
- 5-Year CIP Pump Stations/ Upgrades
- Future Developer Driven Pump Stations
- Existing Pump Stations
- Existing Force Mains
- 5-Year CIP Force Mains
- Developer Force Mains
- Modeled Gravity Mains

DEVELOPMENT AREAS

- Major Development Areas
- Planned Developments
- Subdivisions

BOUNDARIES

- East of Lake Toho Planning Area
- W & WW Service Boundary

0 3,000' 6,000' 12,000'

Table TA3.2-5a. St. Cloud Projected Overall Wastewater Demand

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Bella Tara						
2,902	Detached Residential	300	870,600	3.5	3,047,100	2,116
1,562	Attached Residential	300	468,600	3.0	1,405,800	976
600	Elementary School	10 GPD/ Stu.	6,000	4.0	24,000	17
Total			**1,345,200**			**3,109**
Edgewater						
6,494	Detached Residential	300	1,948,200	3.0	5,844,600	4,059
4,298	Attached Residential	300	1,289,400	3.0	3,868,200	2,686
1,022,100	Commercial	0.1 GPD/SF	102,210	4.0	408,840	284
1,916,500	Office	0.15 GPD/ SF	287,475	4.0	1,149,900	799
1,800	Elementary School	10 GPD/ Stu.	18,000	4.0	72,000	50
1,700	High School	10 GPD/ Stu.	17,000	4.0	68,000	47
Total			**3,662,285**			**7,925**
Friar's Cove						
1,823	Detached Residential	300	546,900	3.0	1,640,700	1,139
1,201	Attached Residential	300	360,300	3.5	1,261,050	876
125,800	Commercial	0.1 GPD/SF	12,580	4.0	50,320	35
173,000	Office	0.15 GPD/ SF	25,950	4.0	103,800	72
600	Elementary School	10 GPD/ Stu.	6,000	4.0	24,000	17
1,300	Middle School	10 GPD/ Stu.	13,000	4.0	52,000	36
Total			**964,730**			**2,175**
Tohoqua						
2,457	Detached Residential	300	737,100	3.0	2,211,300	1,536
2,111	Attached Residential	300	633,300	3.0	1,899,900	1,319
162,000	Commercial	0.1 GPD/SF	16,200	4.0	64,800	45
306,600	Office	0.15 GPD/ SF	45,990	4.0	183,960	128
600	Elementary School	10 GPD/Stu.	6,000	4.0	24,000	17
1,300	Middle School	10 GPD/ Stu.	13,000	4.0	52,000	36
1,700	High School	10 GPD/ Stu.	17,000	4.0	68,000	47
Total			**1,468,590**			**3,128**
Whaley Platt Area						
2,400	Detached Residential	300.0	720,000	3.0	2,160,000	1,500
2,372	Attached Residential	300.0	711,600	3.0	2,134,800	1,483
216,200	Commercial	0.1 GPD/SF	21,620	4.0	86,480	60
246,100	Office	0.15 GPD/ SF	36,915	4.0	147,660	103
600	Elementary School	10 GPD/ Stu.	6,000	**4.0**	24,000	17
Total			**1,496,135**			**3,162**

Table TA3.2-5b. St. Cloud Projected Wastewater Demand, Phase I (2015)

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Bella Tara						
2,902	Detached Residential	300	870,600	3.5	3,047,100	2,116
1,562	Attached Residential	300	468,600	3.0	1,405,800	976
600	Elementary School	10 GPD/ Stu.	6,000	4.0	24,000	17
Total			**1,345,200**			**3,109**
Edgewater						
5,650	Detached Residential	300	1,695,000	3.0	5,085,000	3,531
3,782	Attached Residential	300	1,134,600	3.0	3,403,800	2,364
766,575	Commercial	0.1 GPD/SF	76,658	4.0	306,630	213
1,437,375	Office	0.15 GPD/ SF	215,606	4.0	862,425	599
600	Elementary School	10 GPD/ Stu.	6,000	4.0	24,000	17
1,700	High School	10 GPD/ Stu.	17,000	4.0	68,000	47
Total			**3,144,864**			**6,771**
Friar's Cove						
1,823	Detached Residential	300	546,900	3.0	1,640,700	1,139
1,201	Attached Residential	300	360,300	3.5	1,261,050	876
125,800	Commercial	0.1 GPD/SF	12,580	4.0	50,320	35
173,000	Office	0.15 GPD/ SF	25,950	4.0	103,800	72
600	Elementary School	10 GPD/ Stu.	6,000	4.0	24,000	17
1,300	Middle School	10 GPD/ Stu.	13,000	4.0	52,000	36
Total			**964,730**			**2,175**
Tohoqua						
2,113	Detached Residential	300	633,900	3.0	1,901,700	1,321
1,710	Attached Residential	300	513,000	3.0	1,539,000	1,069
149,040	Commercial	0.1 GPD/SF	14,904	4.0	59,616	41
282,072	Office	0.15 GPD/ SF	42,311	4.0	169,243	118
0	Elementary School	10 GPD/Stu.	0	4.0	0	0
1,300	Middle School	10 GPD/ Stu.	13,000	4.0	52,000	36
1,700	High School	10 GPD/ Stu.	17,000	4.0	68,000	47
Total			**1,234,115**			**2,632**
Whaley Platt Area						
0	Detached Residential	300.0	0	3.0	0	0
0	Attached Residential	300.0	0	3.0	0	0
0	Commercial	0.1 GPD/SF	0	4.0	0	0
0	Office	0.15 GPD/ SF	0	4.0	0	0
0	Elementary School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**

Table TA3.2-5c. St. Cloud Projected Wastewater Demand, Phase II (2020)

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Bella Tara						
0	Detached Residential	300	0	3.0	0	0
0	Attached Residential	300	0	3.0	0	0
0	Elementary School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**
Edgewater						
844	Detached Residential	300	253,200	3.0	759,600	528
516	Attached Residential	300	154,800	3.0	464,400	323
255,525	Commercial	0.1 GPD/SF	25,553	4.0	102,210	71
479,125	Office	0.15 GPD/ SF	71,869	4.0	287,475	200
1,200	Elementary School	10 GPD/ Stu.	12,000	4.0	48,000	33
0	High School	10 GPD/ Stu.	0	4.0	0	0
Total			**517,421**			**1,154**
Friar's Cove						
0	Detached Residential	300	0	3.0	0	0
0	Attached Residential	300	0	3.5	0	0
0	Commercial	0.1 GPD/SF	0	4.0	0	0
0	Office	0.15 GPD/ SF	0	4.0	0	0
0	Elementary School	10 GPD/ Stu.	0	4.0	0	0
0	Middle School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**
Tohoqua						
344	Detached Residential	300	103,200	3.0	309,600	215
401	Attached Residential	300	120,300	3.0	360,900	251
12,960	Commercial	0.1 GPD/SF	1,296	4.0	5,184	4
24,528	Office	0.15 GPD/ SF	3,679	4.0	14,717	10
600	Elementary School	10 GPD/Stu.	6,000	4.0	24,000	17
0	Middle School	10 GPD/ Stu.	0	4.0	0	0
0	High School	10 GPD/ Stu.	0	4.0	0	0
Total			**234,475**			**496**
Whaley Platt Area						
0	Detached Residential	300.0	0	3.0	0	0
0	Attached Residential	300.0	0	3.0	0	0
0	Commercial	0.1 GPD/SF	0	4.0	0	0
0	Office	0.15 GPD/ SF	0	4.0	0	0
0	Elementary School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**

Table TA3.2-5d. St. Cloud Projected Wastewater Demand, Build Out

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Bella Tara						
0	Detached Residential	300	0	3.0	0	0
0	Attached Residential	300	0	3.0	0	0
0	Elementary School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**
Edgewater						
0	Detached Residential	300	0	3.0	0	0
0	Attached Residential	300	0	3.0	0	0
0	Commercial	0.1 GPD/SF	0	4.0	0	0
0	Office	0.15 GPD/ SF	0	4.0	0	0
0	Elementary School	10 GPD/ Stu.	0	4.0	0	0
0	High School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**
Friar's Cove						
0	Detached Residential	300	0	3.0	0	0
0	Attached Residential	300	0	3.5	0	0
0	Commercial	0.1 GPD/SF	0	4.0	0	0
0	Office	0.15 GPD/ SF	0	4.0	0	0
0	Elementary School	10 GPD/ Stu.	0	4.0	0	0
0	Middle School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**
Tohoqua						
0	Detached Residential	300	0	3.0	0	0
0	Attached Residential	300	0	3.0	0	0
0	Commercial	0.1 GPD/SF	0	4.0	0	0
0	Office	0.15 GPD/ SF	0	4.0	0	0
0	Elementary School	10 GPD/Stu.	0	4.0	0	0
0	Middle School	10 GPD/ Stu.	0	4.0	0	0
0	High School	10 GPD/ Stu.	0	4.0	0	0
Total			**0**			**0**
Whaley Platt Area						
2,400	Detached Residential	300.0	720,000	3.0	2,160,000	1,500
2,372	Attached Residential	300.0	711,600	3.0	2,134,800	1,483
216,200	Commercial	0.1 GPD/SF	21,620	4.0	86,480	60
246,100	Office	0.15 GPD/ SF	36,915	4.0	147,660	103
600	Elementary School	10 GPD/ Stu.	6,000	4.0	24,000	17
Total			**1,496,135**			**3,162**

The future capacity of the expanded Southside WWTP will be approximately 10.0 MGD (at full build out). Since the total projected wastewater demand for the City of St. Cloud service territory is approximately 10.00 MGD, the future capacity of the expanded City of St. Cloud wastewater treatment system should be sufficient to treat the future demands. However, additional lift stations and wastewater collection system lines will be required to serve the infill development.

Wastewater Cost Estimates

Infrastructure upgrades required to support growth within the planning area will include a new WWTP and an associated collections system. For consistency, the unit prices from the 2008 Master Plan cost estimates were used in the cost estimate calculations. The unit quantities for the wastewater collection system infrastructure were determined using the following methodology:

- The number of additional lift stations was determined by using the number found in the East Toho Association Master Utility Plan.
- The total length of the gravity collection system was estimated based on the conceptual plan provided by RJ Whidden and Assoc., Inc. See Table TA3.2-6, *St. Cloud Wastewater Quantities*, for the detailed wastewater infrastructure cost estimate.

Table TA3.2-7, *St. Cloud Wastewater Capital Costs*, summarizes the total capital cost estimate for the wastewater treatment and collection system required to serve the portion of the planning area that is within the City of St. Cloud service territory.

Table TA3.2-6. St. Cloud Wastewater Quantities

Roadway	Pipe Size (Inches)	Feet	Miles	Cost per Mile	Cost
Bella Tara					
Street	4	587	0.11	$316,800	$35,220
	6	230	0.04	$316,800	$13,800
Boulevard	8	15,209	2.88	$316,800	$912,540
	10	9,225	1.75	$390,720	$682,650
	12	0	0.00	$459,360	$-
	15	0	0.00	$897,600	$-
	18	0	0.00	$897,600	$-
	20	0	0.00	$897,600	$-
Total					**$1,644,210**
Edgewater					
Street	4	4,204	0.80	$316,800	$252,240
	6	11,543	2.19	$316,800	$692,580
Boulevard	8	30,482	5.77	$316,800	$1,828,920
	10	17,550	3.32	$390,720	$1,298,700
	12	10,882	2.06	$459,360	$946,734
	15	4,564	0.86	$897,600	$775,880
	18	9,176	1.74	$897,600	$1,559,920
	20	0	0.00	$897,600	$-
Total					**$7,354,974**
Friar's Cove					
Street	4	0	0.00	$316,800	$-
	6	168	0.03	$316,800	$10,080
Boulevard	8	9,400	1.78	$316,800	$564,000
	10	9,225	1.75	$390,720	$682,650
	12	9,670	1.83	$459,360	$841,290
	15	0	0.00	$897,600	$-
	18	0	0.00	$897,600	$-
	20	0	0.00	$897,600	$-
Total					**$2,098,020**
Tohoqua					
Street	4	0	0.00	$316,800	$-
	6	0	0.00	$316,800	$-
Boulevard	8	27,725	5.25	$316,800	$1,663,500
	10	18,990	3.60	$390,720	$1,405,260
	12	0	0.00	$459,360	$-
	15	0	0.00	$897,600	$-

Table TA3.2-6. St. Cloud Wastewater Quantities

Roadway	Pipe Size (Inches)	Feet	Miles	Cost per Mile	Cost
Tohoqua (con't.)					
	18	0	0.00	$897,600	$-
	20	0	0.00	$897,600	$-
Total					**$3,068,760**
Whaley Platt Area					
Street	4	0	0.00	$316,800	$-
	6	0	0.00	$316,800	$-
Boulevard	8	14,024	2.66	$316,800	$841,440
	10	12,000	2.27	$390,720	$888,000
	12	0	0.00	$459,360	$-
	15	0	0.00	$897,600	$-
	18	0	0.00	$897,600	$-
	20	0	0.00	$897,600	$-
Total					**$1,729,440**
St. Cloud Total	214,409	40.61	N/A	$15,856,689	

Table TA3.2-7. St. Cloud Wastewater Capital Costs

Capital Project	Units	Unit Cost	Cost
Lift Stations	24 Each	$500,000/ LS	$12,000,000
4" Pipe	0.91 Miles	$316,800/ Mile	$287,460
6" Pipe	2.26 Miles	$316,800/ Mile	$716,460
8" Pipe	18.34 Miles	$316,800/ Mile	$5,810,400
10" Pipe	12.69 Miles	$390,720/ Mile	$4,957,260
12" Pipe	3.81 Miles	$459,360/ Mile	$1,749,309
15" Pipe	0.86 Miles	$897,600/ Mile	$775,880
18" Pipe	1.74 Miles	$897,600/ Mile	$1,559,920
Total			**$27,856,689**

Reclaimed Water

The City of St. Cloud reclaimed water supply system currently consists of approximately 14,440 gpm of firm pumping capacity, a small storage tank and a 90 million gallon reservoir at the Southside WWTP. The City's reclaimed water distribution system consists of several miles of 12 to 24 inch pipe primarily in the western portion of the service territory.

The May 2007 Master Plan Update analyzed the non-potable water demand and determined future sizes and locations necessary to satisfy future demands. The demand projection was revised by the 2008 Master Plan Update. According to the 2008 Master Plan Update, the City of St. Cloud's non-potable water demand will increase from 2 MGD to 19 MGD over the next 20 years. Table TA3.2-8, *St. Cloud Reclaimed Water Demand Projections*, below compares the planning area projected demands to the City of St. Cloud 2008 Master Plan Update projections. Tables TA3.2-8a through TA3.2-8d show a detailed breakdown of the values used to calculate the demand projections.

As stated for water and wastewater, the October 2008 Master Utility Plan Update demand projections include only the demands from future planned developments. Vacant land within the City's services territory was not included. The total projected non-potable water demand for the City of St. Cloud service territory is approximately 17.00 MGD.

Reclaimed Water Supply

The non-potable water supply for the future demands will be provided by a combination of reclaimed water from wastewater treatment plant effluent, reused stormwater, surface water sources and possibly aquifer storage and recovery wells. The current non-potable water supply source is reclaimed wastewater. At full build out, the Lakeshore WWTP will be able to supply approximately 10.0 MGD of reclaimed wastewater. This amount will be insufficient to meet the projected 17.00 MGD demand. Therefore, approximately 7.0 MGD of additional non-potable source water must be identified. The following non-potable water supply sources are being considered to meet the future demands:

- Stormwater capture from wet detention ponds
- Reclaimed wastewater
- Surface water augmentation projects

Reclaimed Water Capital Improvements

According to the October 2008 Utility Master Plan Update, the existing and proposed infrastructure required to meet the projected non-potable water demand is shown in Map TA3.2-3, *City of St. Cloud, Reuse Mater Plan, Non-Potable Water Infrastructure*. The following is a partial list of the proposed infrastructure improvements taken from the October 2008 Utility Master Plan Update:

- Miscellaneous transmission line extensions
- Lakeshore horizontal well
- SSWWTF Reclaim Pond Expansion
- East of Lake Toho Surface Water Augmentation
- Phase 2 Surface Water Augmentation

Table TA3.2-8. St. Cloud Reclaimed Water Demand Projections

	East of Lake Toho Demand Projections	2008 Updated City of St. Cloud Master Plan Projected Demands
5-year (2015)	12.31	10.0
10-year (2020)	13.65	15.0
Ultimate Build Out	16.31	17.0

Note: Projected demands are in MGD at average daily flow (ADF).

Table TA3.2.8a. St. Cloud Projected Overall Reclaimed Water Demand

Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Bella Tara					
2,902	Detached Residential		1.5	4,353	1,567,080
1,562	Attached Residential		1.5	2,343	843,480
	Elementary School	215,622		150	53,906
	Park	203,657		141	50,914
Total				**6,987**	**2,515,380**
Edgewater					
6,494	Detached Residential		1.5	9,741	3,506,760
4,298	Attached Residential		1.5	6,447	2,320,920
	Commercial	511,042		355	127,761
	Elementary School	646,866		449	161,717
	High School	1,156,518		803	289,130
Total				**17,795**	**6,406,287**
Friar's Cove					
1,823	Detached Residential		1.5	2,735	984,420
1,201	Attached Residential		1.5	1,802	648,540
	Commercial	94,331		66	23,583
	Elementary School	215,622		150	53,906
	Middle School	333,244		231	83,311
Total				**4,983**	**1,793,759**
Tohoqua					
2,457	Detached Residential		1.5	3,686	1,326,780
2,111	Attached Residential		1.5	3,167	1,139,940
	Commercial	138,784		96	34,696
	Elementary School	215,622		150	53,906
	Middle School	333,244		231	83,311
	High School	1,156,518		803	289,130
Total				**8,133**	**2,927,762**
Whaley Platt Area					
2,400	Detached Residential		1.5	3,600	1,296,000
2,372	Attached Residential		1.5	3,558	1,280,880
	Commercial	120,430		84	30,108
	Elementary School	215,622		150	53,906
Total				**7,391**	**2,660,893**

Table TA3.2.8b. St. Cloud Projected Reclaimed Water Demand, Phase I (2015)

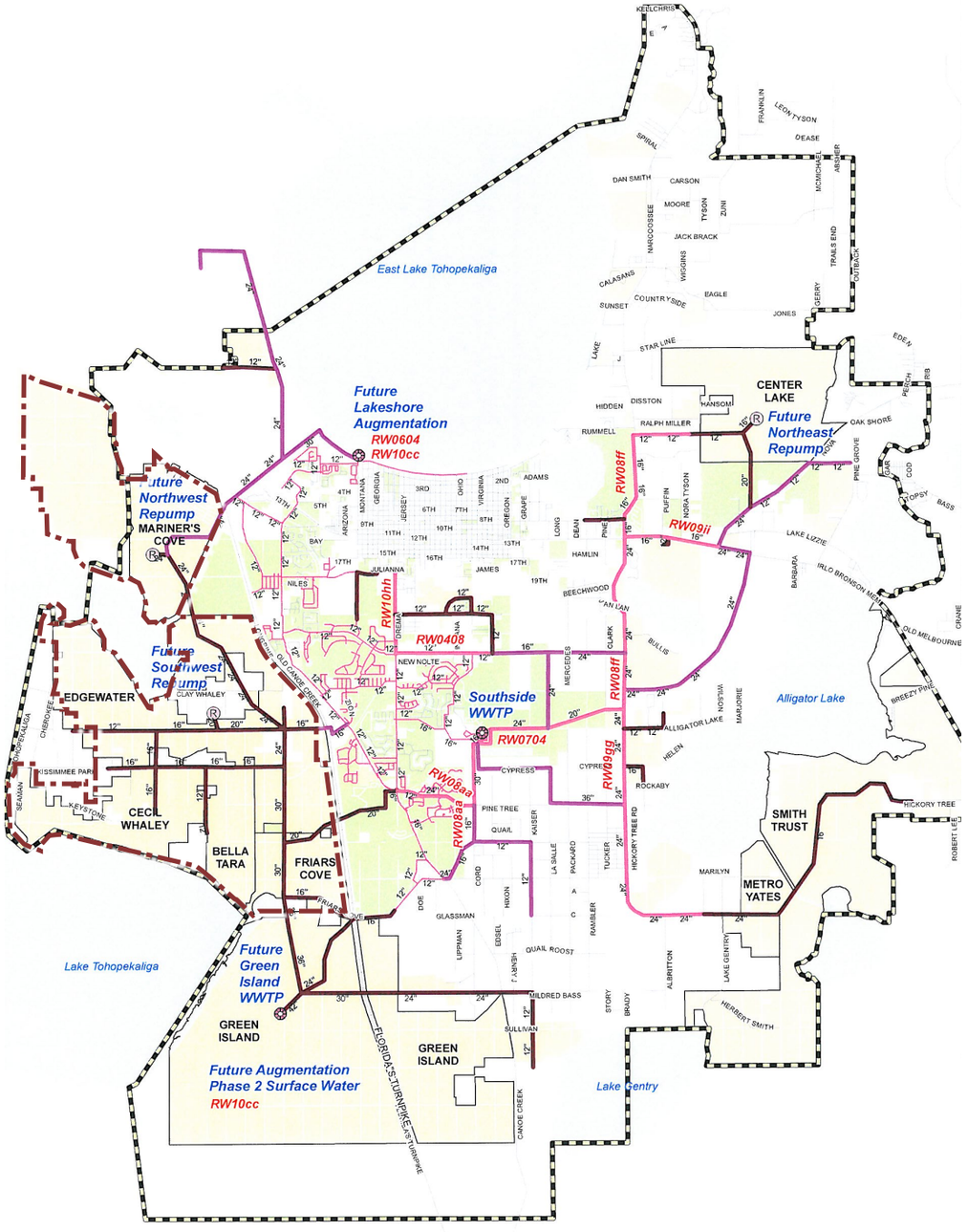
Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Bella Tara					
2,902	Detached Residential		1.5	4,353	1,567,080
1,562	Attached Residential		1.5	2,343	843,480
	Elementary School	215,622		150	53,906
	Park	203,657		141	50,914
Total				**6,987**	**2,515,380**
Edgewater					
5,650	Detached Residential		1.5	8,475	3,051,000
3,782	Attached Residential		1.5	5,673	2,042,280
	Commercial	383,282		266	95,821
	Elementary School	215,622		150	53,906
	High School	1,156,518		803	289,130
Total				**15,367**	**5,532,136**
Friar's Cove					
1,823	Detached Residential		1.5	2,735	984,420
1,201	Attached Residential		1.5	1,802	648,540
	Commercial	94,331		66	23,583
	Elementary School	215,622		150	53,906
	Middle School	333,244		231	83,311
Total				**4,983**	**1,793,759**
Tohoqua					
2,113	Detached Residential		1.5	3,170	1,141,020
1,710	Attached Residential		1.5	2,565	923,400
	Commercial	127,681		89	31,920
	Elementary School	0		0	0
	Middle School	333,244		231	83,311
	High School	1,156,518		803	289,130
Total				**6,858**	**2,468,781**
Whaley Platt Area					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Commercial	0		0	0
	Elementary School	0		0	0
Total				**0**	**0**

Table TA3.2.8c. St. Cloud Projected Reclaimed Water Demand, Phase II (2020)

Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Bella Tara					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Elementary School	0		0	0
	Park	0		0	0
Total				**0**	**0**
Edgewater					
844	Detached Residential		1.5	1,266	455,760
516	Attached Residential		1.5	774	278,640
	Commercial	127,760		89	31,940
	Elementary School	431,244		299	107,811
	High School	0		0	0
Total				**2,428**	**874,151**
Friar's Cove					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Commercial	0		0	0
	Elementary School	0		0	0
	Middle School	0		0	0
Total				**0**	**0**
Tohoqua					
344	Detached Residential		1.5	516	185,760
401	Attached Residential		1.5	602	216,540
	Commercial	11,103		8	2,776
	Elementary School	215,622		150	53,906
	Middle School	0		0	0
	High School	0		0	0
Total				**1,275**	**458,981**
Whaley Platt Area					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Commercial	0		0	0
	Elementary School	0		0	0
Total				**0**	**0**

Table TA3.2.8d. St. Cloud Projected Reclaimed Water Demand, Build Out

Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Bella Tara					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Elementary School	0	0	0	0
	Park	0		0	0
Total				**0**	**0**
Edgewater					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Commercial	0	0	0	0
	Elementary School	0	0	0	0
	High School	0	0	0	0
Total				**0**	**0**
Friar's Cove					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Commercial	0	0	0	0
	Elementary School	0	0	0	0
	Middle School	0	0	0	0
Total				**0**	**0**
Tohoqua					
0	Detached Residential		1.5	0	0
0	Attached Residential		1.5	0	0
	Commercial	0	0	0	0
	Elementary School	0	0	0	0
	Middle School	0	0	0	0
	High School	0	0	0	0
Total				**0**	**0**
Whaley Platt Area					
2,400	Detached Residential		1.5	3,600	1,296,000
2,372	Attached Residential		1.5	3,558	1,280,880
	Commercial	120,430		84	30,108
	Elementary School	215,622		150	53,906
Total				**7,391**	**2,660,893**



Map TA3.2-3. City of St. Cloud, Reuse Mater Plan, Non-Potable Water Infrastructure

Non-Potable Water Infrastructure
- Non-Potable Water Storage Tank
- Non-Potable Water Source
- Existing Non-Potable Water Pipe
- 5-Year CIP Pipe
- City Corridor Pipe
- Developer Corridor Pipe

Development Areas
- Major Development Areas
- County Developments
- Subdivisions

Boundaries
- East of Lake Toho Planning Area
- W & WW Service Boundary

0 3,000' 6,000' 12,000'

Table TA3.2-9. St. Cloud Reclaimed Water Quantities

Roadway	Pipe Size (Inches)	Feet	Miles	Cost per Mile	Cost
Bella Tara					
Street	8	20,817	3.94	$316,800	$1,249,020
	12	0	0.00	$459,360	$-
	16	746	0.14	$897,600	$126,820
Boulevard	20	2,902	0.55	$897,600	$493,340
	24	0	0.00	$897,600	$-
Total				**Total**	**$1,869,180**
Edgewater					
Street	8	98,583	18.67	$316,800	$5,914,980
	12	19,700	3.73	$459,360	$1,713,900
	16	2,284	0.43	$897,600	$388,280
Boulevard	20	1,857	0.35	$897,600	$315,690
	24	0	0.00	$897,600	$-
Total				**Total**	**$8,332,850**
Friar's Cove					
Street	8	20,285	3.84	$316,800	$1,217,100
	12	0	0.00	$459,360	$-
	16	0	0.00	$897,600	$-
Boulevard	20	1,312	0.25	$897,600	$223,040
	24	5,662	1.07	$897,600	$962,540
Total				**Total**	**$2,402,680**
Tohoqua					
Street	8	53,116	10.06	$316,800	$3,186,960
	12	0	0.00	$459,360	$-
	16	0	0.00	$897,600	$-
Boulevard	20	5,687	1.08	$897,600	$966,790
	24	0	0.00	$897,600	$-
Total				**Total**	**$4,153,750**
Whaley Platt Area					
Street	8	18,257	3.46	$316,800	$1,095,420
	12	10,435	1.98	$459,360	$907,845
	16	5,645	1.07	$897,600	$959,650
Boulevard	20	2,355	0.45	$897,600	$400,350
	24	0	0.00	$897,600	$-
Total				**Total**	**$3,363,265**
St. Cloud Total		269,643	51.07	N/A	$20,121,725

Reclaimed Water Cost Estimates

To serve the portion of the planning area that is included in the City of St. Cloud service territory, approximately 7.91 MGD of reclaimed water will be required at ultimate build out. Since the Lakeshore WWTP will be able to supply approximately 10.0 MGD, the non-potable infrastructure requirements appear sufficient to meet the ultimate demand from the planning area. The distribution line estimates were determined in the same manner as the water and wastewater estimates. See Table TA3.2-9, *St. Cloud Reclaimed Water Quantities*, for the detailed reclaimed water cost estimate.

