

## 1.0 Introduction

The purpose of this report is to present the design traffic volumes and associated operational analyses that were developed as part of the Wekiva Parkway/SR 46 Realignment PD&E Study. This traffic study is focused on the existing and future traffic conditions within the study area. No-Build and Build Alternatives, developed in coordination with the Project Team, were analyzed to determine future traffic conditions. This project crosses Orange, Lake, and Seminole Counties. The PD&E Study was conducted as a joint effort of the Florida Department of Transportation (FDOT) and the Orlando-Orange County Expressway Authority (OOCEA).

This Traffic Report is an update to the SR 429 - Wekiva Parkway/SR 46 Realignment Development and Environment (PD&E) Study Traffic Report dated January 2008 (January 2008 Traffic Report) and the subsequent report Addendum dated March 2008. The traffic forecasts and the analyses reflected in this report are consistent with those in both the January 2008 Traffic Report and March 2008 Addendum. This report has been provided based on recent modifications to the Preferred Alternative described in the January 2008 Traffic Report. Upon consideration of potential funding sources for the Wekiva Parkway project, it was determined that the most likely funding source for the project would be with toll revenues. As a result, this report has been prepared to incorporate a variation of the Preferred Alternative from the January 2008 Traffic Report, referred to as the Preferred Alternative with Service Road Concept, in which Wekiva Parkway is a tolled expressway in Orange, Lake and Seminole Counties. The Preferred Alternative in the January 2008 Traffic Report reflected Wekiva Parkway as a tolled expressway in Orange County only and as a non-tolled expressway in Lake and Seminole Counties. This report contains the traffic forecasts and operational analysis associated with the Preferred Alternative with Service Road Concept.

### 1.1 General Project Description

The Wekiva Parkway and the SR 46 Realignment projects are located in northwest Orange County, eastern Lake County and western Seminole County. The study area for the Wekiva Parkway and SR 46 Realignment projects is shown in Figure 1-1. Wekiva Parkway is expected to be a four to six-lane limited access expressway extending from SR 429 at its proposed terminus to I-4 in Seminole County. In doing so, Wekiva Parkway will complete the final northwest segment of the Beltway around Orlando and will serve as both an alternative to US 441 for trips between Mount Dora and Apopka and as a high capacity alternative to the existing SR 46 corridor for east-west trips between Lake and Seminole Counties.

The Wekiva Parkway portion of SR 429 is proposed to begin at the planned terminus of SR 414/SR 429 (John Land Apopka Expressway) at an interchange with US 441 in Orange County in the vicinity of CR 437 (Plymouth Sorrento Road). From this interchange, Wekiva Parkway will extend to the north to near the Orange/Lake County Line where it will extend to the northeast and then east into Lake County generally following the existing SR 46 corridor. Upon crossing the Wekiva River into Seminole County, the expressway will continue east to a connection with Interstate 4 (I-4). In Seminole County, Wekiva Parkway will consist of an expressway in combination with a frontage road system to provide local access along the SR 46 corridor, while in Lake County a service road will provide access to local properties and neighborhoods.

