INTRODUCTION

This memo summarizes the analysis and projections for current and future parking demand at Blue Grass Airport (Airport) based on the historical data provided (daily parking reports and transactional summaries) by the airport parking vendor, Reef Parking. The analysis will review and identify current parking demand patterns and trends for the Airport, including peak and non-peak. These identified trends and patterns were used to generate an estimate of possible future parking demand from Lexington Airport enplanement analysis done by CHA and transportation analysis done by Palmer Engineering.

BACKGROUND DATA SUMMARY

The following data was used in the analysis and preparation of this summary:

- 2018 Daily reports (2 months)
- 2021 (10 months provided)
- 2022 Nightly car counts (4 months provided)
- Exit lane transaction logs (June 1 – 10)
- 2019 Daily reports (8 months provided)
- 2021 Nightly car counts (4 months provided)
- 2023 Daily Reports (Jan.-Apr. provided)
- Blue Grass Airport Traffic Forecast - Palmer Engineering
- 2020 Daily reports (8 months provided)
- 2022 Daily reports (12 months provided)
- 2023 Nightly Car Counts (4 months provided)
- Enplanement forecast Data - CHA

The daily reports do not detail transactional data by hour of the day, and simply summarize total transactions for each day. Transactional detail logs were provided for the exit lanes from June 1st through 10th to provide some context for lane throughput analysis. Analysis of the transactional data was done to identify peak hours and volumes of parkers entering and/or exiting traffic for the parking areas by time of day, day of the week, and month of the year. From the daily peak periods identified, the 85th percentile day was then used as a "design day" to generate a model of possible future parking demand for the Airport.

PARKING SUPPLY

The airport provided the most current parking counts as indicated below:

Short-Term Lots (2) and Garage (3 levels)	Long-Term Lot	Park and Ride Lot
1,246 spaces	**987 Spaces**	**326 Spaces**

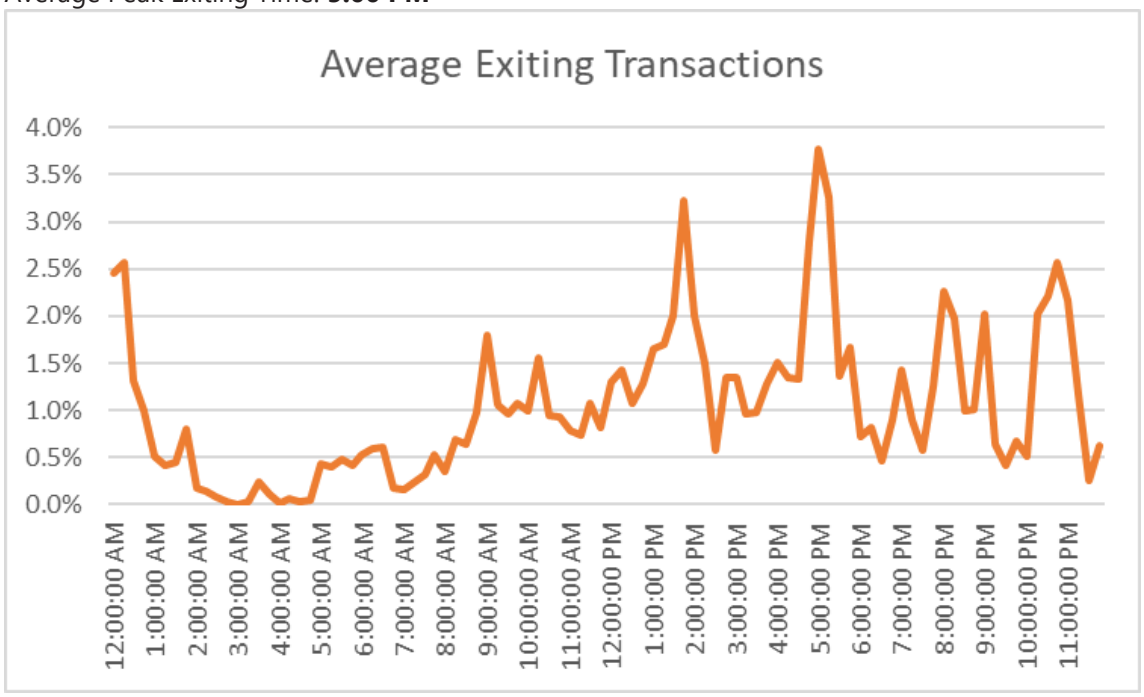
After review of the daily reports, it was determined that the remote Park and Ride location (322 spaces) is unused. The park and Ride location was included in the occupancy and adequacy analysis of this summary.