Table TA3.2-10, *St. Cloud Reclaimed Water Capital Costs*, summarizes the total capital cost estimate for the reclaimed water system required to serve the portion of the planning area that is within the City of St. Cloud service territory.

Table TA3.1-10. St. Cloud Reclaimed Water Capital Costs

Capital Project	Units	Unit Cost	Cost
8" Pipe	39.97 Miles	$316,800/ Mile	$12,663,480
12" Pipe	5.71 Miles	$459,360/ Mile	$2,621,745
16" Pipe	1.64 Miles	$897,600/ Mile	$1,474,750
20" Pipe	2.67 Miles	$897,600/ Mile	$2,399,210
24" Pipe	1.07 Miles	$897,600/ Mile	$962,540
Total			**$20,121,725**

TA3.3 Toho Water Authority

The Toho Water Authority (TWA) serves all of Osceola County with the exception of the City of St. Cloud, as well as portions of Polk, Lake and Orange Counties. TWA provides service to approximately 73,000 water, 71,000 wastewater, and 10,000 reclaimed water customers. They distribute about 35 million gallons of water and reclaim about 21 million gallons of wastewater each day. TWA has an interlocal agreement with the City of St. Cloud that defines their service area.

The only DRI within the planning area located within TWA's service area is Toho Preserve. Table TA3.3-1, *Toho Water Authority Demand Projections*, shows the planning area demand projections that are within TWA's service area.

Water

The Toho Water Authority water supply and treatment system currently consists of 20 water treatment plants and associated groundwater supply wells. The permitted maximum day demand for the TWA water system is 77.7 MGD. These water treatment and supply facilities are separated by I-4. Although the facilities are not interconnected across I-4 the facilities are interconnected on either side. The TWA owns and maintains about 1,200 miles of water main with sizes ranging from 2" to 30". The Toho Water Authority has several water treatment plants located to the west of the planning area in Osceola and Polk Counties.

Table TA3.3-1. Toho Water Authority Service Territory Demand Projections

	Cumulative Flow in Million Gallons per Day (MGD) at Annual Average Daily Flow (AADF)		
Project	5 Year	10 Year	Ultimate Build Out
Water			
Toho Preserve	0.32	0.99	1.47
Water Total	0.32	0.99	1.47
Wastewater			
Toho Preserve	0.30	0.92	1.37
Wastewater Total	0.30	0.92	1.37
Reclaimed Water			
Toho Preserve	0.58	1.81	2.60
Reclaimed Water Total	0.58	1.81	2.60

Table TA3.3-2. Toho Water Authority Water Demand Projections

Year	East of Lake Toho Demand Projections	TWA Master Plan Projected Demands (East of I-4, plus Poinciana)	Osceola County 10-Year Water Supply Plan
2013	0.32	40.2	44.6
2018	0.99	47.1	48.6
2025	1.47	50.7	61.1

Note: Projected demands are in MGD at AADF

The TWA is in the process of drafting a Water and Wastewater System Master Plan (Draft TWA Master Plan) to evaluate their existing facilities through 2025. According to the draft document, the TWA service territory projected water demands are expected to increase from 51 MGD in 2010 to over 79.4 MGD by 2025. Of this amount, the planning area infill accounts for almost 6.47 MGD at ultimate build out. Table TA3.3-2, *Toho Water Authority Water Demand Projections*, compares the projected demands for the planning area to the Draft TWA Master Plan and the Osceola County 10-Year Water Supply Plan. Tables TA3.3-2a through TA3.3-2d show a detailed breakdown of the values used to calculate the demand projections.

Water Supply

TWA's water supply sources are permitted through two WUPs from SFWMD. WUP 49-00103-W allows for 36.5 MGD (AADF) for the TOHO I, II, and III facilities (East Osceola, East of I-4, Orange County, West of I-4, and Celebration). WUP 49-00069-W is currently under review to allow for 10.0 MGD for the former Poinciana facilities. The 46.5 MGD permitted capacity is not sufficient to meet the 2013 demand estimate of 59.3 for the TWA service territory as projected by the Draft TWA Master Plan. However, the TWA is considering AWS projects to meet the demand beyond 2013. The following is a list of some of the AWS projects that TWA is considering for the future:

- The Cypress Lake Wellfield (a joint effort with the City of St. Cloud)
- The Kissimmee River
- Brackish groundwater from the lower Floridan aquifer
- The St. Johns River/Taylor Creek Reservoir water supply project

According to the Osceola County 10-Year Water Supply Plan, the CUP's for both the TWA and the City of St. Cloud include provisions that by December 31, 2013, a minimum of 15 MGD from combined AWS projects will be available for use within the water utility service areas of TWA, City of St. Cloud, and Polk County. Of this amount, the Cypress Lake Wellfield is estimated to yield 5 to 7 MGD. Additional non-potable water supply sources are address in the Draft Tohopekaliga Water Authority Reclaimed Water/Effluent management Study currently being prepared by CDM.

Water Capital Improvements

The proposed infrastructure upgrades include: pipeline upgrades, taking the BVL Plant off-line and sending the wastewater to the McLaughlin or Parkway plant, upsizing the Southwest WTP, and implementation of the Lake Cypress AWS WTP. However, the planned capital improvement projects do not account for development within the planning area.

Water Cost Estimates

As with the City of St. Cloud cost estimates the pipeline estimates were based on assigning pipe sizes based on roadway capacity, and WTP costs were proportionally increased if additional capacity is necessary. See Table TA3.3-3, *Toho Water Authority Water Quantities*, for the detailed water transmission line cost estimate. Table TA3.3-4, *Toho Water Authority Water Capital Costs*, shows the opinion of probable construction cost estimate for the capital improvements required to support the planned development within the portion of the planning area that is served by TWA.

Table TA3.3.2a. Toho Water Authority Overall Water Demand

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Toho Preserve			
2,720	Detached Residential	300	816,000
1,756	Attached Residential	300	526,800
361,000	Commercial	0.1 GPD/ SF	36,100
451,000	Office	0.15 GPD/ SF	67,650
100,000	Institutional	0.15 GPD/ 100 SF	15,000
1,200	Elementary School	4.8 GPD/ Student	5,760
Total			**1,467,310**

Table TA3.3.2b. Toho Water Authority Water Demand, Phas I (2015)

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Toho Preserve			
1,060	Detached Residential	300	318,000
0	Attached Residential	300	0
25,270	Commercial	0.1 GPD/ SF	2,527
0	Office	0.15 GPD/ SF	0
20,000	Institutional	0.15 GPD/ 100 SF	3,000
0	Elementary School	4.8 GPD/ Student	0
Total			**323,527**

Table TA3.3.2c. Toho Water Authority Water Demand, Phase II (2020)

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Toho Preserve			
1,196	Detached Residential	300	358,800
966	Attached Residential	300	289,800
75,810	Commercial	0.1 GPD/ SF	7,581
45,100	Office	0.15 GPD/ SF	6,765
20,000	Institutional	0.15 GPD/ 100 SF	3,000
600	Elementary School	4.8 GPD/ Student	2,880
Total			**668,826**

Table TA3.3.2d. Toho Water Authority Water Demand, Build Out

Number of Units (or Square Feet)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)
Toho Preserve			
464	Detached Residential	300	139,200
790	Attached Residential	300	237,000
259,920	Commercial	0.1 GPD/ SF	25,992
405,900	Office	0.15 GPD/ SF	60,885
60,000	Institutional	0.15 GPD/ 100 SF	9,000
600	Elementary School	4.8 GPD/ Student	2,880
Total			**474,957**

Table TA3.3-3. Toho Water Authority Water Quantities

Roadway	Pipe Size (Inches)	Feet	Miles	Cost per Mile	Cost
Toho Preserve					
Street	8	22,500	4.26	$316,800	$1,350,000
	12	22,500	4.26	$459,360	$1,957,500
	16	7,300	1.38	$897,600	$1,241,000
Boulevard	20	0	0.00	$897,600	$-
	24	0	0.00	$897,600	$-
Total					**$4,548,500**
TWA Total		52,300	9.91	N/A	$4,548,500

Table TA3.3-4. Toho Water Authority Water Capital Costs

Capital Project	Units	Unit Cost	Cost
8" Pipe	4.26 Miles	$316,800/ Mile	$1,350,000
12" Pipe	4.26 Miles	$459,360/ Mmile	$1,957,500
16" Pipe	1.38 Miles	$897,600/ Mile	$1,241,000
Total			**$4,548,500**

Wastewater

The Toho Water Authority owns and operates 8 wastewater treatment plants, and has 357 wastewater lift stations. TWA maintains about 980 miles of wastewater pipe, and 240 miles of reclaimed pipe. The wastewater treatment system is currently permitted for 24.85 MGD (maximum day demand).

Like the water system, the TWA wastewater treatment facilities are separated by I-4. Although the facilities are not interconnected across I-4 the facilities are interconnected on either side. Table TA3.3-5, *Toho Water Authority Wastewater Demand Projections*, compares the projected demands for the planning area development to the Draft TWA Master Plan projected demands.

As with the water demand projections in the Draft TWA Master Plan, only demands from future planned developments were included. According to the Draft TWA Master Plan, the TWA service territory projected wastewater demands are expected to increase from approximately 20 MGD to approximately 30.2 MGD by 2025. Of this amount, the Toho Preserve accounts for 1.37 MGD at ultimate build out.

Wastewater Capital Improvements

The following methodology was used to quantify the required collection system infrastructure:

- The number of additional lift stations was determined by dividing the ultimate demand of 1.37 MGD (AADF) in gallons per minute (gpm) by an assumed average lift station capacity of 2,000 gpm. A peak hour factor of 4 was used.
- The draft transportation roadway network was used as a basis to determine level of service capacity for the corresponding wastewater collection system piping.
- The total length of the gravity collection system was assumed to be equal to the total length of all Streets. See Table TA3.3-6, *Toho Water Authority Wastewater Quantities*, for the detailed wastewater infrastructure cost estimate.

Wastewater Cost Estimates

Table TA3.3-7, *Toho Water Authority Wastewater Capital Costs*, shows the opinion of probable construction cost estimate for the capital improvements with the planning area that is served by TWA. For consistency, the unit prices were taken from the Draft TWA Master Plan estimates.

Table TA3.3-5. Toho Water Authority Wastewater Demand Projections

Year	East of Lake Toho Demand Projections (MGD)	TWA Master Plan Projected Demands (MGD)
2015	0.30	25.0
2020	0.92	29.5
2025	1.37	30.2

Note: Projected demands are in MGD at AADF

Table TA3.3-5a. Toho Water Authority Overall Wastewater Demand

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Toho Preserve						
2,720	Detached Residential	276.0 GPD	750,720	2.0	1,501,440	1,043
1,756	Attached Residential	276.0 GPD	484,656	2.5	1,211,640	841
361,000	Commercial	0.1 GPD/SF	36,100	3.5	126,350	88
451,000	Office	0.15 GPD/SF	67,650	4.0	270,600	188
100,000	Institutional	0.15 GPD/SF	15,000	3.5	52,500	36
1,200	Elementary School	10 GPD/Stu.	12,000	4.0	48,000	33
Total			**1,366,126**			**2,230**

Table TA3.3-5b. Toho Water Authority Wastewater Demand, Phase I (2015)

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Toho Preserve						
1,060	Detached Residential	276.0 GPD	292,560	2.0	585,120	406
0	Attached Residential	276.0 GPD	0	2.5	0	0
25,270	Commercial	0.1 GPD/SF	2,527	3.5	8,845	6
0	Office	0.15 GPD/SF	0	4.0	0	0
20,000	Institutional	0.15 GPD/SF	3,000	3.5	10,500	7
0	Elementary School	10 GPD/Stu.	0	4.0	0	0
Total			**298,087**			**420**

Table TA3.3-5c. Toho Water Authority Wastewater Demand, Phase II (2020)

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Toho Preserve						
1,196	Detached Residential	276.0 GPD	330,096	2.0	660,192	458
966	Attached Residential	276.0 GPD	266,616	2.5	666,540	463
75,810	Commercial	0.1 GPD/SF	7,581	3.5	26,534	18
45,100	Office	0.15 GPD/SF	6,765	4.0	27,060	19
20,000	Institutional	0.15 GPD/SF	3,000	3.5	10,500	7
600	Elementary School	10 GPD/Stu.	6,000	4.0	24,000	17
Total			**620,058**			**983**

Table TA3.3-5d. Toho Water Authority Wastewater Demand, Build Out

Number of Units (or SF)	Unit Type	Unit Flow Rate (GPD)	ADF (GPD)	Peaking Factor	PDF (GPD)	PDF (GPM)
Toho Preserve						
464	Detached Residential	276.0 GPD	128,064	2.0	256,128	178
790	Attached Residential	276.0 GPD	218,040	2.5	545,100	379
259,920	Commercial	0.1 GPD/SF	25,992	3.5	90,972	63
405,900	Office	0.15 GPD/SF	60,885	4.0	243,540	169
60,000	Institutional	0.15 GPD/SF	9,000	3.5	31,500	22
600	Elementary School	10 GPD/Stu.	6,000	4.0	24,000	17
Total			**447,981**			**827**

Table TA3.3-6. Toho Water Authority Wastewater Quantities

Roadway	Pipe Size (Inches)	Feet	Miles	Cost per Mile	Cost
Toho Preserve					
Street	4	0	0.00	$316,800	$-
	6	0	0.00	$316,800	$-
Boulevard	8	24,000	4.55	$316,800	$1,440,000
	10	15,250	2.89	$390,720	$1,128,500
	12	0	0.00	$459,360	$-
	15	0	0.00	$897,600	$-
	18	0	0.00	$897,600	$-
	20	0	0.00	$897,600	$-
Total					**$2,568,500**
TWA Total		52,300	9.91	N/A	$2,568,500

Table TA3.3-7. Toho Water Authority Wastewater Capital Costs

Capital Project	Units	Unit Cost	Cost
Lift Stations	2 each	$500,000/LS	$1,000,000
8" PVC Gravity Line	4.55 miles	$316,800	$1,440,000
10" PVC Force Main	2.89 miles	$390,720	$1,128,500
Total			**$3,568,500**

Reclaimed Water

At this time, CDM is preparing the Tohopekaliga Water Authority Reclaimed Water/Effluent Management Study (Draft Reclaimed Water Study). According to the Draft Reclaimed Water Study, the TWA reclaimed wastewater system currently consists of four (4) wastewater reclamation facilities and associated storage facilities and transmission lines. The system currently serves primarily the northeastern section of Osceola County. In all, the TWA reclaimed water system is capable of producing 14.19 MGD. The current demand is estimated at 8.48 MGD. According to Table TA3.3-1, *Toho Water Authority Demand Projections*, the planning area estimated ultimate reclaimed water demand is 2.60 MGD. Tables TA3.3-8a through TA3.3-8d show a detailed breakdown of the values used to calculate the demand

Reclaimed Water Capital Improvements

According to the Draft Reclaimed Water Study, no reclaimed water system is planned in the vicinity of the planning area. Therefore, the entire infrastructure required to support the planning area will need to be constructed. A non-potable source water will need to come from one or a combination of stormwater reuse or surface water sources. Storage facilities for the reclaimed water may be from a combination of ASR wells, storage tanks, or reservoirs.

Reclaimed Water Cost Estimates

The projected reclaimed water infrastructure cost estimate is based on the following methodology:

- Reclaimed water transmission line quantities were assumed to be the same as the water transmission line quantities.

See Table TA3.3-9, *Toho Water Authority Reclaimed Water Quantities*, for the detailed calculation. Table TA3.3-10, *Toho Water Authority Reclaimed Water Capital Costs*, is a summary of the estimated reclaimed water infrastructure costs.

3.4 Summary

According to the City of St. Cloud's Utility Master Plan, the City has accounted for the projected ten year water, wastewater, and non-potable water demand that will be generated by the portion of the Planning area within their service territory. However, beyond the ten year horizon, additional infill development has not been accounted for. This additional demand will require increased water and wastewater treatment capacity, the identification and construction of alternative water supply sources and additional transmission/collection systems.

According to the Draft Toho Water Authority utility master plan documents, the TWA has not accounted for any water, wastewater or non-potable water demand that will be generated by the portion of the Planning area within their service territory. To accommodate this demand, the TWA will need to either expand or construct new water and wastewater treatment facilities. Additionally, the TWA will need to identify AWS projects that can supply the projected non-potable water demand.

Table TA3.3.8a. Toho Water Authority Overall Reclaimed Water Demand

Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Toho Preserve					
2,720	Detached Residential		1.5	4,080	1,468,800
1,756	Attached Residential		1.5	2,634	948,240
	Commercial	216,212		150	54,053
	Institutional	96,991		67	24,248
	Elementary School	431,244		299	107,811
Total				**7,231**	**2,603,152**

Table TA3.3.8b. Toho Water Authority Reclaimed Water Demand, Phase I (2015)

Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Toho Preserve					
1,060	Detached Residential		1.5	15,135	15,135
0	Attached Residential		1.5	0	0
	Commercial	15,135		0	0
	Institutional	0		15,135	15,135
	Elementary School	0		0	0
Total				0	0

Table TA3.3.8c. Toho Water Authority Reclaimed Water Demand, Phase II (2020)

Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Toho Preserve					
1,196	Detached Residential		1.5	1,794	645,840
966	Attached Residential		1.5	1,449	521,640
	Commercial	45,405		32	11,351
	Institutional	9,699		7	2,425
	Elementary School	215,622		150	53,906
Total				3,431	1,235,162

Table TA3.3.8d. Toho Water Authority Reclaimed Water Demand, Build Out

Number of Units (or SF)	Unit Type	Max. Demand (Gallons per Week)	Unit Flow Rate (GPM)	Demand (GPM)	Demand (GPD)
Toho Preserve					
464	Detached Residential		1.5	696	250,560
790	Attached Residential		1.5	1,185	426,600
	Commercial	155,672		108	38,918
	Institutional	87,292		61	21,823
	Elementary School	215,622		150	53,906
Total				2,199	791,807

Table TA3.3-8. Toho Water Authority Reclaimed Water Quantities

Roadway	Pipe Size (Inches)	Feet	Miles	Cost per Mile	Cost
Toho Preserve					
Street	8	45,000	8.52	$316,800	$2,700,000
	12	0	0.00	$459,360	$-
	16	0	0.00	$897,600	$-
Boulevard	20	7,300	1.38	$897,600	$1,241,000
	24	0	0.00	$897,600	$-
Total					**$3,941,000**
TWA Total		52,300	9.91	N/A	$3,941,000

Table TA3.3-9. Toho Water Authority Reclaimed Water Capital Costs

Capital Project	Units	Unit Cost	Cost
8" Pipe	8.52 Mmiles	$316,800/ Mile	$2,700,000
20" Pipe	1.38 Miles	$897,600/ Mile	$1,241,000
Total			**$3,941,000**

TA3.5 Drainage

Existing Conditions

The 11,250 acres that make up the East of Lake Toho planning area consists primarily of a general agricultural and mixed land uses. The project area consists of improved cattle grazing areas, farmland, ranches, undeveloped uplands, and wetlands. Typical with this type of use, there are many historic drainage ditches, waterways, and borrow pits that convey water throughout the site for drainage and irrigation purposes, as well as for cattle watering holes. The existing hydrology and drainage patterns have been altered from their historic conditions as a result of the construction of the ditch networks and watering holes. The project area is fairly flat across the entire site, generally ranging between an elevation of 55-feet to 80-feet.

The St. Cloud Canal runs adjacent to the northeast boundary of the East of Lake Toho planning area. The St. Cloud Canal provides an outfall for East Lake Tohopekaliga, which connects and discharges to Lake Tohopekaliga.

Several channelized streams and ditches traverse the East of Lake Toho planning area which provide outfall for off-site watersheds into Lake Tohopekaliga. The Gator Bay Slough (Basin OS1) is an offsite watershed consisting of approximately 2,900 acres. The Gator Bay branch flows through the southeast corner of the planning area. The WPA Canal Basin (Basin OS2) is an offsite watershed of approximately 2,500 acres.

The WPA Canal is located at the southeast corner of the planning area, and intersects and combines with the Gator Bay branch. The system flows south where it discharges into Friars Cove (Lake Toho).

A complete and updated topographic survey was not available at the time of this study. All topographical information is based off USGS Quad Maps and aerial photographs.

Soils

Existing soils were determined by referencing the USDA Soil Conservation Service (SCS) Soil Survey for Osceola County. A wide variety of soils exist within the planning area, the majority primarily comprised of hydrologic group A/D, B/D, and D soil types.

A geotechnical evaluation will be required in order to accurately establish the soil characteristics and general subsurface conditions within the planning area.

The soil map units and their characteristics as provided by the SCS are summarized in the following table, Table TA3.5-1, *Soils*. Also depicted are the acreages in which they are contained onsite.