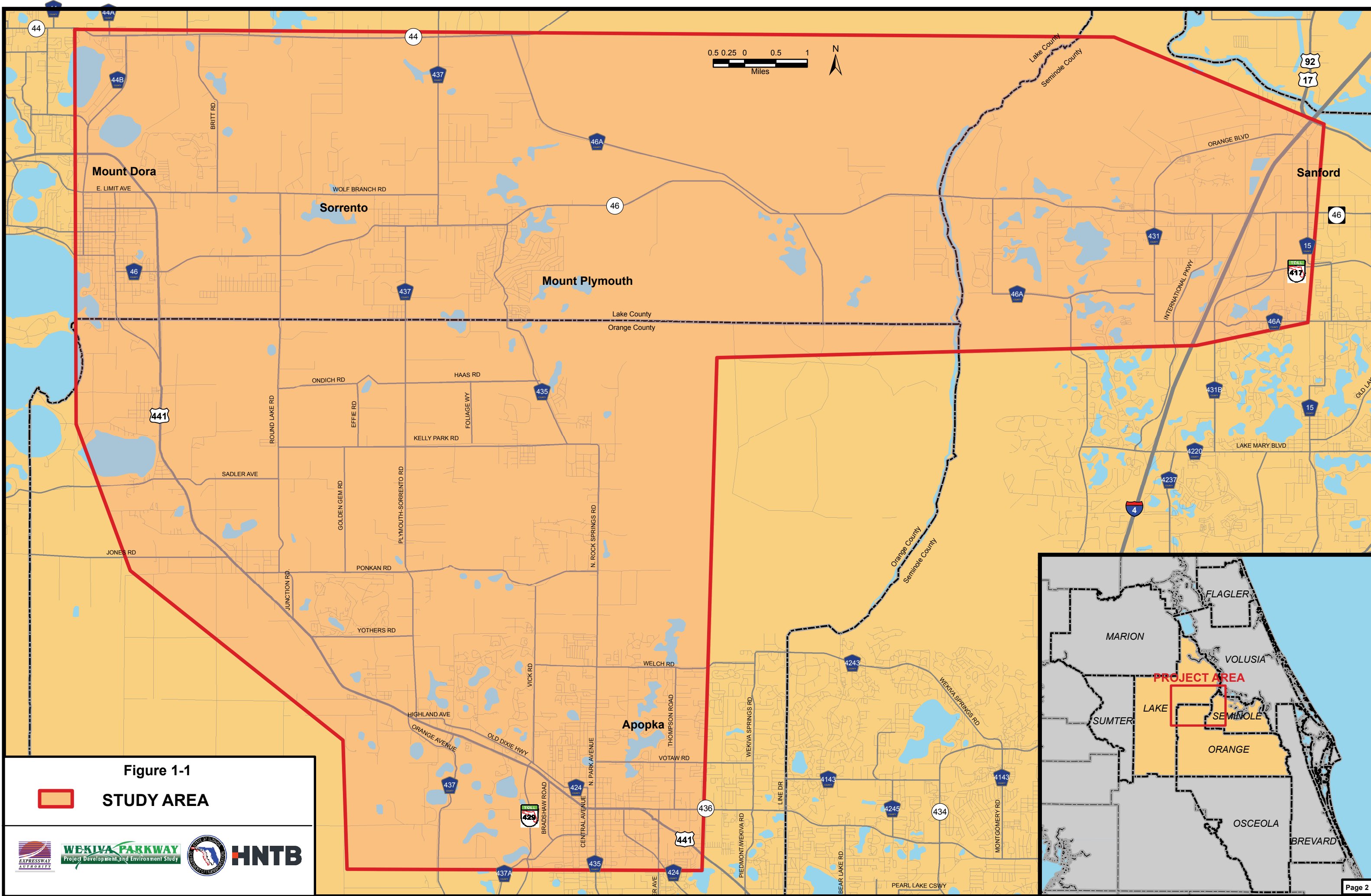


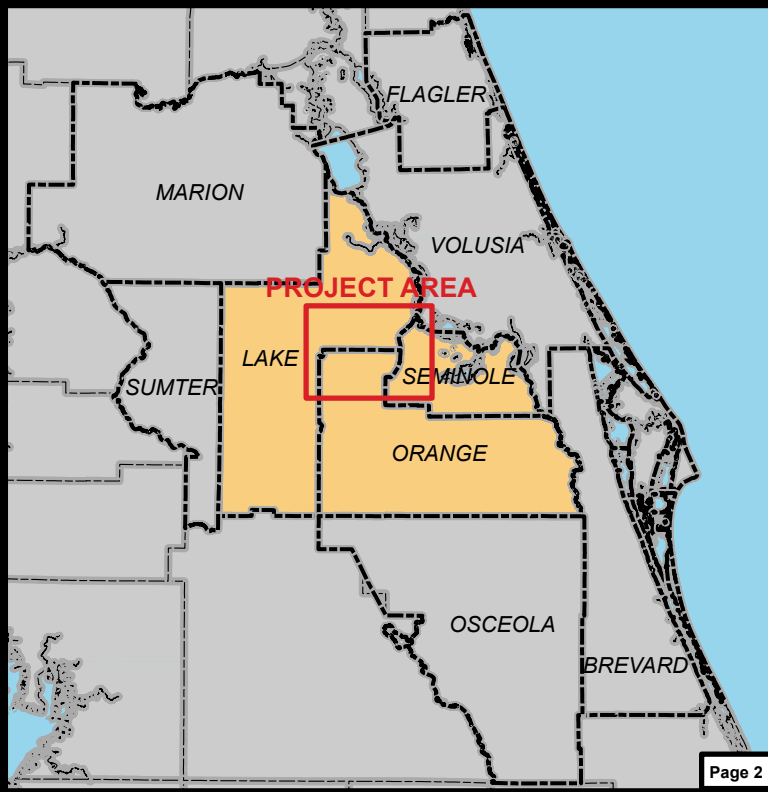
Figure 1-1



STUDY AREA



HNTB



The SR 46 Realignment project, also known as the SR 46 Bypass, will provide a connection from SR 46 to the east of Mount Dora with the Wekiva Parkway. This project begins at the US 441/SR 46 interchange in Lake County and extends to the east along the existing SR 46 corridor. East of Round Lake Road, the project turns southeast into Orange County and terminates with a systems interchange with Wekiva Parkway. This project consists of a six-lane divided, controlled access roadway along the existing alignment of SR 46 from US 441 to east of Round Lake Road. From east of Round Lake Road to Wekiva Parkway, the project is expected to be a four-lane limited access facility.

## 1.2 Study Objective

The purpose of this PD&E Study is to determine the optimum transportation alternative that serves the community needs while minimizing social and environmental impacts. The four main goals of the Wekiva Parkway and SR 46 Realignment projects are:

- To improve regional connectivity by completing the Western Beltway around Orlando and providing a safe, high capacity east-west travel facility
- To meet increased travel demand from population growth in an environmentally sensitive and compatible manner
- To address traffic congestion and safety issues along the SR 46 east-west corridor and the US 441 north-south corridor
- To accomplish the objectives expressed in State legislation, Executive Orders and public-private committee recommendations