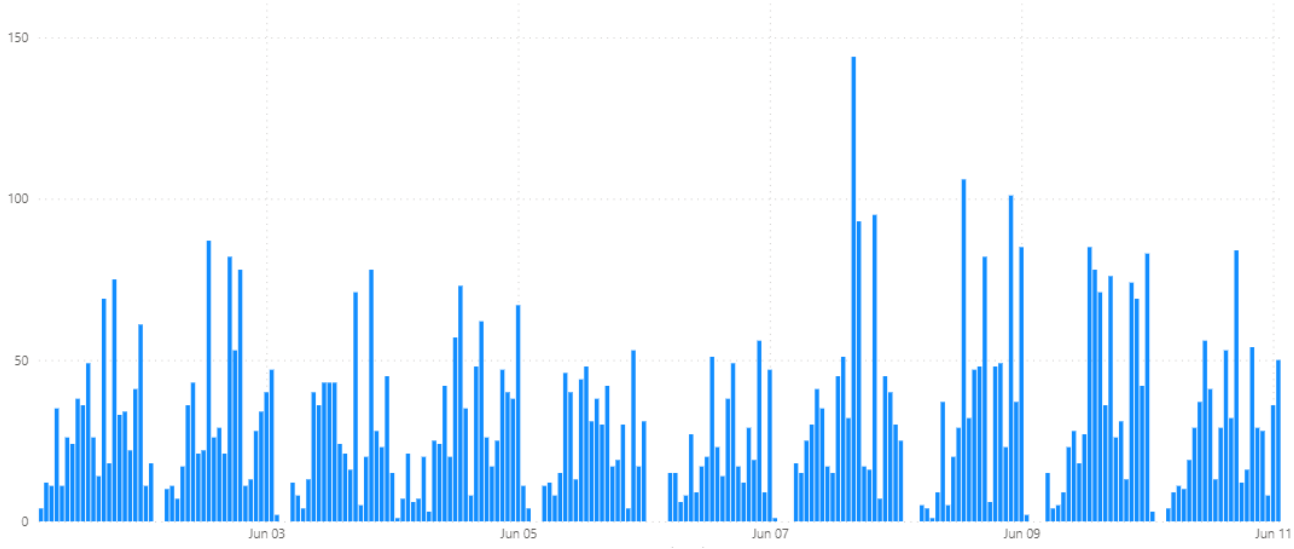
TIME OF DAY - PEAK

Exit lane transaction logs were provided for the dates Jun 1-10. The data details the exiting time of the transaction as well as the original entry of the vehicle. This level of detail also contained information about entering time for the transactions. This presents potential holes in the data as entering times are not able to be fully accounted for using only exiting tickets. The charts in this section show the volume of exiting and entering transactions per hour for each day. The analysis includes all transactions from June 1-10 for ticketed customers. The included charts provide the hourly averages of exiting and entering vehicles as a percentage of the total supply of space in the short-term and long-term parking locations (2,228 spaces) as well as the daily analysis of the sample period (June 1-10).