Table TA3.5-1. Soils

Map #	Soil	Hydrologic Group	Dept to High Water Table (ft)	Area (Ac.)	Area (%)
1	Adamsville Sand	C	2.0-3.5	306	2.7
2	Adamsville Variant Fine Sand, 0 to 5%	C	2.0-3.5	151	1.3
5	Basinger Fine Sand	B/D	0-1.0	949	8.4
6	Basinger Fine Sand, Depressional	D	+2-1.0	292	2.6
9	Cassia Fine Sand	C	1.5-3.5	42	0.4
10	Delray Loamy Fine Sand, Depressional	D	+2-1.0	279	2.5
12	Floridana Fine Sand, Depressional	D	+2-1.0	72	0.6
14	Holopaw Fine Sand	B/D	1-1.0	371	3.3
15	Hontoon Muck	B/D	+2-1.0	142	1.3
16	Immokalee Fine Sand	B/D	0-1.0	1.026	9.1
17	Kaliga Muck	B/D	+2-0	367	3.3
22	Myakka Fine Sand	B/D	0-1.0	1,250	11.1
24	Narcoossee Fine Sand	C	2.0-3.5	214	1.9
25	Nittaw Muck	D	+2-1.0	419	3.7
26	Oldsmar Fine Sand	B/D	0-1.0	112	1.0
27	Ona Fine Sand	B/D	0-1.0	74	0.7
28	Paola Sand, 0 to 5%	A	>6.0	36	0.3
32	Placid Fine Sand	D	+2-1.0	440	3.9
34	Pomello Fine Sand, 0 to 5%	C	20.-3.5	142	1.3
36	Pompano Fine Sand	B/D	0-1.0	482	4.3
38	Riviera Fine Sand	C/D	0-1.0	493	4.4
39	Riviera Fine Sand, Depressional	D	+2-1.0	66	0.6
40	Samsula Muck	B/D	+2-1.0	159	1.4
42	Smyrna Fine Sand	B/D	0-1.0	1,614	14.4
44	tavares Fine Sand, 0 to 5% Slopes	A	305-5.0	101	0.9
45	Vero Fine Sand	B/D	0-1.0	30	0.3
46	Wauchula Fine Sand	B/D	0-1.0	73	0.6
47	Winder Loamy Fine Sand	B/D	0-1.0	252	2.2
99	Water	NA	-	1,598	14.2
Total				11,245	100.0

Groundwater and Surface Water

Groundwater levels were assumed based off the soil characteristics as listed in the USDA Soil Conservation Service (SCS) Soil Survey for Osceola County. Based on the general soil characteristics, the water table throughout the site will be at ground level to within 2 feet below ground level, providing for a high water table throughout the project area.

A geotechnical evaluation will be required in order to accurately establish the soil characteristics and general subsurface conditions within the planning area. The geotechnical evaluation will accurately determine the normal water levels and seasonal high water levels that exist throughout the site.

The Lake Toho Protection Area includes a 250-foot minimum, 500-foot average buffer along the Lake Toho lakeshore, measured from the controlled water elevation of 55-feet.

Wetlands

The wetland boundary lines utilized for this study were obtained from the SFWMD GIS database, NWI 1990. Based on this data, approximately 2,385 acres of wetlands exist within the planning area. Refer to Table TA3.5-2, *Wetland Basins*, for wetland basin totals.

The wetland boundaries are approximate and cannot be formally determined until a topographic survey and environmental assessment are completed, and the wetland jurisdictional limits are field reviewed/ approved by South Florida Water Management District (SFWMD) and the U.S. Army Corps of Engineers (ACOE). The environmental assessment will be required in order to determine the type, quality, and other characteristics of the wetlands.

Existing Drainage

Basins

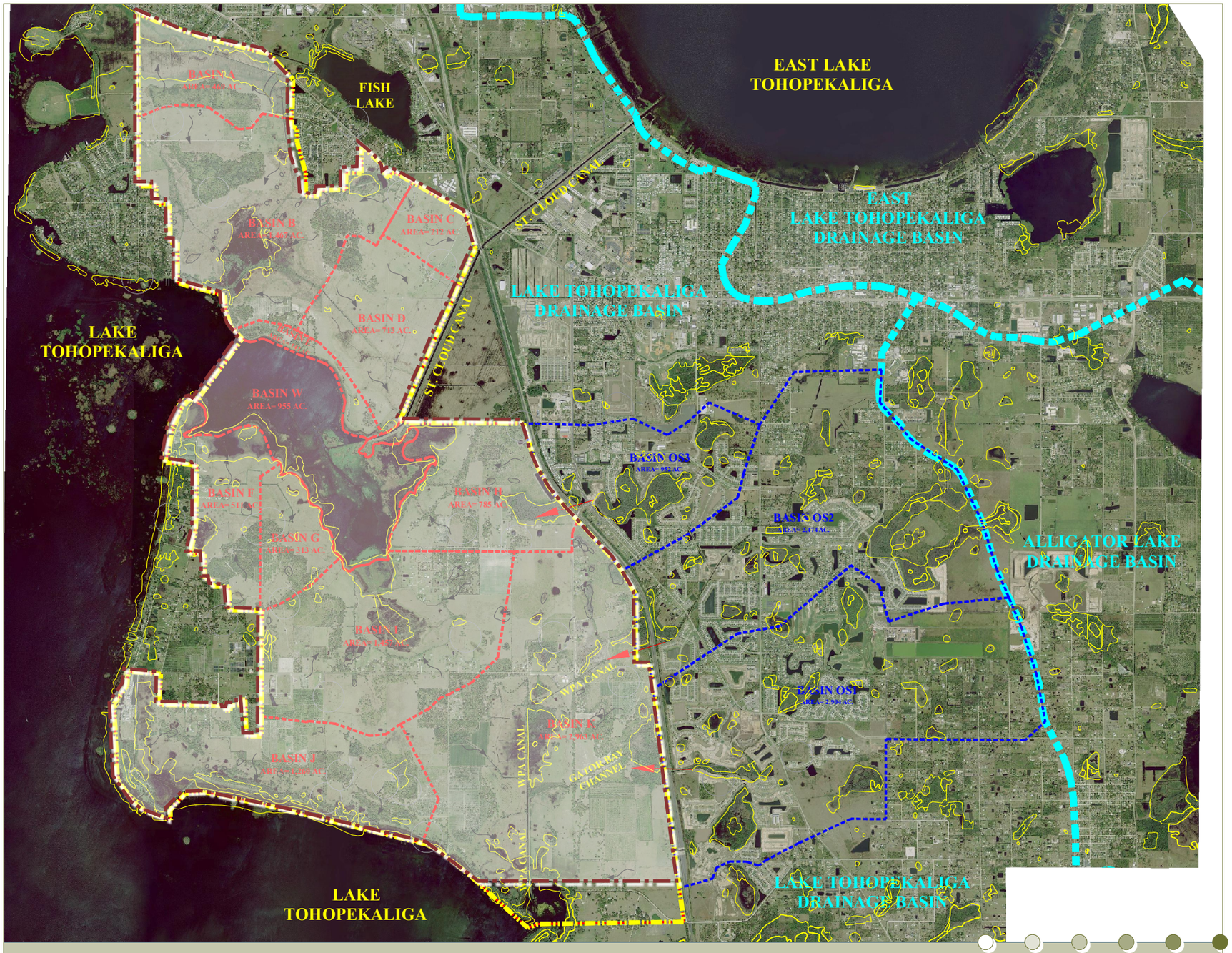
The East of Lake Toho planning area is entirely contained within the SFWMD Lake Tohopekaliga Major Drainage Basin. The major basin boundary lines were obtained from the SFWMD GIS database. The subject property was broken into eleven (11) onsite drainage sub-basins. The sub-basins were interpreted utilizing the USGS Quad map and most current aerial imagery.

Three (3) separate offsite drainage sub-basins contribute runoff through the site which discharges to Lake Tohopekaliga. The offsite runoff is conveyed through a series of existing channelized streams, ditches, and wetlands.

Refer to Map TA3.5-1, *Aerial Drainage Basin Exhibit*, and Map TA3.5-2, *Quad Map Exhibit*.

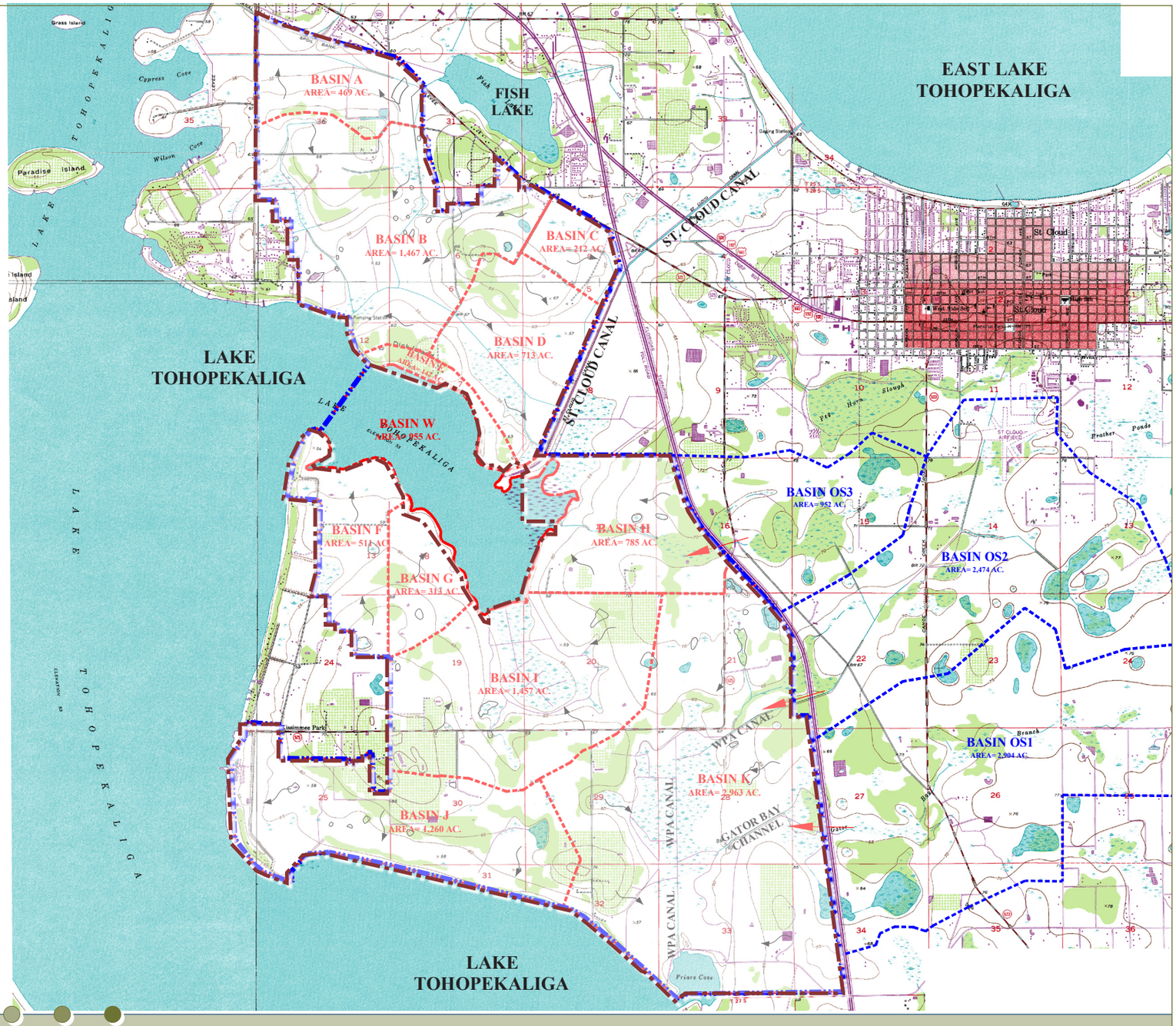
Table TA3.5-2. Wetland Basins

Basin	Drainage Basin Area (Acres)	Existing Wetlands (Acres)
A	469	190
B	1,467	166
C	212	0
D	713	18
E	142	28
F	511	148
G	313	16
H	786	113
I	1,456	206
J	1,260	229
K	2,963	508
W	954	954
Total	11,245	2,575



Map TA3.5-1. Aerial Drainage Basin Exhibit

Drainage Basins	Boundaries
Drainage Sub-Basin Lines	East of Lake Toho Planning Area
SFWMD Major Basin Divide	



MAP TA3.5-2. USGS QUAD MAP EXHIBIT

DRAINAGE BASINS

Pre-Development Basin Lines

BOUNDARIES

East of Lake Toho Planning Area

0 1,320' 2,640' 5,280'

Table TA3.5-3. Pre-Development Curve Number Calculations

Basin	Pre 'CN'	Pre 'S'	Pre Runoff 25-Year/24-Hour (Inches)	Pre Volume 25-Year/24-Hour (Acre/Feet)
A	86.4	1.57	9.46	370
B	86.4	2.28	8.82	1,078
C	86.4	2.47	8.65	153
D	86.4	2.44	8.67	515
E	86.4	2.41	8.70	103
F	86.4	1.79	9.26	394
G	86.4	2.36	8.75	228
H	86.4	2.10	8.98	588
I	86.4	2.27	8.82	1,070
J	86.4	2.58	8.56	899
K	86.4	2.06	9.01	2,224
W	98.0	0.20	10.91	867

Table TA3.5-4. Impervious Coverage

Land Use Abbreviation	Land Use Type	Land Use Acreages	% Impervious
UC	Urban Center	78	95
CC	Community Center	88	85
NC	Neighborhood Center	138	75
N1	Type 1 Neighborhood	3,309	65
N2	Type 2 Neighborhood	505	75
SD	School District	170	80
SW	Stormwater Area	1,248	100
G	Green Space	2,046	5
W	Wetland Area	1,310	100
R/W	Roadways	1,401	80

Curve number (CN) Calculations

Curve numbers (CN) for each pre-developed basin were based off the existing soils, land use, and cover type associated with each sub-basin. The CN calculations for each pre-development sub-basin can be seen in Table TA3.5-3, *Pre-Development Curve Number Calculations*, as well as Table TA3.5-8, *Basin Calculations*.

Existing Development Runoff

Pre-development runoff was determined utilizing the NRCS method. Runoff was determined for the 10-year/72-hour, 25-year/72-hour, and 100-year/72-hour storm events utilizing a rainfall of 9.51 inches, 11.15 inches, and 14.94 inches, respectively. The runoff calculations for each pre-development drainage sub-basin can be seen in Table TA3.5-3, *Pre-Development CN Calculations*, as well as Table TA3.5-8, *Basin Calculations*.

Proposed Development

Assumptions were made for impervious coverage based on each proposed land use, Table TA3.5-4, *Impervious Coverage*.

Stormwater Management

The proposed post-development stormwater management system for the East of Lake Toho planning area will consist of wet detention ponds providing water quality treatment, stormwater attenuation, and floodplain compensation. Refer to Map TA3.5-3, *Post-Development Drainage Basins*. Where applicable, wetlands will also be

utilized for stormwater attenuation and floodplain compensation. However, no untreated stormwater will be directly discharged into any wetland or lake. Providing attenuation volumes within the wetland will aid in hydrating the wetland and surrounding vegetation. The stormwater management systems will all ultimately outfall into Lake Tohopekaliga.

The stormwater management systems will be designed to limit the post-development peak discharge rate to below the pre-development rate for the 10-year/72-hour storm event. All roads shall be designed for the 10-year/72-hour storm event. Drainage sub-basins shall be limited to the pre-development discharge rates of the 10-year/72-hour storm event, or as directed by SFWMD. Refer to Table TA3.5-5, *Required Pond Acreage by Drainage Basin*.

All proposed finished floor elevations will be protected from the 100-year floodplain elevations as determined by the greater elevation of the 100-year/72-hour or a minimum 1 foot higher than the FEMA 100-year base flood elevation. Cross drains shall be designed to the 50-year frequencies for arterial roads, 25-year frequencies for collector roads, and 10-year frequencies for local roads. Side drains and roadside swales will be designed for 10-year frequency storms.

Table TA3.5-5. Required Pond Acreage by Drainage Basin

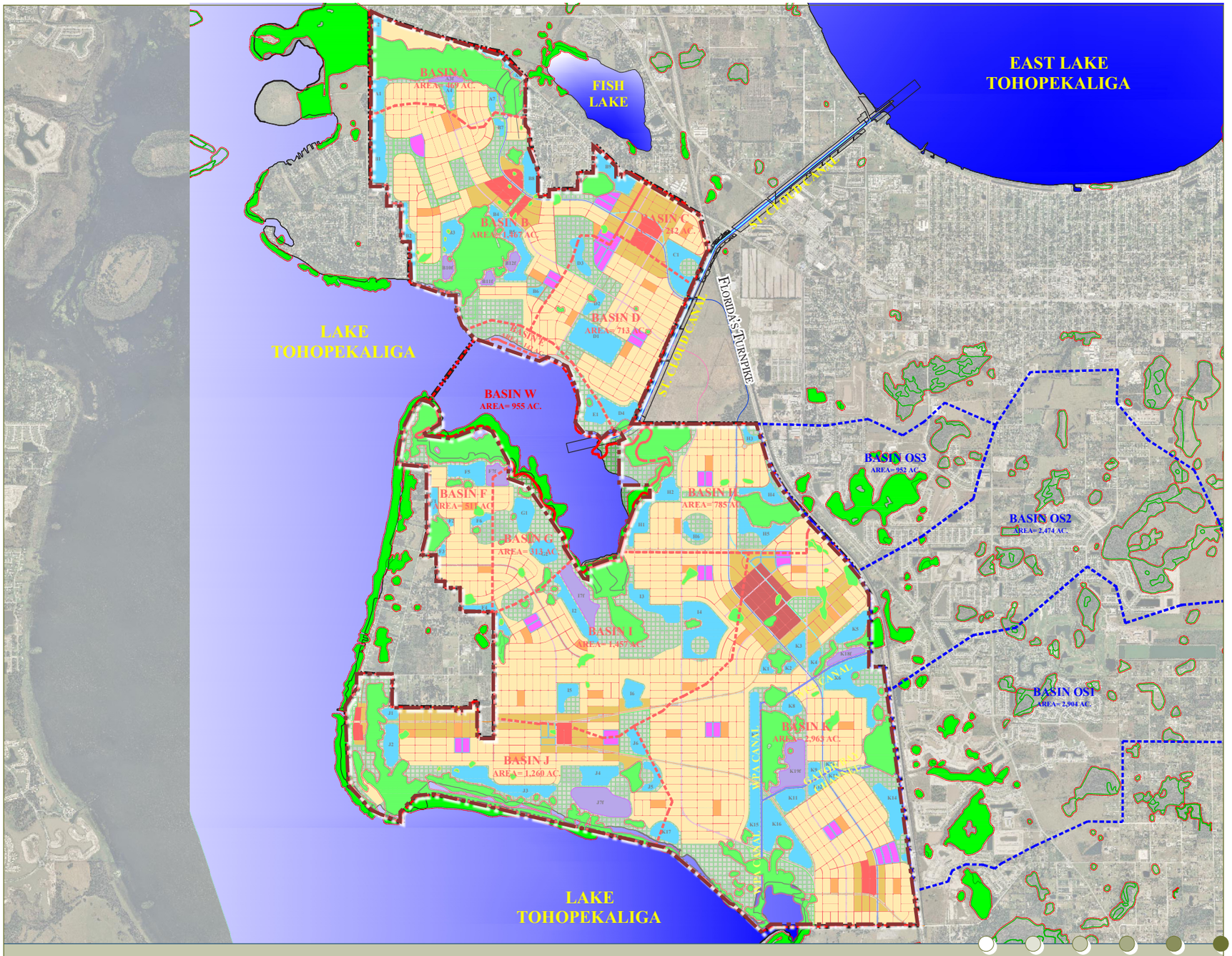
Basin	Drainage Basin Area (Acres)	Required Pond Area (Acres)	Wetlands Remaining (Acres)	Wetland Impacts (Acres)
A	469	29	182.2	7.8
B	1,467	138	149.9	15.8
C	212	33	0.0	0.0
D	713	91	0.0	17.6
E	142	11	27.3	0.8
F	511	38	140.1	7.9
G	313	30	13.8	2.1
H	786	77	101.0	12.0
I	1,456	163	175.0	30.8
J	1,260	106	203.5	25.0
K	2,963	336	317.1	191.0
W	954	0	954.0	0.0
Total	11,245	1,051	2,264	311

A typical pond cross-section will consist of a 10 foot wide maintenance berm; then 4:1 side slopes from the top of bank to two feet below the control elevation; followed by 2:1 side slopes to the bottom of the pond. Ponds will be constructed to a minimum depth of 12-feet from the control elevation. Control water levels for the ponds will be determined during the final engineering design phase.

All stormwater management facilities shall be reviewed and permitted/approved by Osceola County, SFWMD, FDOT, and FDEP (as applicable). The proposed size and locations of the stormwater ponds are for conceptual design only, and are subject to change following final engineering and permitting. Their locations were determined based off existing topographic conditions (per Quad Map), proximity to preserved wetlands, and proposed land use arrangements.

There may be other possible BMP's that could be utilized. These BMP's include, but are not limited to, stormwater wetlands, dry retention ponds, exfiltration systems, and treatment swales. However these practices cannot be determined to be applicable or feasible until the design phase. Both geotechnical evaluations and environmental assessments are required to make this determination.

Runoff from the offsite basins will be routed through the site so that the existing upstream drainage facilities are not hindered. No offsite runoff will



Map TA3.5-3. Post-Development Drainage Basin

Land Use Districts
- Urban Center
- Community Center
- Neighborhood Center
- Neighborhood Type 1
- Neighborhood Type 2
- Open Space District

Stormwater
- Stormwater Management Ponds
- Floodplain Compensation Area
- Wetland Area

Miscellaneous
- Roadways

be conveyed into or through the water quality ponds. Offsite runoff will be conveyed through the site through a series of interconnected wetlands and drainage corridors.

Basins

The post-development drainage sub-basins correspond with the pre-development sub-basins. The subject property was broken into eleven (11) onsite drainage sub-basins.

Three (3) separate offsite drainage sub-basins contribute runoff through the site which discharge to Lake Tohopekaliga. The offsite runoff is conveyed through a series of existing channelized streams, ditches, and wetlands.

Please refer to Map TA3.5-1, *Aerial Drainage Basin Exhibit*, and Map 3.5-2, *Quad Map Exhibit*.

Curve Number (CN) Calculations

Curve numbers (CN) for each post-developed basin were based off the existing soils and proposed land use. Assumptions were made for impervious coverage for each land use. The CN calculations for each post-development sub-basin can seen in Table TA3.5-6, *Post-Development Curve Number Calculations*, as well as in Table TA3.5-8, *Basin Calculations*.

Proposed Development Runoff

Post-development runoff was determined utilizing the NRCS method. Runoff was determined for the 10-year/72-hour, 25-year/72-hour, and 100-year/72-hour storm events utilizing a rainfall of 9.51 inches, 11.15 inches, and 14.94 inches, respectively. The runoff calculations for each post-development drainage sub-basin can be seen in Table TA3.5-6, *Post-Development Runoff Calculations*, as well as in Table TA3.5-8, *Basin Calculations*.

Water Quality (Treatment Volume)

For the conceptual design, wet detention ponds were utilized for the Best Management Practice (BMP) to reduce the discharge of pollutants associated with stormwater runoff. This is based off our assumption that the existing water table throughout the project will be near or at ground surface levels based on existing soil types.

The water quality requirements for a wet detention pond are the greater of 1-inch of runoff over the developed project, or 2.5 inches over the impervious area. Furthermore, since the project discharges to an FDEP impaired water body (Lake

Table TA3.5-6. Post-Development Curve Number Calculations

Basin	Post 'CN'	Post 'S'	Post Runoff 25-Year/ 24-Hour (Inches)	Post Volume 25-Year/24-Hour (Acre/Feet)
A	86.4	1.00	10.03	392
B	81.4	1.80	9.25	1,130
C	80.2	1.08	9.95	176
D	80.4	1.43	9.60	570
E	80.6	1.51	9.52	113
F	84.8	1.44	9.59	408
G	80.9	2.03	9.03	236
H	82.7	1.74	9.30	609
I	81.5	1.26	9.77	1,186
J	79.5	1.24	9.79	1,028
K	82.9	1.24	9.79	2,418
W	98.0	0.20	10.91	867

Okeechobee), an additional 50% water quality treatment volume is required. The pond acreages were determined by assuming each pond will provide a depth of 1.25 feet of treatment volume.

The preliminary water quality treatment volumes required for each post-development sub-basin were calculated and can be seen in Table TA3.5-7, *Water Quality Treatment Volumes,* as well as in Table TA3.5-8, *Basin Calculations*.

Conclusion

The required pond acreages for each post-development sub-basin were governed by the greater of two design factors, the required treatment volume and/or the pre/post volumetric difference (25-year/72-hour storm event). The treatment volume acreage was determined by assuming 1.25-ft of depth within the pond will be designated for water quality. The pre/post volume acreage was determined by assuming 1.5-ft. of depth within the pond will be designated for the attenuation of the pre/post volume. In each sub-basins case, the required treatment volume governed the acreage.