The objective of this design traffic analysis is to evaluate the existing and future traffic conditions under both No-Build and Build alternatives along the roadways within the study area corridor. The future year traffic volumes were developed to assist the Project Team in evaluating the achievement of the project objectives and to assist in the preliminary engineering of the Wekiva Parkway and SR 46 Bypass alignments.

## 1.3 Methodology

The traffic methodology for developing design traffic forecasts for the PD&E Study was based on a combination of the travel demand model forecasts and historical growth rates. Design traffic forecasts were developed for three future years:

- Opening Year - 2012
- Mid Year - 2022
- Design Year - 2032

### 1.3.1 PD&E Traffic Model Development

The basis of the PD&E traffic model was the current Orlando Urban Area Transportation Study (OUATS) models developed by METROPLAN ORLANDO. These models represent the adopted 2025 Long Range Transportation Plan (LRTP) project lists and socioeconomic datasets for Orange, Osceola and Seminole Counties. However, the land use for Lake and Volusia Counties within the OUATS model (for both year 2000 and year 2025) was based on extrapolated totals from outdated Lake and Volusia County model datasets.

The Lake-Sumter MPO and Volusia County MPO have recently developed and adopted new land use forecasts for years 2000 and 2025 to support their 2025 LRTP updates. These updated land use forecasts have been incorporated into the OUATS model for this project. This is an important step to maintain consistency with the updated Lake and Volusia County forecasts with respect to travel growth that could be anticipated along the project corridor. In addition, the updated LRTP projects for the Lake-Sumter MPO and Volusia County MPO within the project study area have been added to the project traffic model.