EXIT

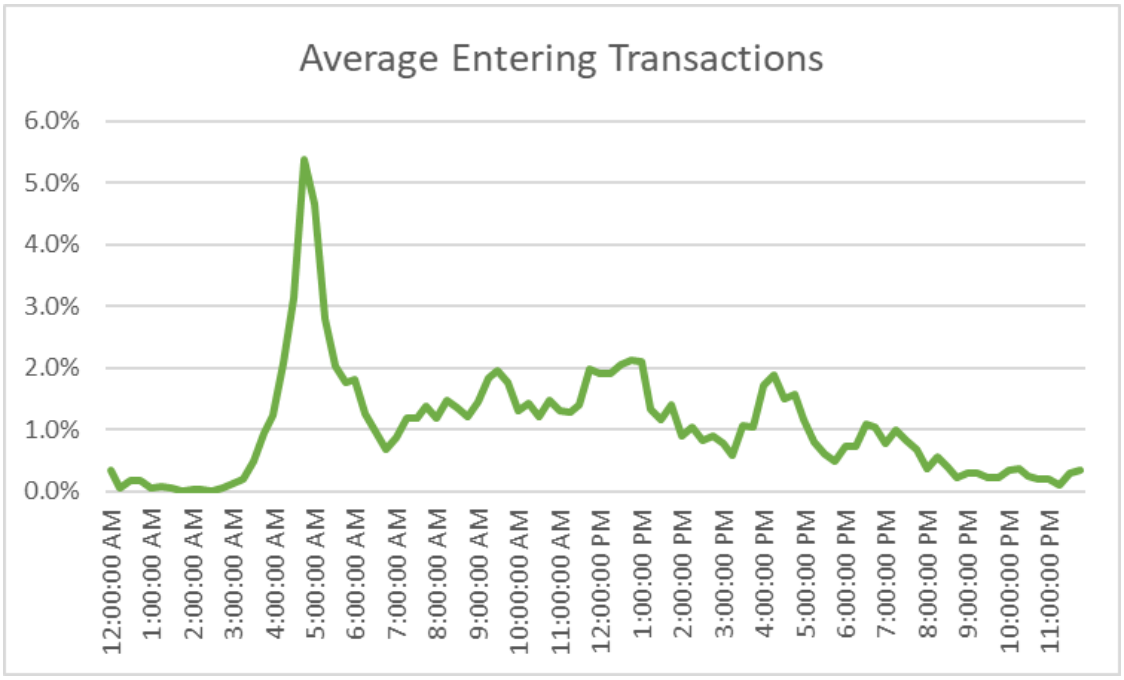
Average Peak Exiting Time: **5:00 PM**

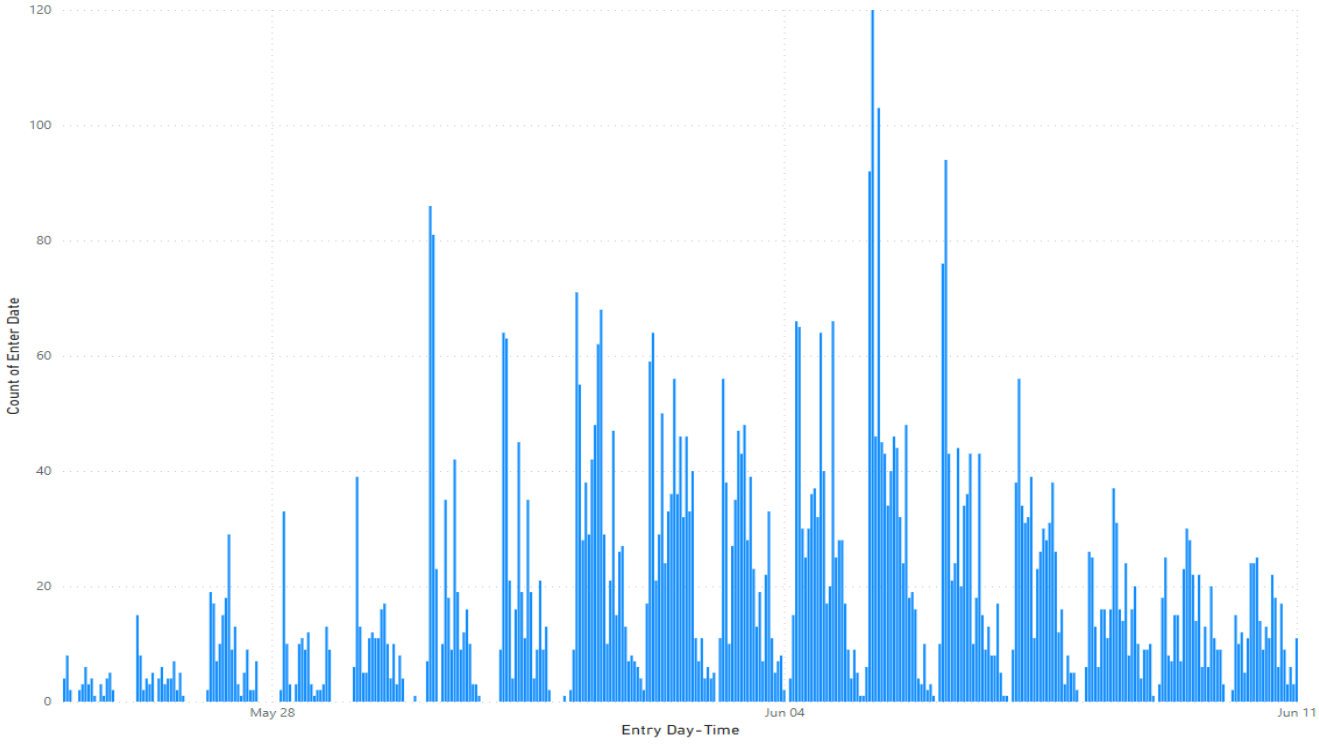




ENTER

Average Peak Entering time: **5:00 AM**





**Note – This analysis of entry patterns uses the entering times from the exiting transaction logs and only presents possible patterns of entering transactions.*

METHODOLOGY FOR HISTORICAL AND FUTURE PARKING DEMAND

- Based on the average of entering and exiting transactions, the percentage of daily transactions for each 15-minute period for each day of week to establish entry and exit patterns based on the time-of-day.
- These time-of-day patterns were then applied to the historical daily reports provided by the Airport, to review hour by hour historical parking occupancies.
- The nightly car counts were considered in establishing the day-to-day parking occupancies.
- Peak times and days were identified and aggregated, using the 85th percentile day of the aggregated peak data as the "design day" for future parking demand modeling.
- The enplanement forecast provided by CHA shows a 5.5% year over year growth in enplanements. The transportation analysis provided by Palmer Engineering established a 3.25% year-over-year growth in anticipated transportation volumes.
- Future parking demand was modeled at 3.25% year-over-year growth to determine the date parking demand will exceed the supply of spaces at the airport.