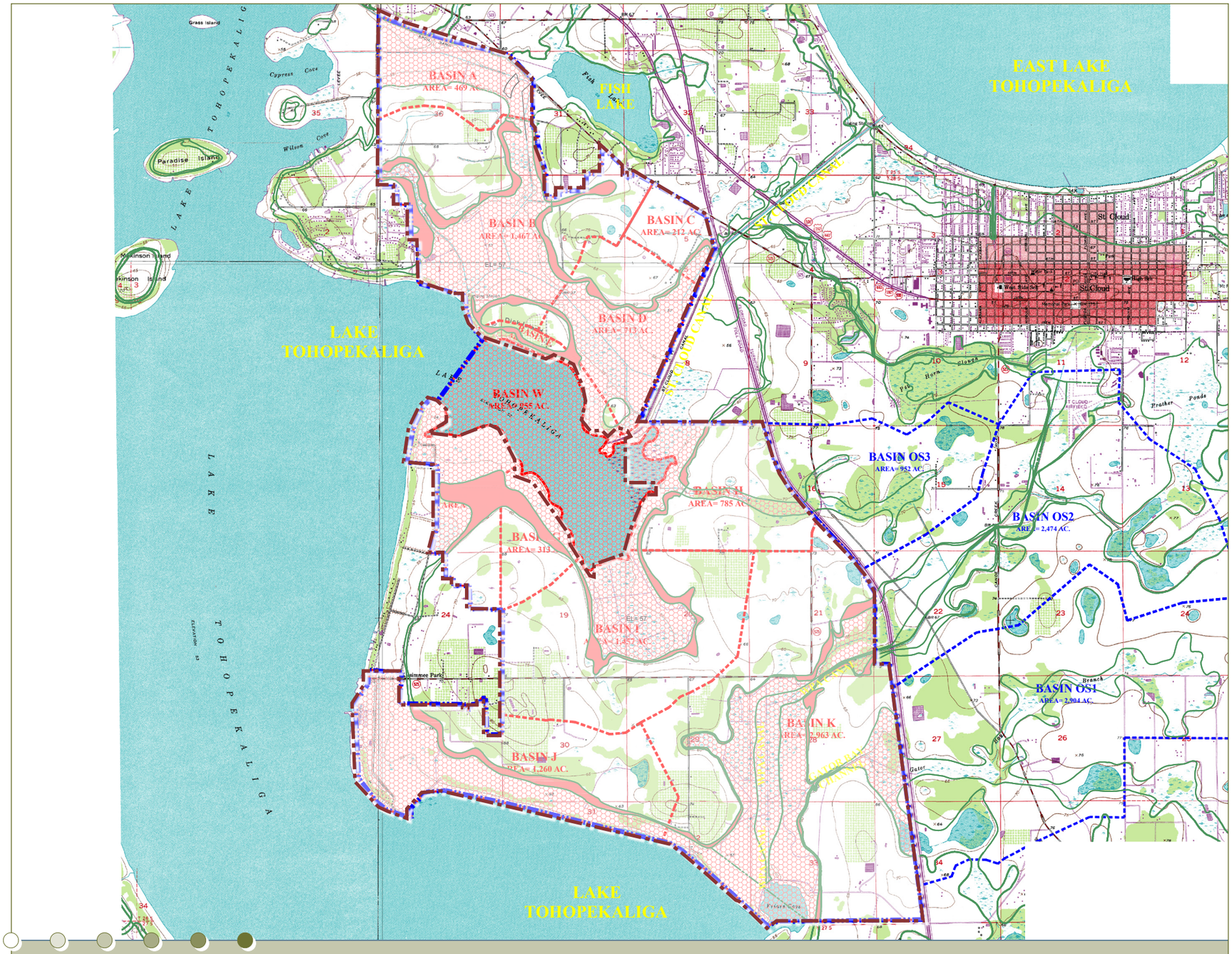
Table TA3.5-7. Water Quality Treatment Volumes

Basin	1" Over Basin Area (Acre/Feet)	2.5" Over Impervious Area (Acre/Feet)	50% Add (Acre./Feet)	Total Required TV (Acre/Feet)	Pond Acreage with 1.25' Storage Depth (Acres)
A	24	24	12	36	29
B	110	115	57	172	138
C	18	27	14	41	33
D	59	76	38	113	91
E	10	4	5	14	11
F	31	32	16	47	38
G	25	17	12	37	30
H	57	64	32	96	77
I	107	136	68	204	163
J	88	88	44	133	106
K	220	280	140	420	336
W	0	0	0	0	0

The Florida Department of Environmental Protection (FDEP) is currently in the process of developing a Statewide Stormwater Treatment Rule, tentatively scheduled for implementation in mid-2010. The intent of the new Rule is to increase the level of nutrient removal required of stormwater treatment systems serving new development, including urban redevelopment. The new Rule will be specifically targeting removal rates of phosphorus and nitrates. During final engineering design, stormwater systems will need to demonstrate that required removal efficiencies of these pollutants from the stormwater system prior to discharge into the surface waters will be met.

Wetland Impacts/Mitigation

Wetland impacts have been restricted to small wetlands which are surrounded by improved pasture and have experienced significant impacts to water quality, vegetative compositions, and hydrology due to long-term agricultural activities onsite. The functional value of these small wetland systems is considered very low. Due to their small size and existing impacts, it would be nearly impossible to ensure that these systems would remain viable in the post-development condition. The proximity of residential development and subsequent impacts caused by human intrusion would further reduce the overall quality and function of these small wetlands; there it was not considered likely that these systems would provide any long term benefit in the post-development condition.



Map 3.5-4. Floodplain Area Exhibit

Drainage Basins
- Pre-Development Basin Lines

Floodplain Areas
- 100-Year Floodplain Area
- 500-Year floodplain Area

Boundaries
- East of Lake Toho Planning Area

0 1,320' 2,640' 5,280'

The larger wetland systems onsite have also been heavily impacted by the surrounding agricultural land uses; however the scale of these wetlands allows for greater preservation potential and value in the post-development condition. By providing undisturbed upland buffers, enhancing the hydrology, and implementing a monitoring and maintenance plan, the long-term viability of these systems can be maintained in the post-development condition.

Floodplain Impacts/Compensating Storage

Based on the FEMA FIRM, significant portions of the East of Lake Toho planning area are contained within the 100-year Flood Hazard Areas (Zone A and Zone AE). The remaining portions of the project area are contained in 'Areas determined to be outside 500-year floodplain' (Zone X). The flood prone areas are contiguous to wetland areas, ditches, and lowlands located throughout the property. Please refer to Map 3.5-4, *Floodplain Area Exhibit*.

In post-development, any development contained within the 100-year floodplain areas will be constructed to an elevation above the 100-year base flood elevation. Stormwater management ponds, preserved/created wetlands, and floodplain storage ponds will be utilized to provide for the necessary compensating storage volumes. All post-development impacts to the 100-year floodplain areas will be compensated for in accordance with FEMA, SFWMD, and Osceola County guidelines.

With the current information available during the conceptual design phase, the base flood elevations for areas located within 'Zone A' cannot be accurately determined. As a result, defined compensating storage volume cannot be calculated. Neither a detailed topographic survey (one foot contours) nor a geotechnical evaluation were available on the subject property at the time of this study.

Sustainable Design

Sustainable Design is design that provides positive economic returns and public benefits while reducing the use of non-renewable resources and minimizing impact on the environment. The East of Lake Toho project has the opportunity to incorporate Low Impact Development (LID) approach for the stormwater management system.

LID is an approach to re-development that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. There are many practices that can be used to adhere to these principles such as bioretention facilities, rain gardens, vegetated rooftops (green roofs), cisterns, permeable pavements, and reuse of stormwater for irrigation. By implementing LID principles and practices in the East of Lake Toho project, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within the ecosystem and watershed. LID has been characterized as a sustainable stormwater practice by the Water Environment Research Foundation and others.

Rain Gardens / Bio-Retention Facilities

Other treatment systems considered on-site include vegetated rain gardens located in the park areas. These low sloped depressional areas will help reduce the amount of runoff, provide storage during peak storm events, and improve water quality on-site. An opportunity to plant these gardens with native plant materials will also help reduce irrigation demands. The rain gardens can also be incorporated into the landscape islands as well.

Permeable Paving

Various permeable paving systems are available that can enhance the decorative appeal of a project site, while also reducing runoff and increasing stormwater infiltration and treatment. Pervious paving systems are available for low traffic areas such as parking areas, sidewalks, and hardscape areas. Pervious pavers can achieve up to 60% void or permeable area, depending on the product selected. The pavers do require minimal maintenance to ensure they are working as intended. Pervious asphalts and pervious concretes are another option of increasing stormwater infiltration and decreasing runoff. The paving systems differ from the common asphalts and concrete by eliminating much of the fine aggregates and therefore allowing water to

pass through the pavement. These paving systems can contain as much as 16-25% void space, depending on the product selected.

Green Roofs

Green roofs are another alternative to maximizing pervious areas, while decreasing costs and impacts to the environment. Roofs that incorporate native plants and vegetation can act to help reduce heat island effects, global warming potential, reduce stormwater runoff, and double as recreation areas if needed. Properly maintained and planned green roofs can also reduce heating and cooling expenses of buildings, with minimal maintenance. Life cycles of green roofs are typically longer than conventional roofs and require less maintenance.

Cisterns

Rainwater cisterns can be beneficial in many ways to a project and increase project sustainability. Cisterns can be located above or below ground and collect rainwater from inlets or storm gutters from the buildings and act as architectural features for projects. Rainwater storage through the cisterns can be used as irrigation, toilet flushing or other non-potable sources, while reducing demands and fees for publicly supplied water. The reduced runoff from the installation of cisterns can greatly reduce spaces required for exfiltration trenches, ponds or swales.

Stormwater Reuse

Whether through stormwater cisterns or other stormwater collection devices, stormwater runoff can be used to help offset potable and non-potable water demands while encouraging groundwater recharge on-site. Irrigation systems fed by stormwater can alleviate pressures on publicly supplied water sources and help achieve water quality requirements. The same collection systems can also be used to supply toilet flushing and other devices that do not require potable water.

Sustainable Design Conclusion

The East of Lake Toho project can use a variety of these methods in the construction of the development. By implementing some of these LID principles and practices, water quality and water quantity storage can be reduced within the stormwater ponds.

Currently there is no credit given from SFWMD for the green initiative. However, as the rules are modified and developed over the next year, the green initiative design for East of Lake Toho will eventually become a credit for some of the design. The green criteria will also help save natural resources, and promote education of green initiatives by placing signs around the project site to educate the public about the benefits of using LID principles in future design projects in and around the Osceola County.

TABLE TA3.5-8. BASIN CALCULATIONS

BASIN A

TOTAL AREA = 469 ACRES

Developable Area = 279 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	190.0		190		98.0
Impervious	2.6		3		98.0
Green Area (A)	3.0			3	39.0
Green Area (B)				0	61.0
Green Area (C)	56.0			56	74.0
Green Area (D)	217.0			217	80.0
TOTAL	**469**		**193**	**276**	**86.4**

PRE 'S' = 1.572

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	96.2
CC		85%	0	0	92.5
NC	1.2	75%	1	0	88.8
N1	128.3	65%	83	45	85.1
N2		75%	0	0	88.8
SD		80%	0	0	90.6
SW	41	100%	41	0	98.0
G	83.0	5%	4	79	80.9
W	182.2	100%	182	0	98.0
R/W	32.6	80%	26	7	90.6
TOTAL	**469**		**338**	**131**	**90.9**

POST 'S' = 1.003

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.85	8.40	307	328	**22**
25YR - 72HR	9.46	10.03	370	392	**22**
100YR - 72HR	13.21	13.80	516	539	**23**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	24	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	24	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	12	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**36**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 29 AC.

or

1.5 FT. STORAGE = 15 AC.

29 ACRES REQUIRED = 6.1% OF TOTAL BASIN AREA

BASIN B

TOTAL AREA = 1,467 ACRES

Developable Area = 1,301 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	165.7		166		98.0
Impervious	5.7		6		98.0
Green Area (A)	10.6			11	39.0
Green Area (B)				0	61.0
Green Area (C)	90.1			90	74.0
Green Area (D)	1,195.0			1,195	80.0
TOTAL	**1,467**		**171**	**1,296**	**81.4**

PRE 'S' = 2.279

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	95.1
CC	33.1	85%	28	5	89.2
NC	21.0	75%	16	5	83.3
N1	408.0	65%	265	143	77.4
N2	69.0	75%	52	17	83.3
SD	34.7	80%	28	7	86.2
SW	169	100%	169	0	98.0
G	404.0	5%	20	384	80.9
W	149.9	100%	150	0	98.0
R/W	178.4	80%	143	36	86.2
TOTAL	**1,467**		**870**	**597**	**84.7**

POST 'S' = 1.802

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.23	7.64	884	934	**50**
25YR - 72HR	8.82	9.25	1,078	1,130	**53**
100YR - 72HR	12.51	12.98	1,530	1,586	**56**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	110	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	115	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	57	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**172**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 138 AC.

or

1.5 FT. STORAGE = 35 AC.

138 ACRES REQUIRED = 9.4% OF TOTAL BASIN AREA

TABLE TA3.5-8. BASIN CALCULATIONS, CON'T.

BASIN C

TOTAL AREA = 212 ACRES

Developable Area = 212 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	0.0		0		98.0
Impervious	2.3		2		98.0
Green Area (A)				0	39.0
Green Area (B)				0	61.0
Green Area (C)				0	74.0
Green Area (D)	210.0			210	80.0
TOTAL	**212**		**2**	**210**	**80.2**

PRE 'S' = 2.469

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	96.2
CC	21.2	85%	18	3	92.5
NC	4.1	75%	3	1	88.8
N1	34.5	65%	22	12	85.1
N2	67.7	75%	51	17	88.8
SD		80%	0	0	90.6
SW	35	100%	35	0	98.0
G	5.0	5%	0	5	80.9
W	0.0	100%	0	0	98.0
R/W	44.5	80%	36	9	90.6
TOTAL	**212**		**165**	**47**	**90.3**

POST 'S' = 1.079

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.08	8.33	125	147	**22**
25YR - 72HR	8.65	9.95	153	176	**23**
100YR - 72HR	12.34	13.72	218	242	**24**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	18	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	27	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	14	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**41**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 33 AC.

or

1.5 FT. STORAGE = 15 AC.

33 ACRES REQUIRED = 15.3% OF TOTAL BASIN AREA

BASIN D

TOTAL AREA = 713 ACRES

Developable Area = 695 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	17.6		18		98.0
Impervious	2.2		2		98.0
Green Area (A)				0	39.0
Green Area (B)				0	61.0
Green Area (C)	16.4			16	74.0
Green Area (D)	677.0			677	80.0
TOTAL	**713**		**20**	**693**	**80.4**

PRE 'S' = 2.444

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	96.2
CC		85%	0	0	92.5
NC	12.2	75%	9	3	88.8
N1	319.5	65%	208	112	85.1
N2	27.0	75%	20	7	88.8
SD	27.1	80%	22	5	90.6
SW	94	100%	94	0	98.0
G	110.0	5%	6	105	80.9
W	0.0	100%	0	0	98.0
R/W	122.7	80%	98	25	90.6
TOTAL	**713**		**457**	**256**	**87.5**

POST 'S' = 1.429

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.10	7.99	422	475	**53**
25YR - 72HR	8.67	9.60	515	570	**55**
100YR - 72HR	12.36	13.35	734	793	**59**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	59	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	76	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	38	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**113**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 91 AC.

or

1.5 FT. STORAGE = 37 AC.

91 ACRES REQUIRED = 12.7% OF TOTAL BASIN AREA

TABLE TA3.5-8. BASIN CALCULATIONS, CON'T.

BASIN E

TOTAL AREA = 142 ACRES

Developable Area = 114 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	28.1		28		98.0
Impervious			0		98.0
Green Area (A)				0	39.0
Green Area (B)				0	61.0
Green Area (C)	70.2			70	74.0
Green Area (D)	44.0			44	80.0
TOTAL	**142**		**28**	**114**	**80.6**

PRE 'S' = 2.408

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	96.2
CC		85%	0	0	92.5
NC		75%	0	0	88.8
N1	19.1	65%	12	7	85.1
N2		75%	0	0	88.8
SD		80%	0	0	90.6
SW	15	100%	15	0	98.0
G	76.0	5%	4	72	80.9
W	27.3	100%	27	0	98.0
R/W	4.3	80%	3	1	90.6
TOTAL	**142**		**62**	**80**	**86.9**

POST 'S' = 1.509

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.13	7.91	84	94	**9**
25YR - 72HR	8.70	9.52	103	113	**10**
100YR - 72HR	12.39	13.27	147	157	**10**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	10	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	4	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	5	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**14**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 11 AC.

or

1.5 FT. STORAGE = 6 AC.

11 ACRES REQUIRED = 8.1% OF TOTAL BASIN AREA

BASIN F

TOTAL AREA = 511 ACRES

Developable Area = 363 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	148.0		148		98.0
Impervious	4.0		4		98.0
Green Area (A)				0	39.0
Green Area (B)				0	61.0
Green Area (C)	44.2			44	74.0
Green Area (D)	315.0			315	80.0
TOTAL	**511**		**152**	**359**	**84.8**

PRE 'S' = 1.788

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	95.1
CC		85%	0	0	89.2
NC	7.5	75%	6	2	83.3
N1	163.3	65%	106	57	77.4
N2		75%	0	0	83.3
SD		80%	0	0	86.2
SW	63	100%	63	0	98.0
G	93.0	5%	5	88	80.9
W	140.1	100%	140	0	98.0
R/W	44.0	80%	35	9	90.6
TOTAL	**511**		**354**	**156**	**87.4**

POST 'S' = 1.438

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.66	7.98	326	340	**14**
25YR - 72HR	9.26	9.59	394	408	**14**
100YR - 72HR	12.99	13.34	553	568	**15**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	31	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	32	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	16	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**47**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 38 AC.

or

1.5 FT. STORAGE = 9 AC.

38 ACRES REQUIRED = 7.4% OF TOTAL BASIN AREA

TABLE TA3.5-8. BASIN CALCULATIONS, CON'T.

BASIN G

TOTAL AREA = 313 ACRES

Developable Area = 297 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	15.9		16		98.0
Impervious	3.2		3		98.0
Green Area (A)				0	39.0
Green Area (B)				0	61.0
Green Area (C)	8.4			8	74.0
Green Area (D)	285.5			286	80.0
TOTAL	**313**		**19**	**294**	**80.9**

PRE 'S' = 2.355

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	95.1
CC		85%	0	0	89.2
NC	0.1	75%	0	0	83.3
N1	91.8	65%	60	32	77.4
N2		75%	0	0	83.3
SD		80%	0	0	86.2
SW	39	100%	39	0	98.0
G	148.0	5%	7	141	80.9
W	13.8	100%	14	0	98.0
R/W	20.0	80%	16	4	86.2
TOTAL	**313**		**136**	**177**	**83.1**

POST 'S' = 2.033

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.17	7.44	187	194	**7**
25YR - 72HR	8.75	9.03	228	236	**7**
100YR - 72HR	12.44	12.75	325	333	**8**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	25	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	17	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	12	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**37**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 30 AC.

or

1.5 FT. STORAGE = 5 AC.

30 ACRES REQUIRED = 9.6% OF TOTAL BASIN AREA

BASIN H

TOTAL AREA = 786 ACRES

Developable Area = 673 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	113.0		113		98.0
Impervious	3.1		3		98.0
Green Area (A)				0	39.0
Green Area (B)				0	61.0
Green Area (C)				0	74.0
Green Area (D)	670.0			670	80.0
TOTAL	**786**		**116**	**670**	**82.7**

PRE 'S' = 2.098

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	95.1
CC		85%	0	0	89.2
NC	8.0	75%	6	2	83.3
N1	276.3	65%	180	97	77.4
N2	3.5	75%	3	1	83.3
SD	12.3	80%	10	2	86.2
SW	77	100%	77	0	98.0
G	184.0	5%	9	175	80.9
W	101.0	100%	101	0	98.0
R/W	123.8	80%	99	25	90.6
TOTAL	**786**		**484**	**302**	**85.2**

POST 'S' = 1.742

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.39	7.70	483	504	**20**
25YR - 72HR	8.98	9.30	588	609	**21**
100YR - 72HR	12.69	13.04	831	853	**23**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	57	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	64	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	32	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**96**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME

1.25 FT. TREATMENT = 77 AC.

or

1.5 FT. STORAGE = 14 AC.

77 ACRES REQUIRED = 9.7% OF TOTAL BASIN AREA

TABLE TA3.5-8. BASIN CALCULATIONS, CON'T.

BASIN I

TOTAL AREA = 1,456 ACRES

Developable Area = 1,250 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	205.8		206		98.0
Impervious	8.6		9		98.0
Green Area (A)	14.0			14	39.0
Green Area (B)				0	61.0
Green Area (C)	189.6			190	74.0
Green Area (D)	1,039.0			1,039	80.0
TOTAL	**1,457**		**214**	**1,243**	**81.5**

PRE 'S' = 2.274

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC	3.6	95%	3	0	96.2
CC	1.3	85%	1	0	92.5
NC	23.4	75%	18	6	88.8
N1	588.2	65%	382	206	85.1
N2	69.1	75%	52	17	88.8
SD	21.3	80%	17	4	90.6
SW	179	100%	179	0	98.0
G	183.0	5%	9	174	80.9
W	175.0	100%	175	0	98.0
R/W	213.0	80%	170	43	90.6
TOTAL	**1,457**		**1,007**	**450**	**88.8**

POST 'S' = 1.256

C. PRE / POST RUNOFF

Storm Event	RUNOFF PRE (inches)	RUNOFF POST (inches)	VOLUMETRIC PRE Volume (ac-ft)	VOLUMETRIC POST Volume (ac-ft)	Net Volume (ac-ft)
10YR - 72HR	7.24	8.15	878	989	**111**
25YR - 72HR	8.82	9.77	1,070	1,186	**116**
100YR - 72HR	12.52	13.53	1,519	1,642	**123**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	107	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	136	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	68	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**204**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME			LOA
1.25	FT. TREATMENT =	163	AC.
or			
1.5	FT. STORAGE =	77	AC.

163 ACRES REQUIRED = 11.2% OF TOTAL BASIN AREA

BASIN J

TOTAL AREA = 1,260 ACRES

Developable Area = 1,032 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	228.5		229		98.0
Impervious	14.2		14		98.0
Green Area (A)	97.6			98	39.0
Green Area (B)				0	61.0
Green Area (C)	166.7			167	74.0
Green Area (D)	753.0			753	80.0
TOTAL	**1,260**		**243**	**1,017**	**79.5**

PRE 'S' = 2.579

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	96.2
CC	17.1	85%	15	3	92.5
NC	20.3	75%	15	5	88.8
N1	253.2	65%	165	89	85.1
N2	126.0	75%	95	32	88.8
SD	23.5	80%	19	5	90.6
SW	165	100%	165	0	98.0
G	326.0	5%	16	310	80.9
W	203.5	100%	204	0	98.0
R/W	125.4	80%	100	25	90.6
TOTAL	**1,260**		**793**	**467**	**88.9**

POST 'S' = 1.242

C. PRE / POST RUNOFF

Storm Event	RUNOFF PRE (inches)	RUNOFF POST (inches)	VOLUMETRIC PRE Volume (ac-ft)	VOLUMETRIC POST Volume (ac-ft)	Net Volume (ac-ft)
10YR - 72HR	6.99	8.17	734	857	**124**
25YR - 72HR	8.56	9.79	899	1,028	**129**
100YR - 72HR	12.24	13.55	1,285	1,422	**138**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	88	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	88	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	44	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**133**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA (for Wet Detention system per SFWMD Criteria)

ASSUME			
1.25	FT. TREATMENT =	106	AC.
or			
1.5	FT. STORAGE =	86	AC.

106 ACRES REQUIRED = 8.4% OF TOTAL BASIN AREA

TABLE TA3.5-8. BASIN CALCULATIONS, CON'T.

BASIN K

TOTAL AREA = 2,963 ACRES

Developable Area = 2,455 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	508.1		508		98.0
Impervious	67.2		67		98.0
Green Area (A)	11.1			11	39.0
Green Area (B)				0	61.0
Green Area (C)	213.2			213	74.0
Green Area (D)	2,163.0			2,163	80.0
TOTAL	**2,963**		**575**	**2,387**	**82.9**

PRE 'S' = 2.061

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC	74.6	95%	71	4	96.2
CC	15.0	85%	13	2	92.5
NC	40.1	75%	30	10	88.8
N1	1026.6	65%	667	359	85.1
N2	142.3	75%	107	36	88.8
SD	51.2	80%	41	10	90.6
SW	370	100%	370	0	98.0
G	434.0	5%	22	412	80.9
W	317.1	100%	317	0	98.0
R/W	492.6	80%	394	99	90.6
TOTAL	**2,963**		**2,031**	**932**	**89.0**

POST 'S' = 1.235

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	7.42	8.17	1,831	2,018	**187**
25YR - 72HR	9.01	9.79	2,224	2,418	**194**
100YR - 72HR	12.72	13.55	3,141	3,347	**205**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	220	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	280	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	140	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**420**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA
(for Wet Detention system per SFWMD Criteria)

ASSUME
1.25 FT. TREATMENT = 336 AC.
or
1.5 FT. STORAGE = 129 AC.