### **1.3.2 Base Year Model Development and Validation**

A base year model was developed and validated for the project study area shown in Figure 1-1. The model was validated to the year 2003 conditions. The year 2003 was chosen as the base year for the traffic model validation because the 2003 traffic counts were the latest available at the kickoff of the PD&E Study. Traffic counts from the FDOT, Lake County, Orange County, Seminole County and HNTB were utilized for this validation of the travel demand model.

As part of the base year model development, a series of traffic analysis zone (TAZ) splits were recommended to refine the land use in the study area, with special emphasis on the areas surrounding possible interchanges of the Wekiva Parkway extension into northwest Orange, Lake and Seminole Counties. Refinements to the year 2003 highway network and land use datasets utilized the current 2003 OOCEA traffic and revenue model (which is updated and validated annually as part of OOCEA's planning process) as a reference to identify existing highway projects and major developments that have occurred in the region since 2000. While the base year model was validated to 2003 conditions, the existing traffic conditions described in this report are based on 2005 or 2006 traffic conditions as these counts became available during the Study.

The project traffic models include a toll schedule for the Orange County section of Wekiva Parkway that was developed prior to the preliminary alternatives evaluation. This toll schedule remained consistent in all Build Alternatives and throughout the Study.

### **1.3.3 Design Year Model Development**

The 2025 OUATS model with updates from the base year model validation was used as to determine the Design Year (2032) traffic volumes. The 2025 model volumes were projected to 2032 using a growth factor derived from historical growth trends for comparable facilities in the study area. An average straight-line historical annual growth rate of 2.7 percent was established for the major arterial facilities (SR 46, SR 436 and US 441) within the study area. These roadways had reliable ten year historical count data from the FDOT Florida Traffic Information (FTI) database and are indicative of the historical traffic growth within the study area. Historical counts and related growth rates along Interstate 4 were not included in the study area average growth rate due to the influence of congestion on the daily traffic counts along the facility. In addition, historical traffic counts along SR 417 and SR 429 were influenced by the ramp up of traffic on these newly completed facilities and thus were not included in the overall study area growth rate. This annual growth rate was utilized for all study area roadways to account for the traffic growth between 2025 and 2032. This growth factor was reviewed by the Project Team prior to its application. A table showing the calculation of the study area average annual growth rate is included in Appendix A of

this report. In addition, a table including the historical trends growth rates for all of the facilities is included in Appendix A.

The specific alignment and configuration of the Wekiva Parkway and SR 46 Bypass projects were developed throughout the PD&E Study process. Several sets of planning level forecasts were developed during the initial planning stages of the PD&E Study to support the design of the project.

#### **1.3.4 Opening and Mid Year Model Development**

Two future year models, 2012 and 2025, were developed to support the design traffic forecasts. Opening Year design traffic volumes were developed for year 2012 through the application of a 2012 OUATS model that was developed for this project which incorporated the updates from the base 2003 model calibration. The 2012 OUATS model included interpolated land use between the 2003 and 2025 datasets and a highway network that reflects the latest METROPLAN ORLANDO Transportation Improvement Program (TIP), Lake-Sumter MPO TIP and Volusia County MPO TIP. All projects that were included from the LRTP lists were reviewed and approved by the Project Team prior to their inclusion in the 2012 and 2025 traffic models. Traffic volumes for the 2022 Mid Year were developed through interpolation between the 2012 and 2032 traffic volumes.

#### **1.4 Summary**

The purpose of this report is to document the traffic analysis results and process utilized in support of the Wekiva Parkway/SR 46 Realignment PD&E Study. This traffic analysis was utilized by the Project Team in determining the best suitable roadway alignment that serves the future travel needs in northwest Orange County, east Lake County, and west Seminole County. Future traffic forecasts were developed using a travel demand model based on the METROPLAN ORLANDO adopted models. The METROPLAN ORLANDO adopted models were updated to include the latest available land use and network data. Using these updated models, a YR 2003 model was developed and validated within the project study area and was then utilized for determining future year traffic forecasts for 2012, 2022, and 2032 to support the future year No-Build and Build Scenarios.