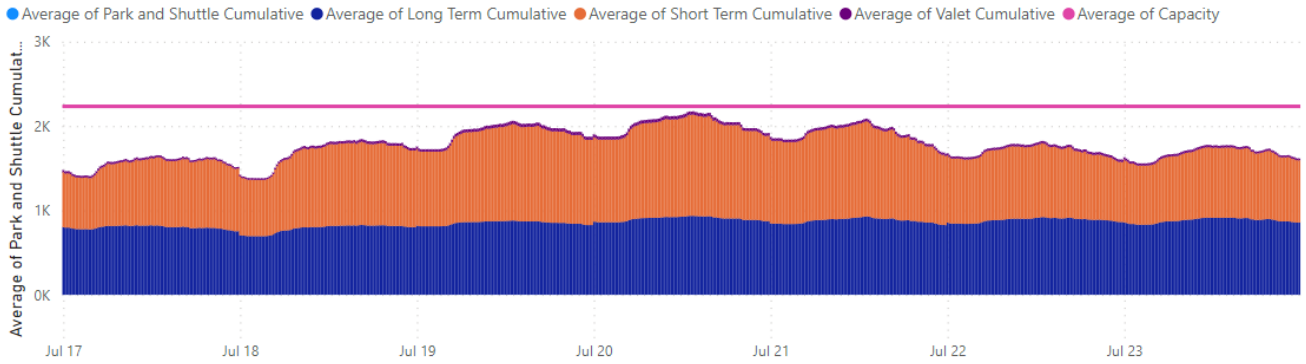
EFFECTIVE FULL

Typically, users of a parking system or facility that does not provide an individual space parking guidance system (PGS) will begin to become frustrated from searching for a vacant space well before a facility or system if actually full. Depending on the size of the system or facility, this will typically occur when a system or facility reaches between 80-90% full. This is referred to as an Effective Full condition, or the point at which users may become frustrated and depart a facility under the perception there are no vacant spaces. For the purposes of this analysis, an effective full percentage of 85% was used. The chart below shows the full and effective full parking capacities for each location.

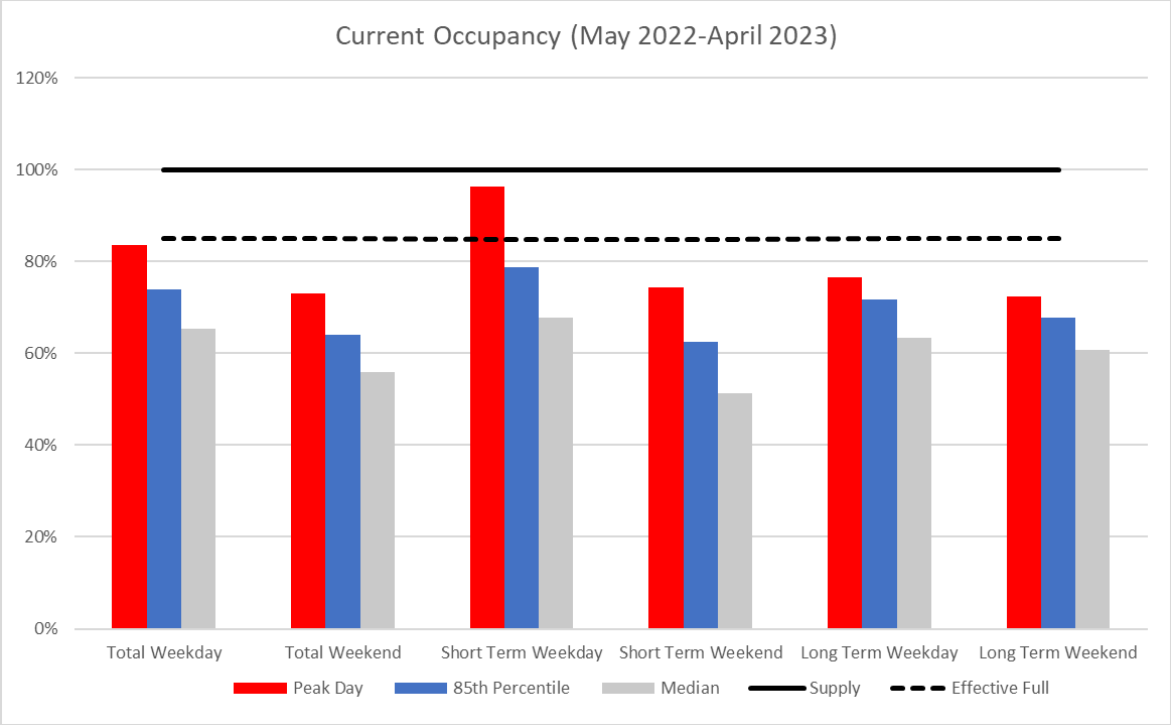
Location	Parking Supply	Effective Full (85%)
Short-Term Parking	1,246 spaces	1,059 spaces
Long-Term Parking	987 spaces	839 spaces
Park and Ride Lot	326 spaces	277 spaces
TOTALS	**2,559 spaces**	**2,175 spaces**

CURRENT PARKING DEMAND – PEAK WEEK

Using the methodology previously described, occupancy was projected for each 15-minute period for days with reports available. The peak week found was the week of July 17, 2022, with an average of 910 short term parkers, 854 long term parkers, and 28 valet parkers each day. The capacity used only includes short-term and long-term parking locations (2,228 spaces) and does not include the 322 spaces at the park and ride location.