336 ACRES REQUIRED = 11.3% OF TOTAL BASIN AREA

BASIN W

TOTAL AREA = 954 ACRES

Developable Area = 0 ACRES

A. EXISTING CONDITIONS

L.U.	AREA (AC.)		IMP. AREA (AC.)	PERV. AREA (AC.)	CN
Wetland	954.0		954		98.0
Impervious	0.0		0		98.0
Green Area (A)	0.0			0	39.0
Green Area (B)	0.0			0	61.0
Green Area (C)	0.0			0	74.0
Green Area (D)	0.0			0	80.0
TOTAL	**954**		**954**	**0**	**98.0**

PRE 'S' = 0.204

B. PROPOSED CONDITIONS

L.U.	AREA (AC.)	% IMP.	IMP. AREA (AC.)	PERV. AREA (AC.)	cCN
UC		95%	0	0	96.2
CC		85%	0	0	92.5
NC		75%	0	0	88.8
N1		65%	0	0	85.1
N2		75%	0	0	88.8
SD		80%	0	0	90.6
SW		100%	0	0	98.0
G		5%	0	0	80.9
W	954.0	100%	954	0	98.0
R/W		80%	0	0	90.6
TOTAL	**954**		**954**	**0**	**98.0**

POST 'S' = 0.204

C. PRE / POST RUNOFF

	RUNOFF		VOLUMETRIC		
Storm Event	PRE (inches)	POST (inches)	PRE Volume (ac-ft)	POST Volume (ac-ft)	**Net Volume (ac-ft)**
10YR - 72HR	9.27	9.27	737	737	**0**
25YR - 72HR	10.91	10.91	867	867	**0**
100YR - 72HR	14.70	14.70	1,168	1,168	**0**

D. REQUIRED WATER QUALITY TREATMENT VOLUMES (per SFWMD)

1" of Runoff from Basin Area (less W)	0	Ac-Ft
or		
2.5" of Runoff from Impervious Area (less W / SW)	0	Ac-Ft
plus		
Provide additional 50% water quality treatment volume (per FDEP impaired water-body):	0	Ac-Ft
TOTAL REQUIRED TREATMENT VOLUME =	**0**	**Ac-Ft**

E. REQUIRED STORMWATER MANAGEMENT AREA
(for Wet Detention system per SFWMD Criteria)

ASSUME
1.25 FT. TREATMENT = 0 AC.
or
1.5 FT. STORAGE = 0 AC.

0 ACRES REQUIRED = 0.0% OF TOTAL BASIN AREA

TABLE TA3.5-8. BASIN CALCULATIONS, CON'T.

BASIN	POND	AREA		PERIMETER	WATER QUALITY PONDS PROVIDED	WATER QUALITY PONDS REQUIRED	FLOODPLAIN POND PROVIDED
		SF	AC	LF			
A	A1	621,634	14.3	3,523	36.2	28.7	5.1
	A2	224,020	5.1	2,026			
	A3f	221,299	5.1	3,039			
	A4	203,160	4.7	2,357			
	A5	261,269	6.0	3,499			
	A6	70,993	1.6	1,040			
	A7	197,511	4.5	1,988			
B	B1	1,450,906	33.3	6,569	148.8	137.9	20.0
	B2	492,136	11.3	6,902			
	B3	855,371	19.6	3,642			
	B4	211,169	4.8	1,885			
	B5	1,256,914	28.9	7,584			
	B6	166,719	3.8	1,697			
	B7	157,144	3.6	1,970			
	B8	820,014	18.8	4,217			
	B9	1,069,860	24.6	5,700			
	B10f	353,180	8.1	2,448			
	B11f	222,701	5.1	1,931			
	B12f	296,758	6.8	2,201			
C	C1	1,536,487	35.3	7,484	35.3	32.5	0
D	D1	2,194,686	50.4	6,002	94.4	90.6	0
	D2	365,051	8.4	3,324			
	D3	649,062	14.9	4,143			
	D4	901,141	20.7	4,507			
E	E1	671,468	15.4	3,413	15.4	11.5	
F	F1	356,578	8.2	2,759	45.5	37.9	17.1
	F2	42,337	1.0	815			
	F3	93,898	2.2	1,264			
	F4	282,765	6.5	3,091			
	F5	963,315	22.1	4,672			
	F6	243,511	5.6	2,105			
	F7f	746,666	17.1	3,775			
G	G1	911,056	20.9	3,777	39.4	29.9	0
	G2	803,860	18.5	3,322			

Table TA3.5-8. Basin Calculations, Con't.

BASIN	POND	AREA		PERIMETER	WATER QUALITY PONDS PROVIDED	WATER QUALITY PONDS REQUIRED	FLOODPLAIN POND PROVIDED
		SF	AC	LF			
H	H1	649,169	14.9	4,774	76.6	76.6	0
	H2	660,682	15.2	3,379			
	H3	204,788	4.7	2,318			
	H4	596,653	13.7	4,625			
	H5	957,946	22.0	6,218			
	H6	268,657	6.2	2,660			
I	I1	250,879	5.8	2,433	144.1	163.2	35.0
	I2	1,058,939	24.3	7,385			
	I3	1,178,710	27.1	6,552			
	I4	2,460,720	56.5	11,128			
	I5	586,301	13.5	3,694			
	I6	740,715	17.0	3,549			
	I7f	1,523,996	35.0	6,577			
J	J1	235,239	5.4	1,842	113.3	106.1	51.7
	J2	889,000	20.4	4,245			
	J3	1,790,561	41.1	10,112			
	J4	1,060,473	24.3	4,464			
	J5	472,300	10.8	3,882			
	J6	485,960	11.2	2,978			
	J7f	2,253,891	51.7	6,290			
K	K1	187,438	4.3	1,786	320.2	336.1	49.4
	K2	146,873	3.4	1,508			
	K3	537,412	12.3	3,046			
	K4	256,433	5.9	2,258			
	K5	881,355	20.2	4,190			
	K6	2,337,957	53.7	10,541			
	K7	1,340,168	30.8	7,829			
	K8	468,769	10.8	2,513			
	K9	303,122	7.0	2,113			
	K10	100,157	2.3	1,239			
	K11	777,418	17.8	3,390			
	K12	285,126	6.5	2,139			
	K13	137,623	3.2	1,383			
	K14	2,413,409	55.4	9,303			
	K15	952,457	21.9	5,772			
	K16	2,072,359	47.6	9,286			
	K17	749,164	17.2	3,325			
	K18f	434,221	10.0	3,702			
	K19f	1,717,270	39.4	6,943			

TABLE TA3.5-8. BASIN CALCULATIONS, CON'T.

BASIN	DRAINAGE BASIN AREA (ACRES)	WETLANDS REMAINING (ACRES)	WETLAND IMPACTS (ACRES)	SW POND AREA (ACRES)	F.P. PONDS (ACRES)	GREEN AREAS (ACRES)	DEVELOPABLE AREA (less ponds/ wetlands/ green areas) (ACRES)
A	469	182	8	36	5	83	168
B	1,467	150	16	149	20	404	764
C	212	0	0	35	0	5	172
D	713	0	18	94	0	110	509
E	142	27	1	15	0	76	23
F	511	140	8	46	17	93	232
G	313	14	2	39	0	148	112
H	786	101	12	77	0	184	424
I	1,456	175	31	144	35	183	954
J	1,260	204	25	113	52	326	617
K	2,963	317	191	320	49	434	1,892
W	954	954	0	0	0	0	0
TOTAL	**11,245**	**2,264**	**311**	**1,069**	**178**	**2,046**	**5,866**

BASIN	CUT (SW PONDS) (assume 12' deep ponds) (AC-FT)	CUT (F.P. PONDS) (assume 20' deep ponds) (AC-FT)	FILL (3' over developable area) (AC-FT)	WETLAND FILL (assume 6' muck) (AC-FT)	NET + CUT - FILL (AC-FT)
A	390	81	503	47	**-79**
B	1,599	321	2,293	95	**-468**
C	379	0	515	0	**-136**
D	1,014	0	1,526	106	**-617**
E	166	0	70	5	**91**
F	489	274	696	47	**20**
G	423	0	335	13	**75**
H	824	0	1,272	72	**-520**
I	1,549	560	2,862	185	**-938**
J	1,218	828	1,852	150	**44**
K	3,442	790	5,675	1,146	**-2,589**
W	0	0	0	0	**0**
TOTAL	**11,493**	**2,854**	**17,599**	**1,865**	**-5,117**

TECHNICAL APPENDIX 04. EDUCATIONAL ANALYSIS

TA4.1 Educational Analysis

Overview

The East of Lake Toho Conceptual Master Plan has preliminarily determined the number of schools and their locations and acreage to be developed as the area continues to grow. This appendix addresses the calculations used to determine those numbers and outlines potential impact fees, population increases, and guidelines for concurrency.

School siting, location, and sizes shall comply with the Osceola County Public Schools Facilities Element (PSFE), and the Concurrency Management System (CMS). Prior to the initiation of development within any neighborhood, school sites must be conveyed to the Osceola County Board of County Commissioners or an agreement addressing the conveyance must be executed. Financing for the construction of schools within the East of Lake Toho CMP will be provided by the School District of Osceola County in conjunction with the taxing structure and impact fees in effect for all other areas of unincorporated Osceola County. Charter schools will be permitted to use the school sites depicted within the East of Lake Toho CMP as shown on Map TA4.1-1, *Schools Map*.

Student Calculations

Using the *Osceola County School District School Impact Fee Update Study* (OSCDSIFUS) prepared by Tindale-Oliver & Associates, Inc. and dated May 15, 2009, calculations were prepared to determine the number of students estimated to live within the East of Lake Toho planning area and the number of schools needed to serve the overall area. Using Table 12 from the OSCDSIFUS, included as Table TA4.1-1, *Student Generation Rates, Option 2*, the ratios were used to calculate the total number of students within the East of Lake Toho planning area (refer to Table TA4.1-2, *Master Plan Student Population*).

Based on these generation rates, the total number of students per school can be determined based on the residential development program (refer to Section 3.3, *Proposed Development Program*, and Table TA4.1-2, *Master Plan Student Population*).

Table TA4.1-1. Student Generation Rates *(Option 2; Table 12 in the OSCDSIFUS)*

School Type/ Residential Land Use	Total Housing Units[1]	Number of Students[2]	Students per Unit
Elementary School			
Single Family Detached	75,734	14,751	0.195
Multi-Family Attached	32,583	4,564	0.140
Middle School			
Single Family Detached	75,734	8,012	0.106
Multi-Family Attached	32,583	2,021	0.062
High School			
Single Family Detached	75,734	11,829	0.156
Multi-Family Attached	32,583	2,431	0.075

[1] Source: Osceola County Property Appraiser. [2] Number of students for each residential land use type based on the GIS analysis linking student addresses and parcel data from the Osceola County Property Appraiser's database.

Table TA4.1-2. Master Plan Student Population

School Type/ Residential Land Use	Number of Dwelling Units	Students per Unit	Total Number of Students
Elementary School			
Single Family Detached	18,800	0.195	3,666
Multi-Family	14,150	0.140	1,981
Total	**32,950**	**N/A**	**5,647**
Middle School			
Single Family Detached	18,800	0.106	1,993
Multi-Family	14,150	0.062	878
Total	**32,950**	**N/A**	**2,871**
High School			
Single Family Detached	18,800	0.156	2,933
Multi-Family Attached	14,150	0.075	1,062
Total	**32,950**	**N/A**	**3,995**

School Calculations

Based on prototype sizes of 600 students per elementary school, 1,300 students per middle school, and 1,700 students per high school, it was determined that the planning area would require 10 elementary schools, 3 middle schools, and 3 high schools (refer to Table TA4.1-3, *Total Number of Schools*).

Based on these numbers, school sites are preliminarily identified in Map TA4.1-1, *Schools Map*, and are located to maximize walkability to elementary and middle schools while offering transit services to both middle schools and high schools.

Parks, recreation facilities, community centers, libraries, and open space are collocated with schools where possible, and multi-use trails connect schools to residential neighborhoods and open space systems. Acreages for school sites have been ameliorated from the minimum size requirements within the *School Siting Book*. Due to the collocation of the majority of school sites with Neighborhood Centers and open space, and taking into account a smaller building footprint based on urban school prototypes, acreages per school have been determined as shown in Table TA4.1-4, *Acreage & Siting Requirements by School*.

Table TA4.1-3. Total Number of Schools

School	Number of Students	Number of Students per School	Number of Schools Required
Elementary School	5,647	600	10
Middle School	2,871	1,300	3
High School	3,995	1,700	3

Table TA4.1-4. Acreage & Siting Requirements by School

School	Acreage Required	# of Schools	Total Acreage	Siting Requirements
Elementary School	15 Acres (10 Acres if co-located with usable Open Space, and/or Neighborhood Centers)	10	100 - 150	• Central to every 2-3 neighborhoods • Adjacent to, or within Neighborhood Centers
Middle School	20 Acres	3	60	• Central to large residential areas • Adjacent to Community Centers • Proximity to planned transit service
High School	50 Acres	2	100	• Within proximity to Urban Centers or large Community Centers • Served by planned transit station(s)
Total	**N/A**	**15**	**260 - 310**	

Map TA4.1-1. Schools Map

Place Types
- Urban Center
- Community Center
- Neighborhood Center
- Neighborhood Type 1
- Neighborhood Type 2
- Open Space District

Schools
- School
- ES-4 Elementary School
- MS-2 Middle School
- HS-3 High School
- 1/4-Mile Walk Distance
- 1/2-Mile Walk Distance

Miscellaneous
- Roadways
- Preserved Wetlands
- Stormwater Ponds

0 1,320' 2,640' 5,280'

Projected School Facilities Costs

Again, using the OSCDSIFUS, the net school facility cost for the East of Lake Toho planning area can be determined using Table 3, (shown here as Table TA4.1-5., *School Facility Costs per Student Station*) and the total number of expected students from the East of Lake Toho CMP. Facility costs have been estimated for Phase I, up to the year 2015, as well as Buildout. Refer to Tables TA4.1-6, *2015 Total School Facilities Cost* and TA4.1-7, *Total School Facilities Cost at Buildout.* All associated school facilities costs have been included in the overall implementation and action plan in Chapter 4, *Implementation*.

Table TA4.1-5. School Facility Costs per Student Station *(Table 3 in the OSCDSIFUS)*

Cost Component	Elementary School	Middle School	High School
Net Square Feet per Student Station	105.7	105.5	125.4
School Facility Cost Components (per Net Square Foot)			
Architect/ Site Improvement Cost	$7.15	$9.72	$9.15
Construction Cost	$153.06	$178.47	$168.30
FF&E Cost	$20.68	$19.95	$17.15
Total Facility Cost per Net Square Foot	$180.89	$208.14	$194.60
Total Facility Cost per Student Station	**$19,120.08**	**$21,958.77**	**$ 4,402.84**

Table TA4.1-6. 2015 Total School Facilities Cost

School Type	Number of Students	Cost per Student Station	Total Facility Cost
Elementary School	2,442	$19,120.08	$46,691,237
Middle School	1,253	$21,958.77	$27,514,340
High School	1,755	$24,402.84	$42,826,985
Total	**5,450**	**N.A.**	**$117,032,562**

Table TA4.1-7. Total School Facilities Cost at Buildout

School Type	Number of Students	Cost per Student Station	Total Facility Cost
Elementary School	5,647	$19,120.08	$107,971,092
Middle School	2,871	$21,958.77	$63,043,629
High School	3,995	$24,402.84	$97,489,346
Total	**12,513**	**N.A.**	**$268,504,067**

Projected School Impact Fees

The net schools impact fees for the East of Lake Toho CMP can be determined using Table 15 from the OSCDSIFUS, (shown here as Table TA4.1-8., *Calculated School Impact Fee Schedule, Option 2*) and the total number of proposed units from the East of Lake Toho CMP. Impact fees have been estimated for Phase I, up to the year 2015, as well as Buildout. Refer to Tables TA4.1-9, *2015 Total School Impact Fees* and TA4.1-10, *Total School Impact Fees at Buildout*. All associated school impact fees have been included in the overall implementation and action plan in Chapter 4, *Implementation*.

Table TA4.1-8. Calculated School Impact Fee Schedule *(Option 2; Table 15 in the OSCDSIFUS)*

School Type/ Residential Land Use	Impact Unit	Net Impact Cost Per Student	Students Per Unit	Net Impact Cost per Unit
Elementary School				
Single Family Detached	DU	$19,485	0.195	$3,800
Multi-Family Attached	DU	$19,628	0.140	$2,748
Middle School				
Single Family Detached	DU	$22,416	0.106	$2,376
Multi-Family Attached	DU	$22,559	0.062	$1,399
High School				
Single Family Detached	DU	$25,729	0.156	$4,014
Multi-Family Attached	DU	$25,872	0.075	$1,940
Total – All School Types				
Single Family Detached	DU	N/A	N/A	$10,190
Multi-Family Attached	DU	N/A	N/A	$6,087

Table TA4.1-9. 2015 Total School Impact Fees

Residential Land Use	Number of Units	Net Impact Cost per Unit	Total Impact Fees
Single Family Detached	8,670	$10,190	$88,347,300
Multi-Family Attached	5,360	$6,087	$32,626,320
Total	**14,030**	**N.A.**	**$120,973,620**

Table TA4.1-10. Total School Impact Fees at Buildout

Residential Land Use	Number of Units	Net Impact Cost per Unit	Total Impact Fees
Single Family Detached	18,800	$10,190	$191,572,000
Multi-Family Attached	14,150	$6,087	$86,131,050
Total	**32,950**	**N.A.**	**$277,703,050**

TECHNICAL APPENDIX 05. ECOLOGICAL ANALYSIS

TA5.1 Ecological Analysis

Introduction

The East of Lake Toho Conceptual Master Plan area encompasses approximately 11,250 acres of mostly undeveloped land directly east of Lake Tohopekaliga (Toho), bounded by Neptune Road at the north, to Friar's Cove Road at the south, and Florida's Turnpike at the east.

The ecological resources found within Osceola County have both local and regional significance. Being in the northernmost portion of the Florida Everglades basin ecosystem, this area provides the initial link for the basins' hydrologic processes and wildlife habitat. As seen in the Comprehensive Plan, much research and thought has already gone into how to effectively balance urban growth with environmental stewardship, and this section summarizes findings from both the scientific and planning communities as it relates to East of Lake Toho.

Methods

Resource Mapping

GIS were used to conduct initial resource mapping for East of Lake Toho. Environmental data for the state of Florida is widely available from public agencies and other data providers. For each resource, a number of data sources may have been collected; however, maps were created using the most reliable, currently available data, supplemented where possible with actual field verified data.

Statements about the presence or absence of state and federally listed plant and animal species are based on historic observations, recent reconnaissance level surveys, analysis of vegetation and habitat types, literature reviews and other existing databases.

The following list includes the baseline data that was used for the natural resource mapping for East of Lake Toho, and Table TA5.1-1, *Data Sources*, lists the data sources referenced by resource.

Literature Review

A literature review and extensive research for many of the ecological resources found within East of Lake Toho, in particular for the wildlife and plant species that may be present there, was conducted. This Ecological Analysis relies on that research for a discussion of certain resources, including their role in ecosystem functionality, and specific conservation strategies for each that may be considered in the Conceptual Master Plan.

Ecological Planning Principles

East of Lake Toho has been designated by Osceola County as an area for future intense urban growth. To facilitate the planning of this growth, sound environmental planning principles are being used to design an overall environmental framework in which transportation corridors and various land uses can be placed. This environmental framework incorporates the following principles in the design.

Compatibility with Landscape Setting

The ultimate environmental framework complements the broader natural landscape features of the topographic, hydrologic, native plant communities, and wildlife uses and patterns.

Maintenance of Natural Systems Diversity

The environmental framework is designed to incorporate the full range of natural plant communities and wildlife populations found within East of Lake Toho, including listed species.

Sustainability of Natural Systems

The natural system design accounts for the location, size, and juxtaposition of current resources so that biodiversity is sustainable into the future.

Table TA5.1-1. Data Sources

Resource	Data Source
Wetlands	National Wetland Inventory (NWI)
Hydrology	National Hydrography Dataset
Plant and Wildlife Species	Florida Fish and Wildlife Conservation Commission (FFWCC), Florida Natural Areas Inventory (FNAI)
Land Cover	South Florida Water Management District (SFWMD) and St. Johns River Water Management District (SJRWMD) Land Cover Dataset
Canals/Drainages	South Florida Water Management District (SFWMD)
Soils	National Resource Conservation Service (NRCS)
Conservation Lands/Mitigation Banks	Florida Geospatial Data Library

Restoration Opportunities

Given that environmental planning of this scope should incorporate a 50- to 100-year context, opportunities to restore native plant communities in portions of the landscape, and reintroduce any extirpated wildlife species may be considered. Missing linkages in the natural system can be identified and plans developed to restore any identified lost biological or hydrological components.

Management of Natural Systems

In establishing the environmental framework, it is recognized that certain management practices may be necessary for the long-term sustainability of the landscape scale settings.

Recognition of Natural Successional Patterns

Natural systems are not static, unchanging museums. There are natural plant successional processes that are at work in the landscape and animal populations undergo changes and shifts. The environmental design must recognize these changing natural processes.

General Site Conditions

Overview

East of Lake Toho is comprised of a diverse array of natural resources that provide an important framework for long-term planning efforts. The planning area occurs primarily north and east of Lake Toho within the Osceola Plain physiographic region, which is comprised of relatively level to gently rolling terrain between the Lake Wales ridge to the west and the Eastern Valley (St. John's River Valley) to the east. Elevations range from approximately 55-feet on the margins of Lake Toho to over 75-feet north of Lake Toho. Historically, pine flatwoods and palmetto prairies dotted with small to large lakes, broad grassy sloughs, and other marshy depressions historically dominated the sandy soils of this region. Within the planning area, the majority of the upland habitats have been converted to agricultural uses such as improved pasture and citrus groves, while remaining pockets of natural vegetation have been used for native range as well. The rich agricultural heritage and remaining naturally vegetated areas provide foundation for the natural resource component of the planning area.

Regional Context

Existing conservation lands within the vicinity of the planning area are primarily associated with islands within Lake Toho, including Makinson Island and Paradise Island. Although no other existing large-scale conservation lands owned by county, state, or federal agencies occurs within or immediately adjacent to the planning area, Lake Toho and its adjacent lands do connect to the west and south to large-scale conservation lands associated with the headwaters of the Everglades system.

Soils

Soils within the planning area typically are very poorly drained or poorly drained, with some excessively and moderately drained soils in topographically higher portions of the planning area. Generally, very poorly drained soils and portions of the poorly drained soils within the planning area are hydric soils that exhibit ponding, saturation, or flooding during portions or all of the growing season. These hydric soils typically underlie wetland areas such as wet prairie, treeless hydric savanna, and/or freshwater marshes. Non-hydric soils typically underlie upland areas, although hydric soil inclusions associated with small, generally isolated wetlands can also occur within otherwise non-hydric soils. The majority of the soils within the planning area may inundate occasionally after heavy rainfall.

Hydrology

The regional hydrology of the planning area is intimately related to the hydrology of Lake Toho (Map TA5.1-1, *Existing Hydrology*). Like many lakes within Central Florida, the water elevations within Lake Toho historically varied extensively in response to seasonal and periodic (i.e. hurricane) rainfall events. Beginning in the 1880s with Hamilton Disston, increasing human control of the water levels through

canals, control structures, and other flood control efforts was used to maintain more stable water levels within Lake Toho and other nearby lakes (such as East Lake Tohopekaliga). As part of these control efforts, the C-31 Canal that passes through the planning area was excavated between East Lake Toho and Lake Toho. Over time, additional control structures were installed at the drainage outfall of the Lake Toho to the south (at the C-35 Canal – outside of the planning area) as part of flood control efforts for the region.

The wetland systems that occur throughout the planning area comprise local expressions of hydrology. In the early and middle portions of the 20th century, extensive small-scale ditch systems were excavated through uplands to drain these wetland systems. These ditch systems often affected the inundation residence times and, in some cases, the inundation levels of the wetlands being drained, which helped to maintain drier conditions for the adjacent agricultural lands. Pump systems that discharged into Lake Toho at the terminus of some of these ditch systems further dried out historical wetland areas. Many of the wetlands within the planning area have been affected by some level of ditching/draining.

