Appendix G
Southeast Regional Planning Model (SERPM) Methodology

SERPM Methodology

The methodology used to obtain the growth rates for the off-airport regional roadways consists of using the Southeast Regional Planning Model (SERPM) Version 7. To confirm that the SERPM tool was consistent with the projected growth forecasted for the airport, a validation process consisting of three steps was performed. After the growth rate was identified, it was applied to the SERPM Model as summarized below.

GROWTH RATE ASSESSMENT

Step 1

The first step in the validation process consisted of analyzing the airport growth rate by reviewing the volumes entering the terminals in both the SERPM model and the Advanced Land Transportation Performance Simulation (ALPS™) model. Note that the ALPS model accounts for the new FAA approved forecast flight schedules.

The airport growth rate for the ALPS model was obtained by comparing the volumes from the 2015 and the 2035 scenarios, and the airport growth rate for the SERPM model was obtained by comparing the volumes from the available 2010 and 2040 output models. **Table 1** depicts the calculated growth rate obtained from the ALPS and SERPM models. A 0.98% difference in growth was observed.

Table 1

Growth Model (Year)	Compounded Annual Growth Rate	Difference
SERPM (2010)	1.64 %	0.98%
SERPM (2040)		
ALPS (2015)	2.66 %	
ALPS (2035)		

Step 2

Given that the annual growth rates resulted in almost a 1% difference, step 2 of the validation process was performed to further evaluate the SERPM model using traffic counts. Specifically, the 2010 SERPM modeled volumes were higher when compared to 2010 FDOT historical data. This SERPM overestimation in 2010 volumes resulted in lower growth rates, as the difference between 2010 and 2040 volumes was smaller. To adjust for this, the SERPM model was revised to replace the 2010 model volumes with the actual 7-day count averages collected in 2015.

Table 2 shows the compounded annual growth rates with the 2015 counts and the revised 2040 SERPM model. As observed, the growth rate difference was reduced from 0.98% to 0.79%. However, ALPS continued to provide a significantly more conservative growth estimate.

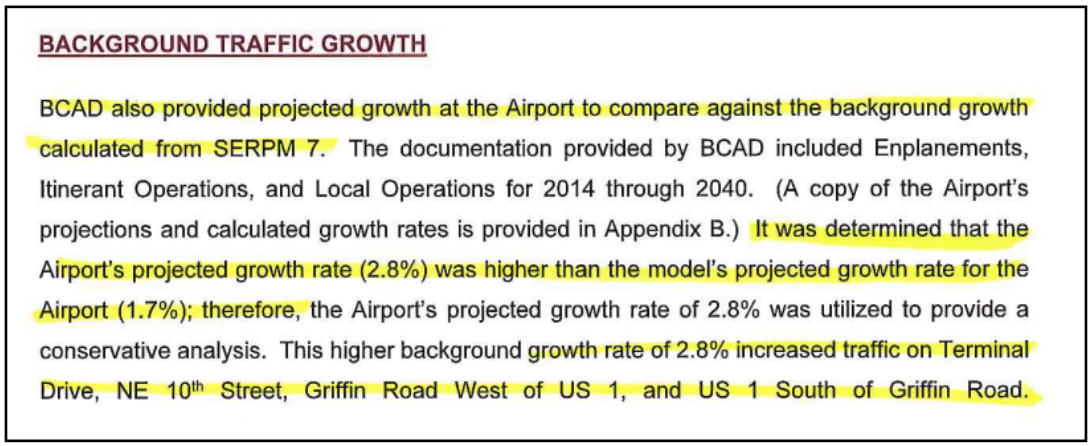
Table 2

Growth Model (Year)	Compounded Annual Growth Rate	Difference
Counts (2015)	1.92 %	0.79%
Revised SERPM (2040)		
ALPS (2015)	2.66 %	
ALPS (2035)		

Step 3

To further understand and confirm the applicability of the ALPS growth rate, the growth rate used for a previously completed *U.S. 1/SR 5 at Griffin Road/SR 818 Intersection Study*[1] was reviewed. A page obtained from the report is shown in **Figure 1**. As depicted on the highlighted sentences, BCAD provided growth trends based on forecasted operations that yielded a 2.8% growth rate even though the obtained SERPM growth rate at the time of the study was of 1.7%. The 2.8% growth rate from the US-1/Griffin Road Intersection Study is very similar to the 2.66% growth rate from ALPS.

Figure 1



BACKGROUND TRAFFIC GROWTH

BCAD also provided projected growth at the Airport to compare against the background growth calculated from SERPM 7. The documentation provided by BCAD included Enplanements, Itinerant Operations, and Local Operations for 2014 through 2040. (A copy of the Airport's projections and calculated growth rates is provided in Appendix B.) It was determined that the Airport's projected growth rate (2.8%) was higher than the model's projected growth rate for the Airport (1.7%); therefore, the Airport's projected growth rate of 2.8% was utilized to provide a conservative analysis. This higher background growth rate of 2.8% increased traffic on Terminal Drive, NE 10th Street, Griffin Road West of US 1, and US 1 South of Griffin Road.

Resulting Growth Rate

This analysis led to the conclusion that the SERPM model is an accurate growth estimator for the off-airport regional roadways but that it did not account for the rapid growth in operations at the airport which is expected to affect the surrounding regional roadways and intersections such as US-1 and Griffin Road. For this reason, the SERPM model was calibrated with volumes at the terminals that reflect a 2.8% growth rate. This recalibrated SERPM model (with higher terminal volumes) had an impact on the US-1 and Griffin Road Intersection, had a minor ancillary impact on surrounding roadways, but did not have an impact on the major regional highways (I-95, I-595, etc.).

In conclusion, the growth rates shown for the off-airport regional roadways (**Section 4.6**, **Table 4.6-1** of the Master Plan Report) were obtained from the final calibrated SERPM model (which accounted with the 2.8% growth at the airport). Also, it is important to note that the intersection improvements provided in the US-1 and Griffin Road Study were developed with the conservative 2.8% growth rate, indicating the improvements recommended are accurately timed and do not need to be accelerated. If changes to the flight activity, either a faster escalation in activity or a slower escalation in activity, a corresponding impact could be anticipated for the terminal access roadways.

[1] Kimley-Horn and Associates Inc., *U.S. 1/SR 5 at Griffin Road/SR 818 Intersection Study*, 2016.

SERPM MODEL AND RESULTING VOLUMES

As indicated above, the conservative 2.8% growth rate was applied to the recalibrated SERPM Model. The SERPM 7 roadway network did not include the new Ramp G connection (southbound exit from the FLL Terminal via NE 7th Avenue and NE 10th Street), but it still included the old direct connection from Terminal Drive to U.S. 1 southbound. Therefore, the direct-connect ramp volumes were manually adjusted to U.S. 1 Southbound via Ramp G/NE 7th Avenue/NE 10th Street. This manual adjustment approach is consistent with the methodology applied in *U.S. 1/SR 5 at Griffin Road/SR 818 Intersection Study,*[2] relating to Ft. Lauderdale International Airport Ramp G, which was completed February 2016 for the FDOT. The resulting volumes were then extracted from the model to obtain the results illustrated in Section 4.6, Table 4.6-1.

[2] Kimley-Horn and Associates Inc., *U.S. 1/SR 5 at Griffin Road/SR 818 Intersection Study*, 2016.