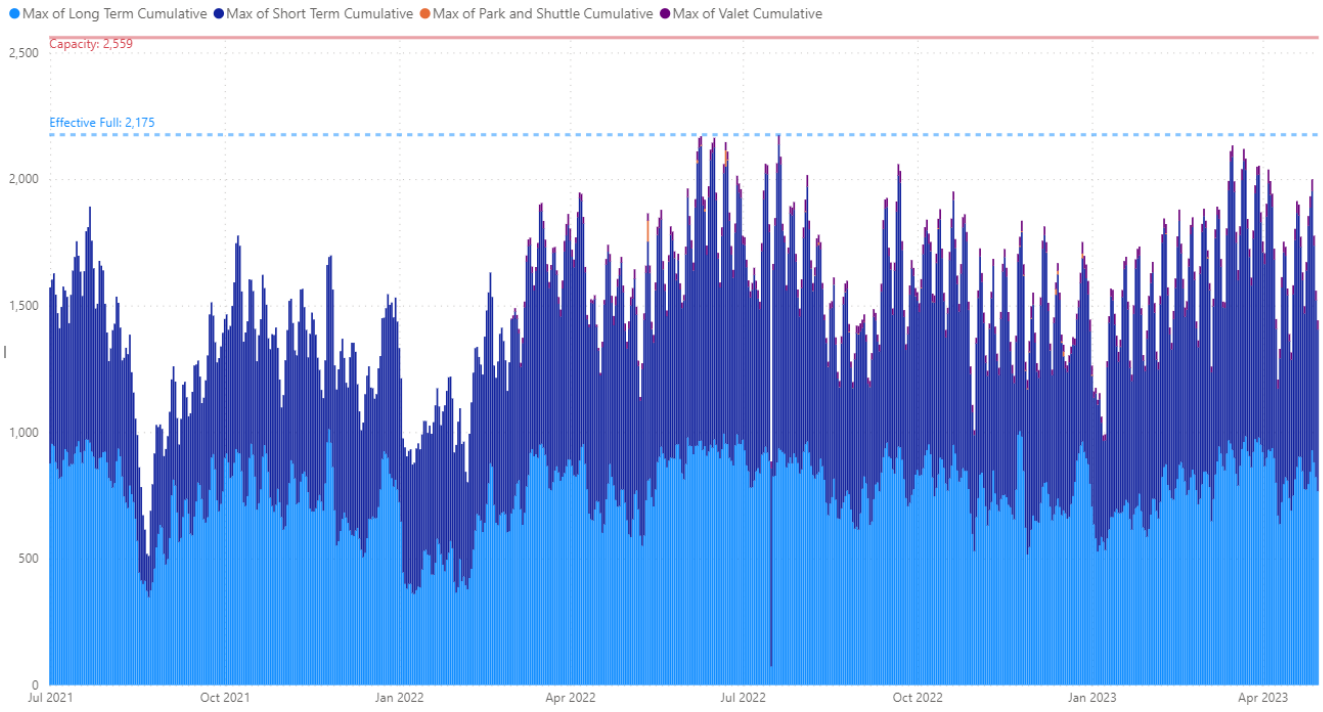


Using daily peak occupancy for each location, occupancy percentages were generated for each location for weekdays and weekends. The chart below illustrates the peak day, 85th percentile, and median for each location and time.