Vegetation Communities/Land Use

The existing conditions of the planning area, as shown in Table TA5.1-2, *Land Cover Type by Acreage* and Map TA5.1-2, *Land Cover*, represent not only a collection of diverse natural systems, but also the effect of a history of land uses, such as agriculture and silviculture, that are characteristic of much of the rest of Osceola County. Much of the uplands and portions of the wetlands were converted to improved pasture uses for cattle grazing operations, while smaller portions of the uplands were converted to citrus groves. Similarly to much of Central Florida, pinelands occurring within the planning area were likely timbered in the early 1900s. Regeneration and growth of pines comprises the mature pine canopies of the existing flatwoods, while areas that have been harvested in more recent years or did not exhibit pine regeneration consist of palmetto prairies.

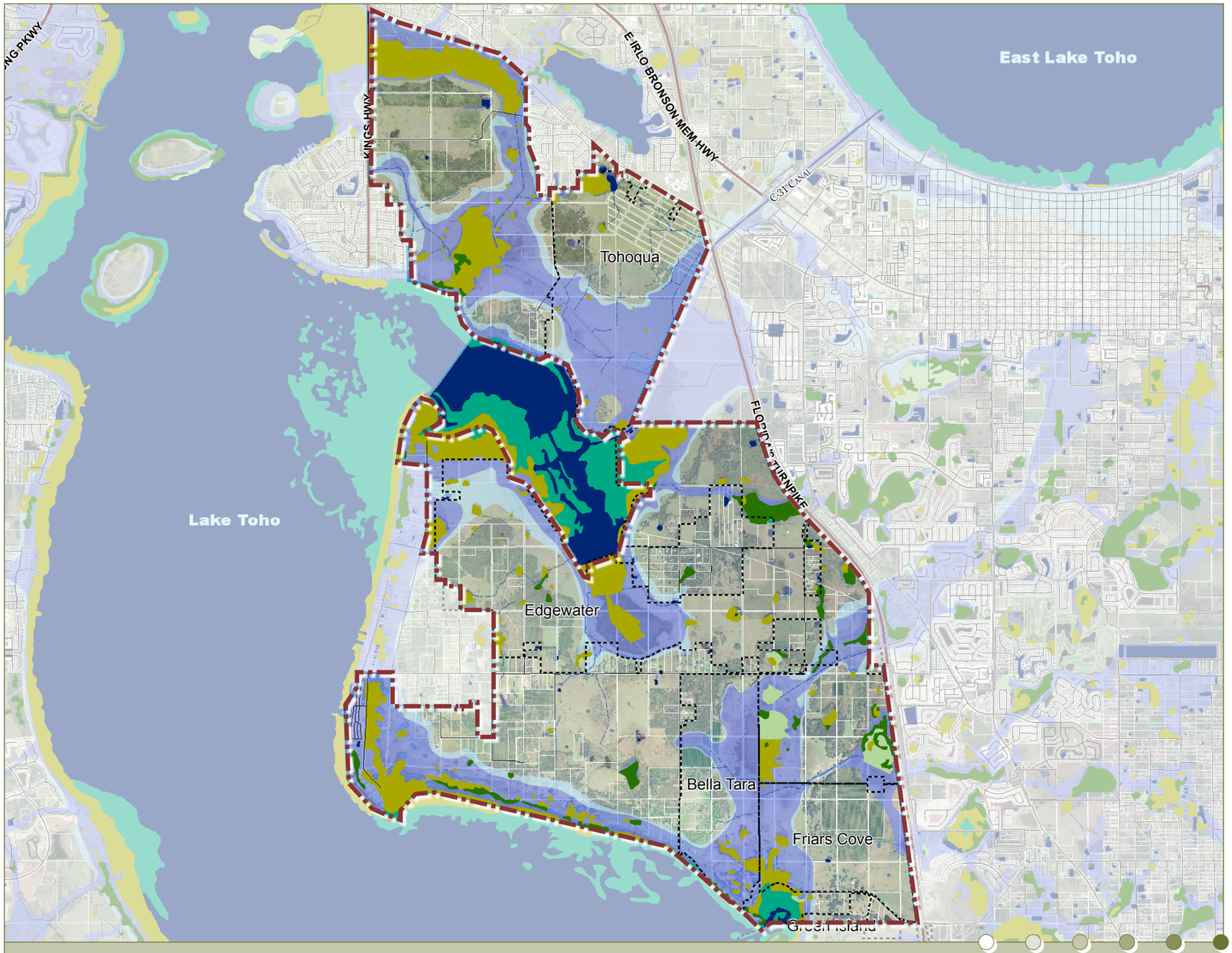
Extensive land use and vegetation community assessments were conducted and documented as part of the Development of Regional Impact (DRI) application process for the five DRIs within this planning area. A number of vegetation community types were identified as part of these efforts and the documentation included in the DRI applications should be referenced for more detailed descriptions of the vegetation/land uses identified. For the purposes of this review, vegetative community and/or existing land uses noted within these DRIs have been lumped into general categories.

Agricultural Lands

Agricultural lands consist of two primary vegetation types, including improved pasture and citrus groves. Improved pastures dominate the majority of the uplands within the planning area. The pastures generally exhibit dense herbaceous layers dominated by various pasture grasses that are typically regularly maintained through mowing or grazing. These pastures typically have limited to no canopy present, but instead consist of open grasslands. Citrus groves, both operating and fallow groves, occur primarily on soils that are well- or moderately-well drained. Operating groves generally consist of ordered rows of citrus trees (Citrus sp. of various varieties) with little to no understory vegetation due to active management. Fallow citrus groves occur where citrus groves were abandoned following freezes or other land use changes. These fallow groves may still have some limited citrus trees present, but often exhibit growth of pines and oaks and extensive herbaceous vegetation.

Flatwoods Systems

The flatwoods systems historically dominated the upland habitats of the planning area, but now occupy only small, scattered patches. Several morphs of the flatwoods systems occur within the planning area: pine flatwoods, palmetto prairie (a treeless prairie that typically resulted from timbering operations), and mixed forested uplands. Pine flatwoods are typically dominated by open stands of longleaf (*Pinus palustris*) or slash pine (*P. elliottii*) over a diverse groundcover layer dominated by saw palmetto (*Serenoa repens*) and wiregrass (*Aristida stricta*), while palmetto prairies exhibit similar groundcover diversity and dominance



Map TA5.1-1. Existing Hydrology

Hydrology

- Emergent Freshwater
- Scrub or Shrub
- Forested
- Aquatic Bed
- Open Water
- 100-Year Floodplain
- 500-Year Floodplain
- Waterways

Boundaries

- East of Lake Toho
- Municipal Limits
- Developments of Regional Impact (DRIs)

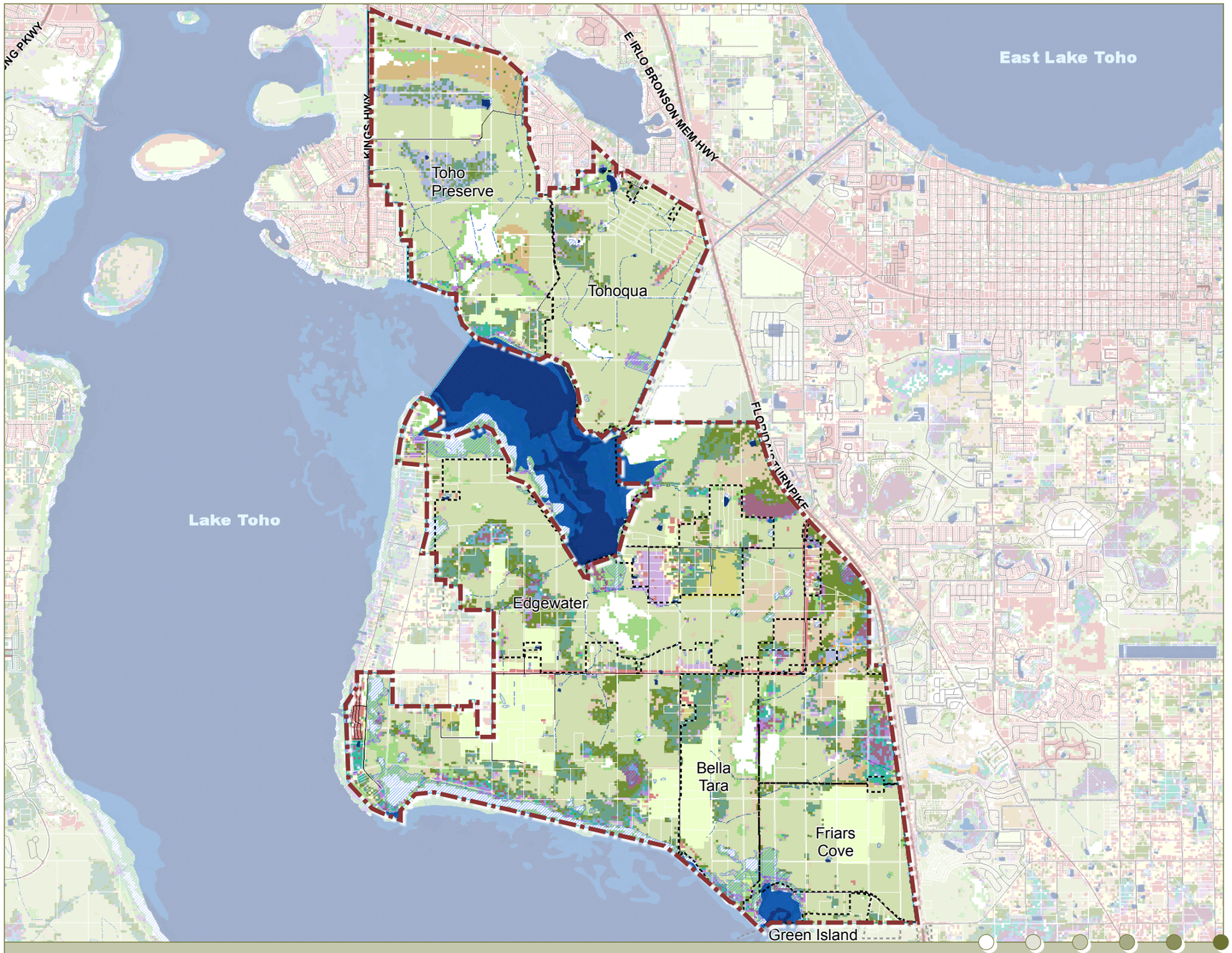
with little to no canopy. The density and diversity of the shrub and groundcover layers of both phases of this system are strongly tied to fire and/or mechanical management. Fire historically ranged through the flatwoods every 1 to 3 years, but the fragmented nature of remaining pine flatwoods and active suppression efforts have limited the rejuvenating effect of fire within these systems in recent years. Pine flatwoods systems that have not been burned in many years, coupled with soil types and other biogeographical influences that allow various oak species (*Quercus spp.*) to grow more rapidly, can transition to a mixed forested upland vegetation type, which does occur in small, scattered locations throughout the planning area.

Oak Hammocks

Live oak hammocks occur in several locations within the planning area, ranging from low-lying hammocks adjacent to Lake Toho to drier oak hammocks between the flatwoods and marshes on the site. Live oak (*Q. virginiana*) is the primary component of the typically dense canopy. A few other species, including slash pine, water oak (*Quercus nigra*), and laurel oak (*Quercus laurifolia*), also occur within the canopy in scattered locations. Typically, the herbaceous and shrub layer is open because cattle often use the hammocks as loafing areas and trample the vegetation.

Table TA5.1-2. Land Cover type by Acreage

Land Cover	Acreage
Xeric Oak Scrub	12
Sand Pine Scrub	1
Dry Prairie	60
Mixed Pine-Hardwood Forest	38
Hardwood Hammocks and Forest	44
Pinelands	55
Freshwater Marsh and Wet Prairie	100
Shrub Swamp	20
Bay Swamp	1
Cypress Swamp	16
Cypress/Pine/Cabbage Palm	0
Mixed Wetland Forest	9
Hardwood Swamp	10
Open Water	104
Shrub and Brushland	16
Grassland	2
Bare Soil/Clearcut	1
Improved Pasture	430
Unimproved Pasture	19
Citrus	79
Row/Field Crops	0
Other Agriculture	8
High Impact Urban	15
Low Impact Urban	5
Total	1045



MAP TA5.1-2. LAND COVER

VEGETATION (FFWCC 2003)

- Citrus
- Cypress Swamp
- Cypress/Pine/Cabbage Palm
- Dry Prairie
- Freshwater Marsh & Wet Prairie
- Grassland
- Hardwood Hammock & Forest
- Hardwood Swamp
- High Impact Urban
- Improved Pasture
- Low Impact Urban
- Mixed Pine/Hardwood Forest
- Mixed Wetland Forest
- Other Agriculture
- Pinelands
- Row/Field Crops
- Sand Pine Scrub
- Sand/Beach
- Sandhill
- Shrub & Brushland
- Shrub Swamp
- Unimproved Pasture
- Xeric Oak Scrub

BOUNDARIES

- East of Lake Toho
- Municipal Limits
- Developments of Regional Impact (DRIs)

0 1,320' 2,640' 5,280'

Forested Wetlands

Forested wetland systems comprise a portion of the wetlands within the planning area, both along large portions of the shoreline of Lake Toho as well as in larger isolated domes and connected strands. Regional hydrological changes associated with the control of Lake Toho as well as local ditches and drainage efforts have affected the composition and structure of many of these forested wetlands. Cypress (*Taxodium spp.*) dominates many of the forested wetlands, especially within wetlands colloquially named "cypress domes" or "cypress strands" where it can be the sole (or dominant) canopy species. These systems can exhibit a variety of understory conditions ranging from very open, fern dominated herbaceous layers to densely vegetated shrub-dominated systems. Other forested wetland systems, especially along the lake edge, may consist of a mixture of various species, including cypress, red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), blackgum (*Nyssa biflora*) and/or live oak. Exotic invasive species including Brazilian pepper (*Schinus terebinthifolius*) and Chinese tallow (*Sapium sebiferum*) can be found in many of the wetlands within the planning area, due in part to historical hydrological changes and land use practices within the area.

Herbaceous Wetlands

Herbaceous wetlands, including freshwater marshes, wet prairies, and wet pastures, comprise the majority of the wetland systems and wetland acreage within the planning area. Freshwater marshes typically occur in wetlands that inundate relatively deeply (2+ feet) and/or for all or most of the year, while wet prairies will inundate for shorter periods of time and/or at shallower depths. Wet pastures represent altered marshes or prairies that have been converted to pasture grasses or otherwise lost the historical dominant vegetation due to ditching or historical land management practices. The majority of the acreage associated with these systems occurs within large wetlands that were historically connected directly to Lake Toho, but have partially or wholly been disconnected from the lake through the C-31 Canal or other ditching/draining efforts. Many of the isolated, small depressional wetlands within the planning area are comprised of herbaceous wetlands as well, in part due to the dynamic water level variation within these wetlands and in part due to historical land use practices (ditching, cattle use, etc.).

Potential for Presence of Listed Species

In addition to a review of existing FFWCC and FNAI databases, extensive wildlife surveys were conducted and documented as part of the DRI application process for the five DRIs within this planning area. Species listed by federal or state agencies as threatened, endangered, or species of special concern (state-only) were observed during these surveys in various locations and habitats throughout the planning area (Table TA5.1-3. *Federally Listed & Candidate Animal Species in Osceola County* and Map TA5.1-3, *Wildlife Resources*). A more complete analysis of the species found and surveys conducted can be found within the DRI Application for development approvals for these projects. However, the following is a brief description of the species found within or likely occur within the planning area:

Amphibians & Reptiles

Eastern Indigo Snake. The eastern indigo snake (*Drymarchon corais couperi*) primarily occurs in the dry sandhill and scrub habitats of northern Florida and southern Georgia, although they are also known to occur in Osceola County. Eastern indigo snakes have been federally listed as threatened since 1978. This species frequents habitat mosaics such as the pine flatwoods, scrubby flatwoods, freshwater marshes, agricultural fields, and human-altered habitats found within the planning area. Although no eastern indigo snakes have been observed within the planning area, the habitat mosaic on the site and regional location of the LLCA provide potential habitat for this species. They are closely associated with tortoise burrows as these burrows provide shelter from cold and desiccation, to which they are particularly susceptible. Because of the large home range of this species (average 183 acres for males and 47 acres for females in south-central Florida), they are especially vulnerable to regional habitat loss and degradation.

Gopher Tortoise. Historically, gopher tortoises (*Gopherus polyphemus*) ranged throughout much of Florida in areas dominated by xeric or mesic soils, including both altered and naturally vegetated

habitats. They are known for constructing large burrows that provide refugia from heat, cold, desiccation, and predators, of which they may use several throughout their lives. These burrows also provide refugia for many commensal species, including other reptiles, amphibians, mammals, and invertebrates. Although gopher tortoise burrows were observed in only a small portion of the planning area, much of the uplands within the planning area could serve as potential habitat for this state-listed threatened species. Additional surveys for this species will be required prior to construction within the planning area.

Birds

Bald Eagle. A large population of bald eagles (*Haliaeetus leucocephalus*) occurs within Florida with a large portion of the population occurring within the lakes and flatwoods mosaic of Central Florida. Eagles typically nest in mature or old-growth trees and will re-use the same nest in subsequent years. The nesting season in Florida begins in October, and most young fledge by May and early June. During the breeding season, eagles can be very sensitive to human activity during courtship, laying and fledging period; however, some eagles, especially those nesting in urban settings, are able to tolerate substantial levels of human activity. A number of nests occur within or adjacent to the planning area. Protection measures consistent with the Bald and Golden Eagle Protection Act (BGEPA) and the Florida Bald Eagle Management Plan are required for bald eagle nests unless otherwise coordinated with the USFWS and/or the FFWCC.

Everglades Snail Kite. Originally known to occur as far north as the Wakulla River in northwest peninsula Florida, the Everglades snail kite (*Rhostrhamus sociabilis plumbeus*) is now found primarily within the watersheds of the Everglades, the Big Cypress, Lake Okeechobee and the Kissimmee River valley, Loxahatchee Slough, and the upper St. Johns River. Lake Toho, part of the Kissimmee River system, is home to a large number of nesting pairs and is significant for being near the northern end of the current breeding range of this endangered species. Snail kites forage almost exclusively on apple snails (*Pomacea paludosa*), which typically are found in low marsh areas that exhibit shallow inundation for long (> 1 year) periods of time. Snail kites nest in low trees growing in open water and can form loose colonies in favored breeding areas. A number of nests are known to occur within or adjacent to the planning area with marshes connected to or part of Lake Toho. In addition, the USFWS has designated Priority Kite Management Areas nearby the planning area.

Wood Stork. Wood storks (*Mycteria americana*) were listed as endangered in 1984 as a result of hydrological alterations, dry downs and alteration of the Everglades. Storks are sensitive to alterations in their feeding habitat, which consists of wetlands and surface waters in which water is 2 to 15 inches in depth, remains relatively calm, and is not thick with vegetation; however, almost any shallow wetland depression where fish concentrate may be suitable. Wood storks are a colonial species that nest most frequently in large cypress trees or in mangroves on islands. Nesting storks will travel between 5 to 40 miles from the colony to forage, although wetlands with appropriate foraging habitat within 18.6 miles of a colony are considered core foraging habitat in this part of Florida. The majority of the wetland systems within the planning area would likely be considered suitable core foraging habitat.

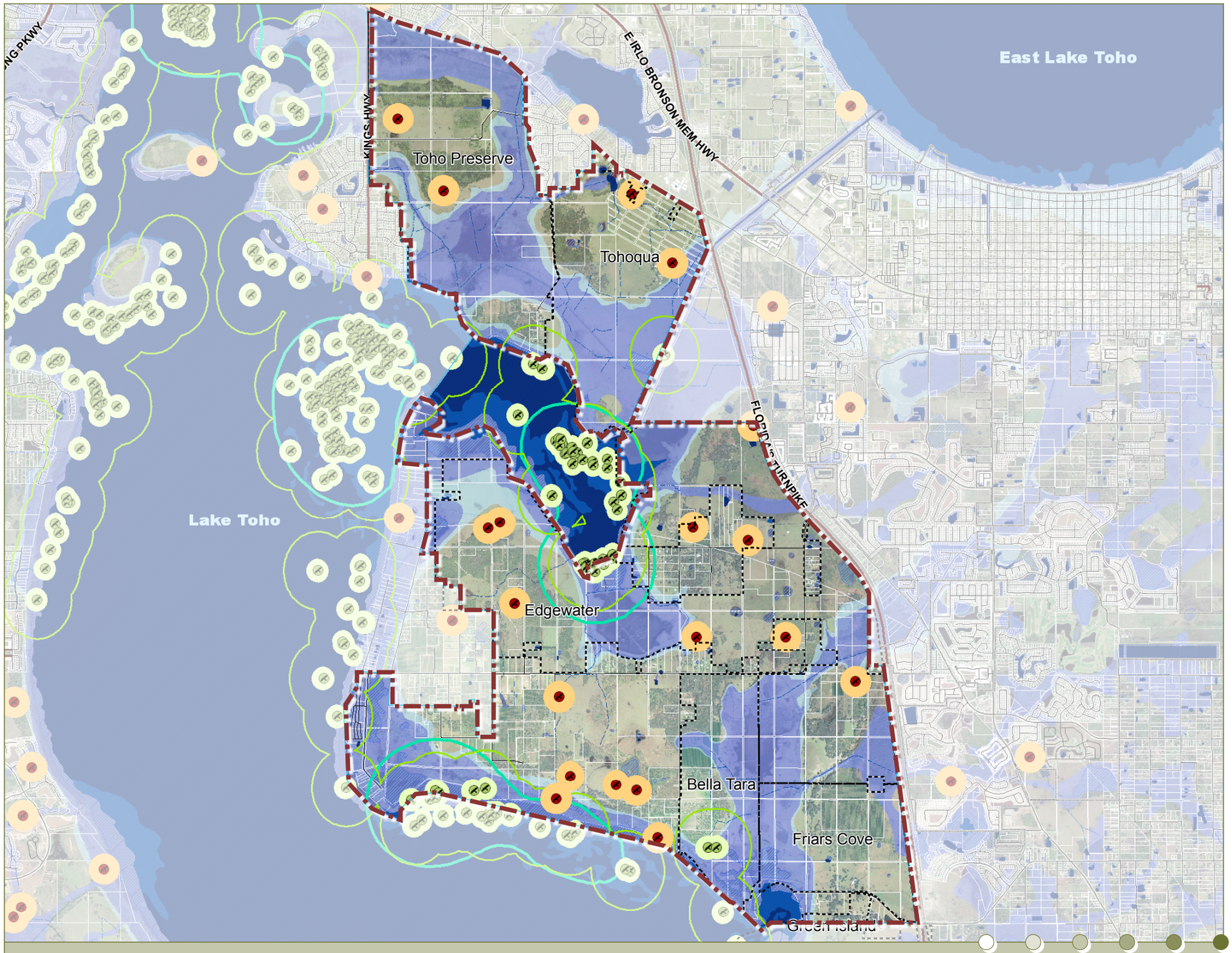
Whooping Crane. Once reduced to a population estimated at 14 birds in 1941, the whooping crane (*Grus americana*) has been the subject of decades of research and recovery efforts to restore this distinctive bird, the tallest in North American, back to portions of its historical range. Although the remaining self-sustaining wild population is migratory, the USFWS established a non-migratory population on the Kissimmee Prairie in 1993 as part of the recovery efforts. This population has been deemed a nonessential experimental population. As of spring 2000, approximately 65 whooping cranes were known to occur in this non-migratory population, some of which successfully reared young. Whooping cranes travel singly or in pairs, sometimes in association with sandhill cranes. Whooping cranes have been observed foraging within herbaceous wetlands within portions of the planning area.

Crested Caracara. Audubon's crested caracara (*Polyborus plancus audubonii (=Caracara cheriway audubonii)*) is listed as threatened by both the USFWS and the FFWCC. Although this species historically ranged north to St. Augustine, Florida, the majority of the population is found within south-central Florida within dry prairies and improved pasturelands with scattered cabbage palms. Caracaras typically nest within cabbage palm trees, although other tree species may be used as well, and may reuse the same nest tree over a period of years. They will eat a wide range of animals, although they often will eat carrion. Caracaras were observed foraging in the southern portion of the planning area. The improved pastures throughout the planning area, especially areas with cattle ranching operations that occasionally exhibit dead cattle carcasses, could potentially serve as habitat for this species. Surveys for nesting caracaras may be required in portions of the planning area prior to construction activities.