HISTORICAL PARKING DEMAND

Our occupancy analysis of the historical dates of daily reports and car counts provided by the airport is included below. Over this period, there are approximately 20 peak days which near 85% occupancy, but generally the occupancy reaches peaks of less than 75%. The capacity used only includes short-term, long-term, and park and ride parking locations.

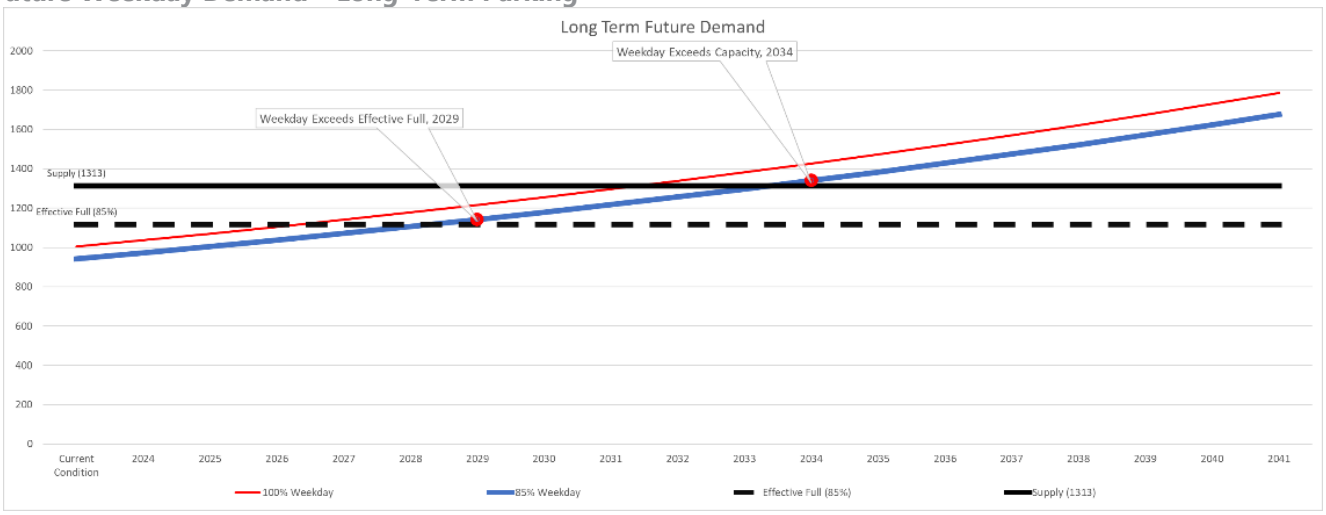


FUTURE PARKING DEMAND & ADEQUACY

Our occupancy analysis of the historical dates of daily reports and car counts was used in combination with the enplanement forecast and the transportation study to model possible future parking demand. Using the 3.25% year-over-year growth percentage established by the transportation study, future parking demand was modeled to determine when the current supply of parking at the airport will be inadequate, or no longer satisfy the parking demand the airport will generate. An analysis of the effective full scenario, using an 85% effective full percentage, was also included in the future demand and adequacy analysis.