Table TA5.1-3. Federally Listed & Candidate Animal Species in Osceola County

Endangered Animal Species	
Florida panther	*Puma (=Felis) concolor coryi*
Everglade snail kite	*Rostrhamus sociabilis plumbeus*
Florida grasshopper sparrow	*Ammodramus savannarum floridanus*
Ivory-billed woodpecker	*Campephilus principalis*
Red-cockaded woodpecker	*Picoides borealis*
Wood stork	*Mycteria americana*
Peregrine falcon	*Falco peregrinus*
Threatened Animal Species	
Puma (mountain lion)	*Puma (=Felis) concolor* (all subsp. except *coryi)*
Crested caracara	*Caracara cheriway*
Florida scrub jay	*Aphelocoma coerulescens*
Whooping crane	*Grus americana* (Experimental Population)
American alligator	*Alligator mississippiensis*
Blue-tailed mole skink	*Eumeces egregius lividus*
Eastern indigo snake	*Drymarchon corais couperi*
Sand skink	*Neoseps reynoldsi*
Gopher tortoise	*Gopherus polyphemus*
Southeastern American kestrel	*Falco sparverius paulus*
Florida sandhill crane	*Grus canadensis pratensis*
Florida black bear	*Ursus americanus floridanus*
Endangered Plant Species	
Britton's beargrass	*Nolina brittoniana*
Lewton's polygala	*Polygala lewtonii*
Pygmy fringe tree	*Chionathus pygmaeus*
Sandlace	*Polygonella myriophylla*
Scrub lupine	*Lupinus aridorum*
Wide-leaf warea	*Warea amplexifolia*
Scrub plum	*Prunus geniculata*
Threatened Plant Species	
Papery whitlow-wort	*Paronychia chartacea*
Pigeon wings	*Clitoria fragrans*
Scrub buckwheat	*Eriogonum longifolium* var. *gnaphalifolium*
Florida bonamia	*Bonamia grandiflora*

Source: USFWS, February 22, 2008.



Map TA5.1-3. Wildlife Resources

Wildlife
- Bald Eagle Historic Nest
- Bald Eagle Buffer (660-foot)
- Snail Kite Historic Nest
- Snail Kite Buffer (500-foot)
- Snail Kite Buffer (500-meter)
- Snail Kite USFWS Priority Area

Hydrology
- 100-Year Floodplain
- 500-Year Floodplain
- Waterways

Boundaries
- East of Lake Toho
- Municipal Limits
- Developments of Regional Impact (DRIs)

Sandhill Crane. Sandhill cranes (*Grus canadensis pratensis*) typically occur within open habitats, such as prairies, and typically nest and roost in shallow, herbaceous wetlands. Nesting usually occurs between January and August, and pairs will re-nest after the loss of eggs or chicks. Foraging occurs in open fields or grassy areas (e.g., pastures, prairies, or emergent palustrine wetlands). Maintenance of uplands adjacent to nesting areas through fire or mowing is important to maintain the herbaceous vegetation at less than 20 inches in height for forage. Potential nesting sites could exist in any of the herbaceous wetland systems within the planning area.

Wading Birds. Listed wading birds, including the little blue heron (*Egretta caerulea*), white ibis (*Eudocimus albus*), tricolored heron (*Egretta tricolor*) and snowy egret (*Egretta thula*) were observed throughout the planning area foraging within herbaceous wetlands, ditches, and/or other surface waters. State and federal regulations protecting these species are focused on roosting and nesting (rookery) locations. No roosting areas or rookeries were noted within the DRI surveys documentation.

Mammals

Sherman's Fox Squirrel. Sherman's fox squirrel (*Sciurus niger shermani*) typically inhabits mature longleaf pine sandhills, open pine flatwoods, mixed pine-hardwood areas and rangeland interspersed with trees, but can occur in live oak hammocks and other mixed hardwood areas. Common forage items for this species includes nuts, fruits, insects, mushrooms, buds and tubers, and acorns of the live oak. Habitat for fox squirrels can be improved through selective cutting to maintain nut-bearing trees, and maintaining mature and large crown trees; however, more intense harvesting can eliminate fox squirrel habitat. Sherman's fox squirrels have been observed in various locations throughout the planning area.

Listed Commensal Species

Several listed wildlife species, including the gopher frog (*Rana capito*) and Florida mouse (*Podomys floridana*) depend upon or frequently use gopher tortoise burrows. Gopher frogs typically occur within pineland mosaics that also include seasonally inundated, isolated marsh and wet prairie systems. Similar to gopher tortoises and eastern indigo snakes, another listed commensal species, the latter species is often found in xeric to mesic pine dominated habitats. Although only the gopher frog was noted to occur in the southern portion of the planning area, both of these species have the potential to occur throughout the planning area, especially upland systems home to gopher tortoises.

Governmental Regulatory Considerations

Even with careful consideration of the planning area's environmental framework, some impacts to natural resources will be unavoidable. All such impacts will be required to be permitted through the applicable regulatory process and adequately mitigated. A number of federal, state, and local regulatory agencies have jurisdictional authority over the wetlands and open water within the site. These agencies include the United States Army Corps of Engineers (USACE), Environmental Protection Agency (EPA), South Florida Water Management District (SFWMD), St. Johns River Water Management District (SJRWMD), Florida Department of Environmental Protection (FDEP), and Osceola County. Coordination and permitting with these agencies will be required prior to initiating any development activities. The following is a review and summary of the jurisdictional limits of each agency and the general permitting requirements of each. The regulations of each agency should be consulted for additional details and more specific guidance.

USACE and EPA

The USACE and the EPA are the federal authorities governing regulation of waters of the United States. The USACE, authorized by Section 404 of the Federal Water Pollution Control Act of 1972 (amended in 1977 and commonly referred to as the Clean Water Act (CWA), regulates the discharge

of dredged or fill material into wetlands, rivers, streams, tributaries and other waters of the United States. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To achieve this goal, the CWA prohibits the discharge of dredged or fill material into the aquatic ecosystem unless a permit is issued by the USACE (33 CFR Part 325). When there is a proposed discharge, all appropriate and practicable steps must first be taken to "demonstrate that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern" (40 CFR part 230). For unavoidable impacts, compensatory mitigation is required to replace the loss of wetland and/or other aquatic resource functions. By mutual agreement with the USACE, in Florida, the amount of mitigation needed to offset permittable wetland impacts is calculated using Uniform Mitigation Assessment Method (UMAM) procedures.

There are four methods of providing mitigation: the restoration of a previously existing wetland, the enhancement of an existing wetland, the creation of a new wetland, or the preservation of exiting wetlands or associated upland areas. These mitigation activities are usually accomplished through the following three ways:

Mitigation Banks. A mitigation bank typically consists of wetlands or other aquatic resource areas often with associated uplands that have been restored, enhanced, or preserved. This resource area is then set aside to compensate for future impacts to aquatic resources resulting from permitted activities. A permit applicant may obtain credits from a mitigation bank to mitigate for their proposed impacts to wetlands.

In-Lieu Fee Mitigation. A permit applicant may make a payment to an in-lieu fee program that will conduct wetland restoration, creation, enhancement, or preservation activities. In-lieu fee programs are generally administered by government agencies or non-profit organizations that have established an agreement with the regulatory agencies to use in-lieu fee payments collected from permit applicants.

Permittee-Responsible Mitigation. A permittee may be required to provide compensatory mitigation through wetland restoration, enhancement, creation and/or preservation. This compensatory mitigation may be on site or at another location, usually within the same hydrological basin as the permitted impact. The permittee retains responsibility for the implementation and success of the mitigation project.

Florida Department of Environmental Protection (FDEP), South Florida Water Management District (SFWMD) and St. Johns River Water Management District (SJRWMD)

Wetland permitting by the state of Florida follows the Environmental Resource Permit (ERP) program, as directed by Chapter 373, Florida Statutes and Chapters 18-20, 18-21, 40E-0, 40E-1, 40E-4, 40E-40, 40E-41and 40E-400, Florida Administrative Code (FAC). As a result of the Environmental Reorganization Act of 1993, the State of Florida has created a Unified Wetland Definition and Delineation Methodology which is applicable to all wetlands within the State of Florida and binding on all levels of government. The act combines the regulatory programs of the FDEP with those of the water management planning areas into one program referred to as the ERP. This permit program incorporates all wetland impact review criteria of the FDEP with the surface and stormwater management regulations of the water management planning areas into a single permitting process.

Uniform Mitigation Assessment Method (UMAM)

To provide a consistent process for determining the amount of mitigation needed to offset adverse impacts to wetlands, the Florida legislature sought to develop a single UMAM for wetlands and other surface waters. The legislature authorized the FDEP to adopt a rule providing an "exclusive and consistent

process for determining the amount of mitigation required to offset impacts to wetlands and other surface waters." 373.414(18), F.S. The succeeding UMAM rule became binding on FDEP, the water management planning areas, and local governments, as the "sole means to determine the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters and to award and deduct mitigation bank credits." 373.414(18), F.S.

The UMAM, adopted February 2004, provides a "standardized procedure for assessing the functions provided by wetlands and other surface waters, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset that loss" [62-345.100(2) FAC]. This methodology is used to quantify number of credits required to offset impacts to wetlands and aquatic resources. To determine the value of functions provided by impact and mitigation sites, the UMAM incorporates the following considerations: current condition, hydrologic connection, uniqueness, location, fish and wildlife utilization, time lag, and mitigation risk.

Osceola County

Many local governments in Florida have developed their own wetland protection programs. Osceola County, through the adoption of the Osceola County Comprehensive Plan 2025, seeks to "protect surface waters, wetlands and their associated buffer zones by conditioning its development orders and development permits upon standards, criteria, and procedures which are consistent with existing state and water management planning area regulations" [Chapter 11, Osceola County Land Development Code (LDC)]. Therefore, the issuance of development orders and development permits is "conditioned upon substantive and procedural compliance with wetlands and waters regulations" (Chapter 11, LDC). In order to minimize overlapping regulations, Osceola County defers and coordinates with the water management planning areas regulations to ensure proper wetland protections.

Threatened and Endangered Species

The USFWS, through the Endangered Species Act, the BGEPA, and other regulatory instruments, and the FFWCC, through Chapter 68 of the FAC, regulate activities that may affect protected wildlife and plant species. These agencies have published conservation guidelines for many of the listed species found within the planning area. The following provides a brief description of the appropriate guidelines (if available) and/or buffers or other permitting requirements for the species described above.

- Bald eagle – National Bald Eagle Management Guidelines (USFWS), Florida Bald Eagle Management Plan (FFWCC) – these guidelines require buffers up to 660 feet in width and note that work within these buffers requires coordination with the agencies.
- Snail Kite – Draft Snail Kite Management Guidelines (USFWS) – these guidelines require a 500-foot wide no-entry buffer, a 1640-foot wide limited entry buffer, and survey requirements for priority kite management areas.
- Wood Stork – Wood Stork Habitat Management Guidelines, Wood Stork Foraging Analysis Methodology (USFWS) – Regulations focus on the protection of existing rookeries and potential mitigation requirements for wetland impacts within 18.6 miles of a rookery (core foraging area).
- Whooping Crane – Considered an experimental population by the USFWS and as such does not require consultation for potential impacts to the species for development of the planning area.
- Crested Caracara – Draft Species Conservation Guidelines South Florida for Audubon's Crested Caracara (USFWS) – Provides for a primary zone (985 feet) and secondary zone (4,920 feet) from a nest tree and management recommendations for these zones, with modifications to these measures requiring coordination with the USFWS.
- Eastern Indigo Snake – comply with Eastern Indigo Snake Protection Measures (USFWS), which requires an avoidance and education program for a site.
- Gopher Tortoise – Gopher Tortoise Permitting Guidelines (FFWCC) – Requires avoidance or relocation of gopher tortoises within a development

project, usually by an authorized agent to an appropriate recipient site.

- Sandhill Crane – Ecology of the Florida Sandhill Crane (FFWCC) – Provides guidelines for a 400-foot wide buffer around active nest sites and management recommendations for wetlands and uplands used for foraging.
- Listed Commensal Species – May be relocated as part of a gopher tortoise relocation permit under certain conditions.
- Sherman's Fox Squirrel – Focus on protecting occupied habitat and coordinate potential impacts to occupied habitat with the FFWCC.
- Wading Birds – Protect rookeries and roosting areas from impact.

TECHNICAL APPENDIX 06. PARKS & RECREATION ANALYSIS

TA6.1. Parks & Recreation Analysis

Overview

Between regional, community and neighborhood parks within the East of Lake Toho Conceptual Master Plan area, the population of 85,000 is extremely well served. In addition, an extensive trails network, canal system, and greenways provide additional connectivity between all recreational amenities.

Parks Acreage

Regional Parks

The **Lake Toho Shoreline Regional Park** will become a linear park of regional significance, continuing from South Lake Toho along the eastern edge of Lake Toho and interspersed with trails, boardwalks, marinas, picnic areas and lake access points. An expansion of this lakeshore park further into the Tohoqua Community Park will allow additional areas for active recreation, including sports fields. As shown in Table 6.1-1 *Parks Acreage*, the park totals over 1,900 acres, with the capacity for 650 acres of active park uses at specific nodes, allowing a wide range of recreational uses scattered throughout the area.

Community Parks

Seven (7) Community Parks are located within East of Lake Toho, totalling 370 acres, with over 300 acres available for active recreational usage. Each park will have specific programs related to their surrounding land uses such as schools, retail centers, or residential neighborhoods. These Community Parks are summarized in Table 6.1-1, *Parks Acreage*:

- Toho Preserve Community Park System
- Toho Preserve Community Center Park
- Tohoqua Community Park
- Edgewater Linear Community Park
- Edgewater Urban Community Park
- Whaley-Platt Community Park
- Edgewater East Community Park

Neighborhood Parks

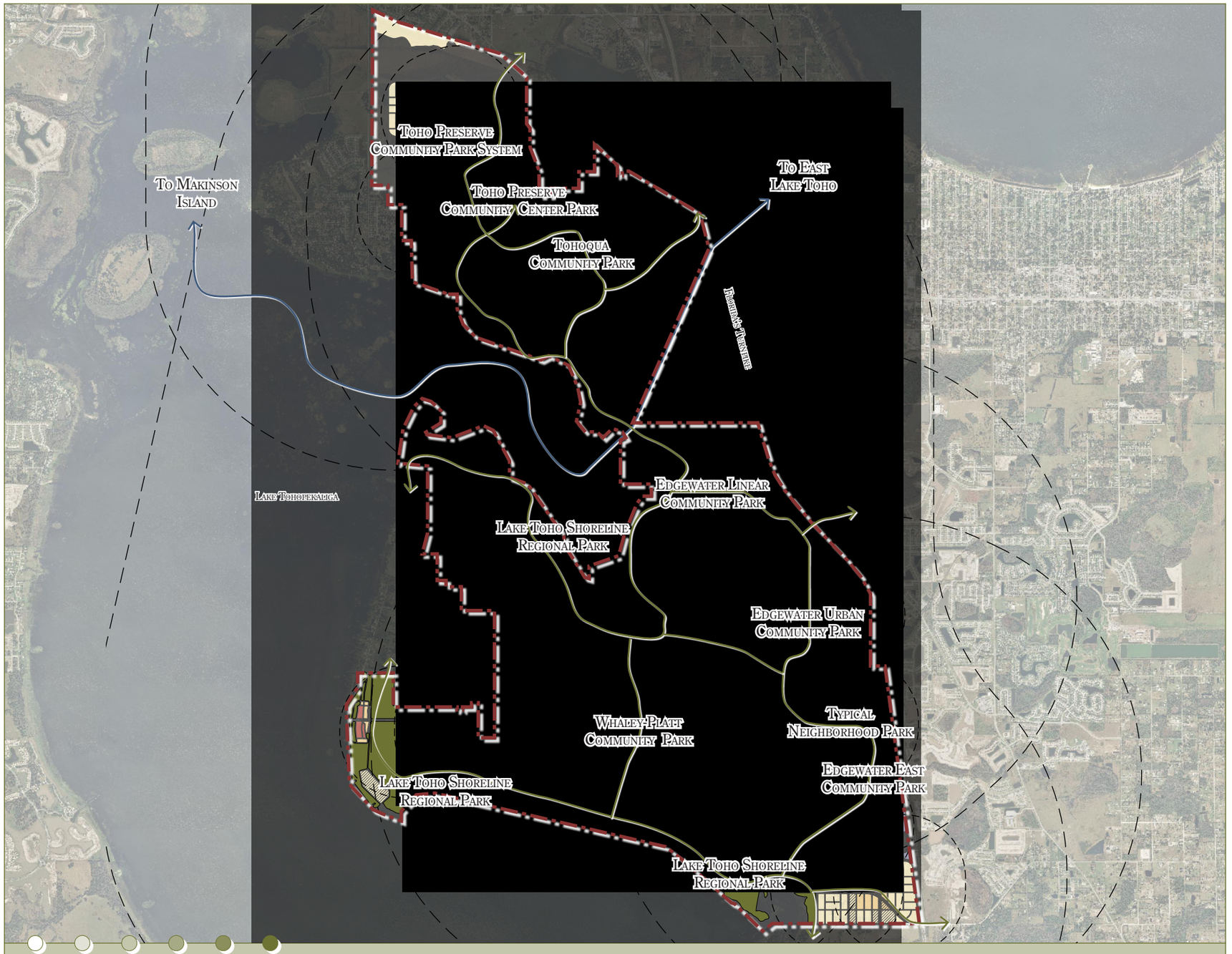
There are thiry-four (34) neighborhood centers found throughout the planning area. Each of these centers will include a park component from one-half (1/2) acre to five (5) acres. For this analysis, it has been assumed that these parks will average five (5) acres in size.

Table 6.1-1. Parks Acreage

Park	Wetland/ Habitat Acreage	Stormwater Acreage	Usable Park Acreage	Total Park Acreage
Regional Parks				
Lake Toho Shoreline Regional Park	800	450	650	1,900
Total Regional Parks	**800**	**450**	**650**	**1,900**
Community Parks				
Toho Preserve Community Park System	0	15	95	110
Toho Preserve Community Center Park	0	0	10	10
Tohoqua Community Park	0	25	105	130
Edgewater Linear Community Park	0	0	15	15
Edgewater Urban Community Park	0	10	30	40
Edgewater East Community Park	0	0	15	15
Whaley-Platt Community Park	0	15	35	50
Total Community Parks	**0**	**65**	**305**	**370**
Neighborhood Parks				
Typical Neighborhood Park (34 Total)	0	0	5	5
Total Neighborhood Parks	**0**	**0**	**170**	**170**
Total	800	515	1,125	2,440

Table 6.1-2. Parks Level of Service

Park Type	Recommended Level of Service	Estimated Total Population/ Households	Required Usable Park Acreage/ Trail Mileage	Actual Park Acreage/ Trail Mileage
Regional Parks	6 Acres/ 1,000 Residents	93,800	562 Acres	650 Acres
Community Parks	4 Acres/ 1,000 Residents	93,800	375 Acres	305 Acres
Neighborhood Parks	1 Acre/ 250 Households	33,500	134 Acres	170 Acres
Recreational Trails	1 Mile/ 1,500 Residents	93,800	62 Miles	75 Miles



Map TA6.1-1. Parks & Recreation Map

Place Types
- Urban Center
- Community Center
- Neighborhood Center
- Neighborhood Type 1
- Neighborhood Type 2
- Open Space District

Parks
- Regional Park
- Community Park
- Neighborhood Park
- Recreational Trail
- Blueway Trail

Parks Service Area
- 1/2-Mile Service Area
- 2-Mile Service Area

Miscellaneous
- Roadways
- Preserved Wetlands
- Stormwater Ponds

0 1,320' 2,640' 5,280'

Recreational Trails

The East of Lake Toho planning area includes over 75 miles of recreational trails. The primary length of trail will be associated with the **Lake Toho Shoreline Regional Park**, and connects the South Lake Toho planning area with the East of Lake Toho communities. At strategic locations along the lakeside trail are connections to additional Community and Neighborhood Parks throughout the planning area. A blueway trail is located within Lake Toho and the C-31 Canal, potentially connecting East Lake Toho to Lake Toho, and ultimately to the Kissimmee Chain of Lakes.

Projected Levels of Service

East of Lake Toho easily meets the Regional Parks and Neighborhood Parks recommended levels of service as shown in Table TA6.1-2, *Parks Levels of Service*. Additionally, the planning area exceeds the Comprehensive Plan 2025's goals of ten total acres of parkland per 1,000 total population, with an average 11.6 acres per 1,000 residents.

Complementing the level of service analysis was an evaluation of the spatial distribution of parks. Assuming a service radius of one half-mile for neighborhood parks and a two mile radius for community and regional parks, the area is completely served. Refer to Map TA6.1-1, *Parks & Recreation Map*.

Projected Parks Costs

All land for Regional and Community Parks will be conveyed to the County by the developer. All facilities and maintenance costs will then be funded by Osceola County. All Neighborhood Parks facilities costs will be paid for by the developer.

Based on anticipated phasing, discussed in Chapter 4, *Implementation*, an average passive parks cost of $90,000 per acre, and an active parks facility cost of $150,000 per acre, the total County parks facilities costs can be estimated for Phase I of the East of Lake Toho Conceptual Master Plan. Anticipating that a portion of the Lake Toho Shoreline Regional Park, as well as four Community Parks would be completed by 2015, the overall costs are shown in Table 6.1-3, *County Parks Facilities Costs, 2015*. An estimate of parks impact fees associated with these parks is calculated in Table 6.1-5. *County Parks Impact Fee Revenue, 2010 - 2015*.

Anticipating that the remainder of the park system is completed between 2015 and buildout, costs are reflected in Table 6.1-4, *County Parks Facilities Costs, 2015 - Buildout*. An estimate of parks impact fees associated with these parks is calculated in Table 6.1-6. *County Parks Impact Fee Revenue, 2015 - Buildout*. Additional information on funding and phasing is included in Chapter 4, *Implementation*.

Table 6.1-3. County Parks Facilities Costs, 2015

Park	Overall Park Acreage	Usable Park Acreage	Cost per Usable Acre	Total Park Facilities Cost
Regional Park				
Lake Toho Shoreline Regional Park (Partially Built at Toho Preserve & Bella Tara)	600	150	$90,000	13,500,000
Community Parks				
Toho Preserve Community Park System (1/2 Built)	55	45	$150,000	6,750,000
Tohoqua Community Park	130	105	$150,000	15,750,000
Edgewater Urban Community Park	40	30	$150,000	$4,500,000
Edgewater East Community Park	15	15	$150,000	$2,250,000
Total Facilities Cost	240	195	N/A	$42,750,000

Table 6.1-4. County Parks Facilities Costs, 2015 - Buildout

Park	Overall Park Acreage	Usable Park Acreage	Cost per Usable Acre	Total Park Facilities Cost
Regional Parks				
Lake Toho Shoreline Regional Park	1,900	650	$150,000	$97,500,000
Total Regional Parks	**1,900**	**650**	**N/A**	**$97,500,000**
Community Parks				
Toho Preserve Community Park System	110	95	$150,000	$14,250,000
Toho Preserve Community Center Park	10	10	$150,000	$1,500,000
Tohoqua Community Park	130	105	$150,000	$15,750,000
Edgewater Linear Community Park	15	15	$150,000	$2,250,000
Edgewater Urban Community Park	40	30	$150,000	$4,500,000
Edgewater East Community Park	15	15	$150,000	$2,250,000
Whaley-Platt Community Park	50	35	$150,000	$5,250,000
Total Community Parks	**370**	**305**	**N/A**	**$45,750,000**
Total Facilities Cost	2,270	955	N/A	$143,250,000

Table 6.1-5. County Parks Impact Fee Revenue, 2010 - 2015

	Number of Units	Impact Fee per Unit	Total Impact Fee Revenue
Single Family Residence	8,670	$923.73	$8,008,739.10
Multi-Family Residence	5,360	$678.97	$3,639,279.20
Total	14,030	N/A	$11,648,018.30

Table 6.1-5. County Parks Impact Fee Revenue, 2015 - Buildout

	Number of Units	Impact Fee per Unit	Total Impact Fee Revenue
Single Family Residence	18,200	$923.73	$16,811,886
Multi-Family Residence	15,300	$678.97	$10,388,241
Total	33,500	N/A	$27,200,127

TECHNICAL APPENDIX 07. PUBLIC INVOLVEMENT SUMMARY

TA7.1 Public Involvement

Introduction

The East of Lake Toho Conceptual Master Plan (CMP) covers Mixed use Districts 1 & 2, the South Lake Toho CMP covers 3, 4 and part of 5 and the Northeast District Plan includes Mixed use District 8. The planning of the CMP included a two-day public involvement workshop in July 2009, resulting in a clearer understanding of the view of stakeholders, the public, and the consultant team's ability to respond to those needs. The plan put forth by Osceola County achieves quality growth through a collaborative approach between County staff, the public and local decision-makers. The high standards for sustainability and quality growth will guarantee that the County continues to be a major destination for new businesses, families, and tourists.

Stakeholder Interviews

In order to ensure that the CMP utilized the most accurate, up-to-date information and reflected the most controversial issues for the region, a set of stakeholder interview were conducted. Opportunities for economic development, multimodal transportation, environmental protection and development must be balanced in order to achieve the sustainable urban growth recommended for this area. These interviews offered the opportunity to provide vital information to the consultant team, enabling the County to make appropriate, well-informed decisions throughout the planning process.

Stakeholder Interviews & Workshop Attendees

- William Barfield, D.R. Horton
- Tine Demostene, Osceola County
- Josh Devries, City of Kissimmee
- Christie Dyer Kilcoyne, Property Owner
- April Fisher, City of St. Cloud
- Tom Franklin, Franklin, Hart & Reed, Toho Preserve
- Michael Holbrook, Bowyer Singleton
- Craig Holland, City of Kissimmee
- Tiffany Holmer, Osceola County
- Julie Kendig, Greenberg Traurig, Green Island
- Daniel LeFevre, Property Owner Representative
- Gayle Lego, Property Owner
- Chuck Lewis, Property Owner Representative
- Shane Platt, Landowner
- Jeffrey Rapson, Court Street Partners
- Scott Secrist, Bowyer Singleton
- Scott Stearns, Bowyer Singleton
- Rob Stiegele, Centerline Homes
- Bob Wright, City of Kissimmee

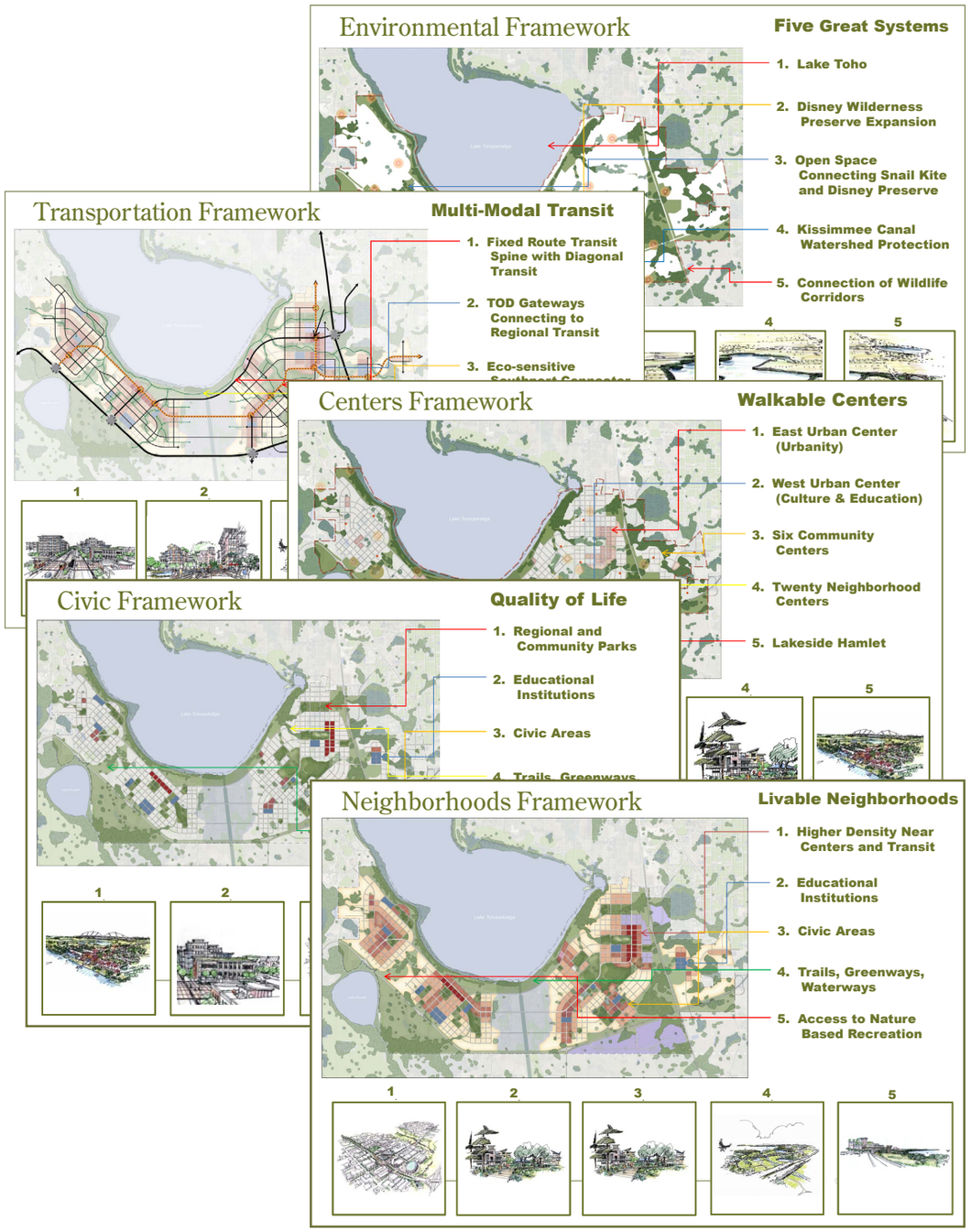
Day 1: Comprehensive Plan Guidance/ Developing Frameworks Workshop

Introduction

The overarching Osceola County 2025 Comprehensive Plan was explained as an introduction to the day's exercises, providing a context for the CMP. The 2006 ULI Panel identified big moves that the County could make, and promoted the mixed use, high-quality communities as a strategy to capture economic development. Additionally, the Comprehensive Plan determines that within the planning area, there will be compact, mixed use development, designed at a human scale with multimodal systems providing a high level of connectivity and emphasizing public places.

Putting the Comp Plan into Practice: Best Practices/ Principles from the South Lake Toho and Northeast District Planning Areas

In addition to the East of Lake Toho CMP, the consultant team developed CMPs for both the South Lake Toho and Northeast District planning areas. A run-through of the process and frameworks (see images at right) that were developed for South Lake Toho was given to showcase the best practices and principles determined from those plans, and was followed by a series of small group exercises.



Small Group Exercise: Creating the Frameworks

The attendees were asked to work in small groups to develop frameworks for each of three categories: Environmental, Economic, Transportation & Transit and Neighborhoods & Centers. When completed, each small group gave a short presentation on the highlights of each framework as follows:

Environmental Framework

- Hierarchy of natural systems
- Preservation of the Lake Toho shoreline, including a regional conservation area including lake edge wetlands, floodplain, and wildlife habitat
- Regional connections, including regional detention areas, community park areas, and connecting large areas of the Lake Toho shoreline
- Local corridors, detention, greenways, focused around existing streamways and irrigation ditches, and would serve as neighborhood separators
- Special area at ridge at the north end of Goblet's Cove to serve as a special neighborhood, or community area

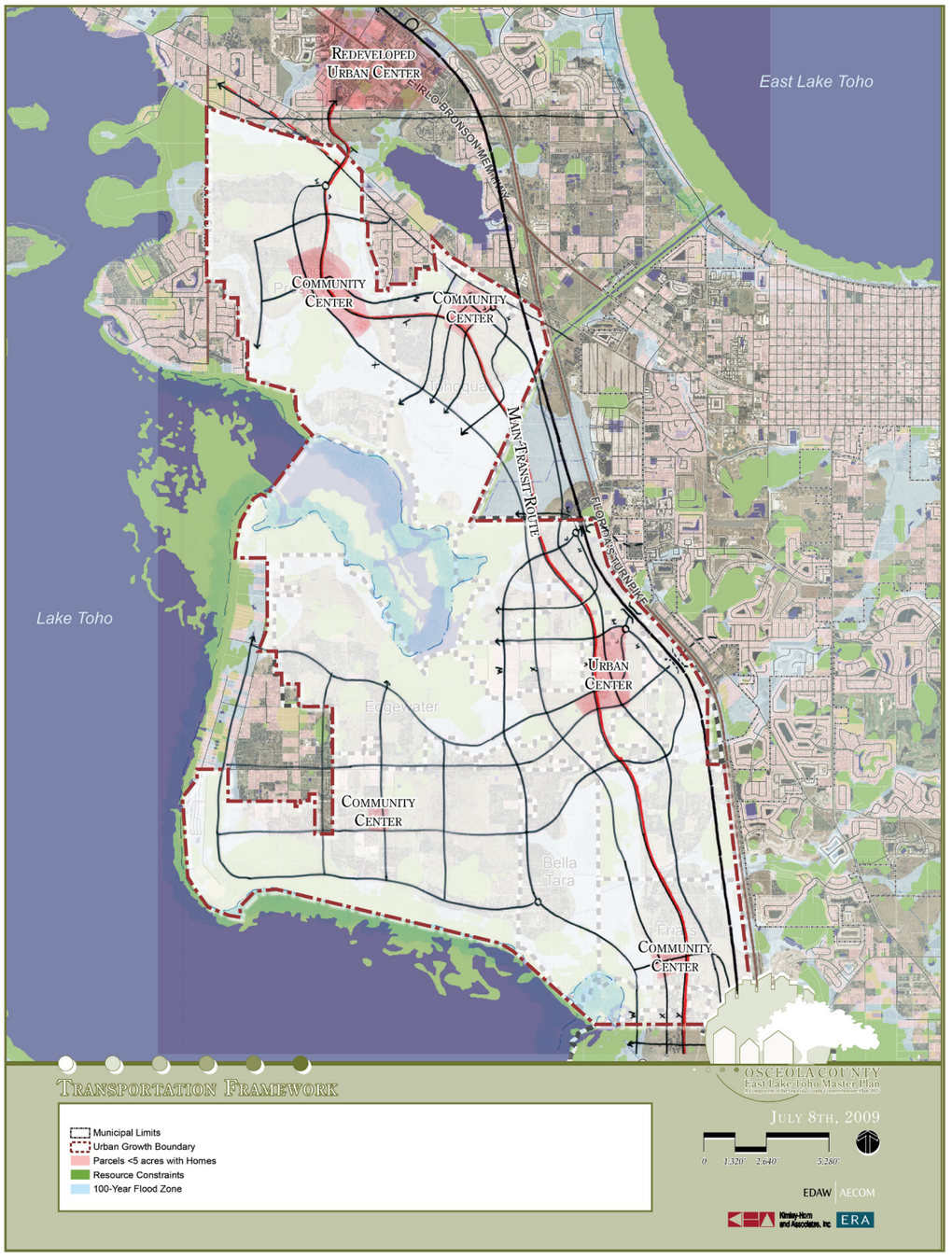
Transportation Framework

Four basic principles for the transportation framework include:

- Two-lane streets more efficient than larger streets
- Confluences halve the efficiency of streets; if 8 lanes converge, only 4 can be used at the same time
- Access points across turnpike cause nodes of concentrated demand
- Increased distance between interchanges and local connections

The transportation network should consist of four continuous framework streets that continue throughout planning area and extend through South Lake Toho

- Five connections to Neptune Road disperse traffic
- Framework streets would have back-loaded streets in order to retain traffic flow
- Existing agreements would need to be reworked in order to accommodate new framework streets
- Turnpike would serve as quickest access from Kissimmee to Green Island, parallel roads would handle more local traffic
- Bus rapid transit (BRT) should connect centers
- BRT should be center-aligned, and a median should be put into place until the BRT is feasible



Neighborhoods & Centers

Existing Land Use plans were used as the base for the framework, and reworked where necessary to avoid conflicts between DRI's.

Urban Centers

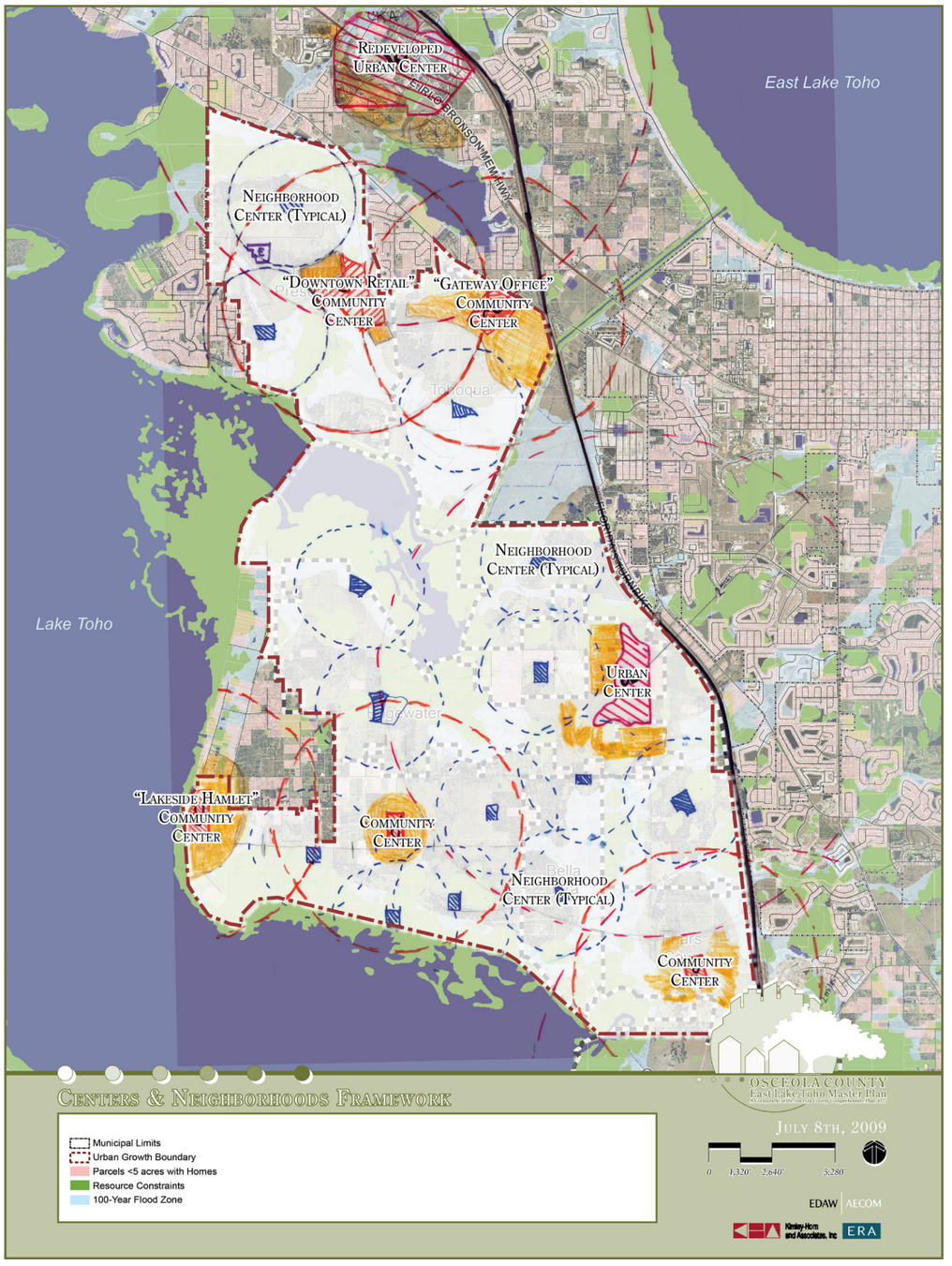
- North End Redevelopment along Highway 192, surrounded with Neighborhood Type II
- Would require County acknowledgement of an existing Urban Center, but would redevelop the area around BRT and transition the existing auto-oriented commercial to mixed uses and multi-family residential
- South Edgewater DRI Urban Center located approximately at the center of the planning area

Community Centers

- Community Center 1 & 2 within Toho Preserve and Tohoqua DRI's would serve as one split Community Center, due to entitled retail square footage
- Community Center 3 located at Friar's Cove Road in Friar's Cove DRI
- Community Center 4 centrally located within the Whaley-Platt area, and Community Center 5 located on Lake Toho, as a Lakeside Hamlet at the existing fish camp

Neighborhood Centers

- 16 Neighborhood Centers located at appropriate spacing throughout to support Community and Urban Centers



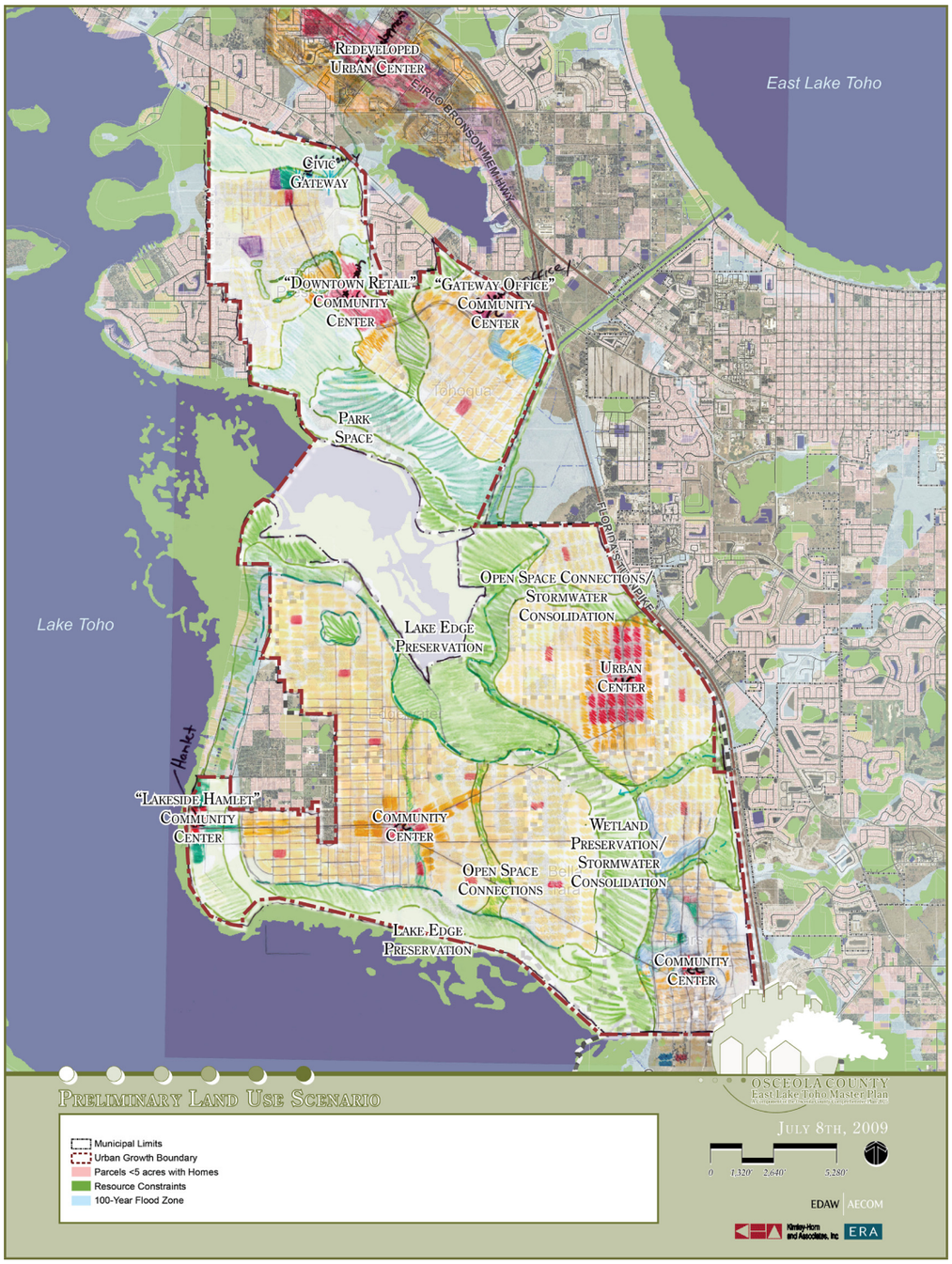
Day 2: Putting it All Together

The consultant team, with additional help from the stakeholders, worked through the morning to consolidate the three frameworks into one consistent plan. The preferred plan was presented, outlining the following features:

Overall Land Use Plan

The neighborhoods, centers and environmental frameworks were consolidated into one overall land use plan. The group felt that Northern Community Centers in Toho Preserve and Tohoqua are probably not as successful due to their proximity to each other and the amount of retail planned. The eastern center could be focused more on an employment gateway, and the western could include the more walkable retail uses.

The western community centers within the peninsula have been situated central to the surrounding neighborhoods, but with direct connections to the urban center and the southern Community Center. A smaller lakeside hamlet would focus on the tourism.



Demographics/ Economics

Households

Existing DRI's are planning approximately 17,000 units by 2027, with an opportunity to capture an additional 16,000 units within the planning area. With competition in other areas of the County, 27,000 to 43,000 households could be incorporated in the East of Lake Toho planning area, while the 33,000 households planned for the area are within this range.

Office

8 million square feet of office space are expected within the County. DRI's within the County are planning about 6 million square feet, leaving 2 million square feet remaining for this and other areas of the County, most likely located in proximity to regional transportation connections.

Retail Space

50% of the spending within Osceola County comes from people outside the County, with spending totalling $2200/year per employee within the area. With 34,000 total households and an average of $13,200 on household expenditures (national average is $16,000), there is $448.8 million in possible spending. 1.8 million square feet of supportable retail and commercial is available, with an additional 500,000 square feet supportable by neighboring communities.

With a 40% capture rate, 930,000 square feet of retail would be supportable within the planning area. DRI's are currently planning 1.2 million. Each Community Center would hold approximately 125,000 square feet based on a grocery-anchored center, with a soft-goods store like Marshalls, and inline restaurants, retail, etc., whereas a Neighborhood Center would hold up to 50,000 square feet of retail.

Conclusion - Next Steps

The meeting was closed with an explanation that the additional ideas would be incorporated into the Preferred Plan. The plan and policies will be developed and the Comprehensive Plan Amendment will be submitted to the County for the fall transmittal hearing to the Department of Community Affairs.

Development Program

Fontana Ultimate Development Program						
LAND USE	AC	DU/AC	UNITS	INITIAL SF	ULTIMATE SF	MIDDLE SCHOOL
Total Land Area	±677					
Developable Area	381					
Wetlands	34					
Neighborhood Type 2 (N–2)	49	10	490			
Neighborhood Type 1 (N–1)	268	8.8	2,370*			
Residential Area	317	9.0	2,860			
Commercial				60,000 (4)	120,000	
Office					170,000	
Civic				15,000 (4)	15,000	
Right–of–Way (Framework Streets)	36					
Stormwater Ponds (1)	74					
Community Center						
CC–1	5	5	25			
CC–2	5	5	25			
CC–3	10	5	50			
CC–4	20					20 ACRES
CC–5 (2)	12	5	60			
NEIGHBORHOOD CENTER						
NC–1 (1)	4					
NC–2 (1)	2					
NC–3 (1)	3					
NC–4 (1)	3					
OPEN SPACE (3)	174					

FOOTNOTES

(1) NEIGHBORHOOD CENTER WILL CONSIST OF NEIGHBORHOOD PARKS INTEGRATED WITH THE ADJACENT STORMWATER PONDS TO BE PART OF THE OPEN SPACE DISTRICT. OPEN SPACE DISTRICT WILL ALSO CONTAIN WETLANDS AND WILDLIFE CORRIDOR ALONG THE WEST PROPERTY LINE.

(2) THE DEVELOPMENT PORTION WITHIN CC–5 LOCATED INSIDE THE LTPA BUFFER WILL CONSIST OF WATER BASED DEVELOPMENTS SUCH AS A MARINA WITH ITS SUPPORTING COMPLIMENTARY SERVICES.

(3) REFER TO FOOTNOTE (1) FOR AREAS INCLUDED IN THE OPEN SPACE DISTRICT.

TOTAL ELT EMPLOYMENT:
COMMERCIAL: 1,900,000 SF = 7,600 JOBS (250 JOBS/SF)
OFFICE: 3,090,000 SF = 12,360 JOBS (250 JOBS/SF)
INSTITUTIONAL/CIVIC: 2,040,000 SF = 8,180 JOBS (250 JOBS/SF)
HOTEL: 1,300 ROOMS = 650 JOBS (.5 JOBS/ROOM)

TOTAL EMPLOYMENT: 28,770 JOBS

Place Types
- Community Center
- Neighborhood Center
- Neighborhood Type 1
- Neighborhood Type 2
- Open Space District

Miscellaneous
- DRI Boundary
- Preserved Wetlands
- Stormwater Ponds

GRAPHIC SCALE

1000' 0 500' 1000' 2000'

1" = 1000'