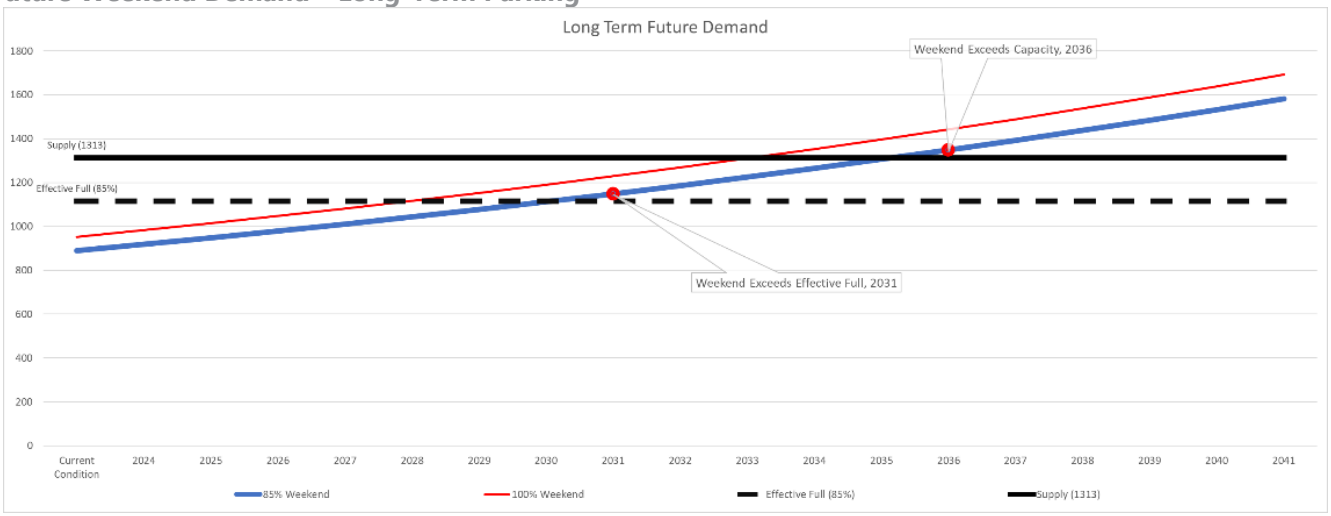
FUTURE DEMAND – LONG-TERM PARKING

Future Weekday Demand – Long-Term Parking



Based on the included analysis, weekday long-term parking demand will exceed the effective full capacity (85%) in 2029 and will exceed actual capacity in 2034.

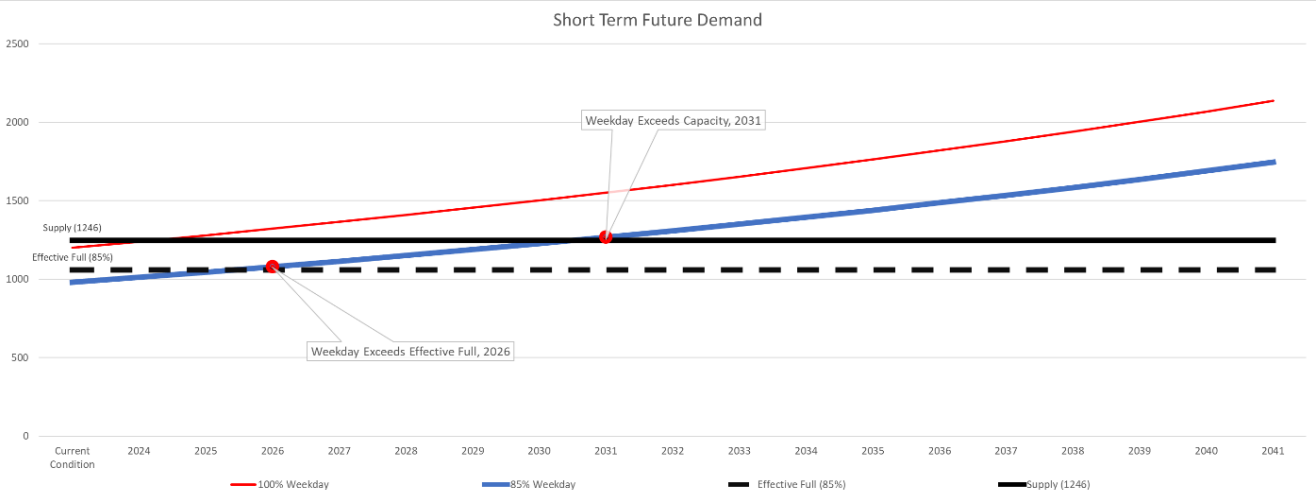
Future Weekend Demand – Long-Term Parking



Based on the included analysis, weekend long-term parking demand will exceed the effective full capacity (85%) in 2031 and will exceed actual capacity in 2036.

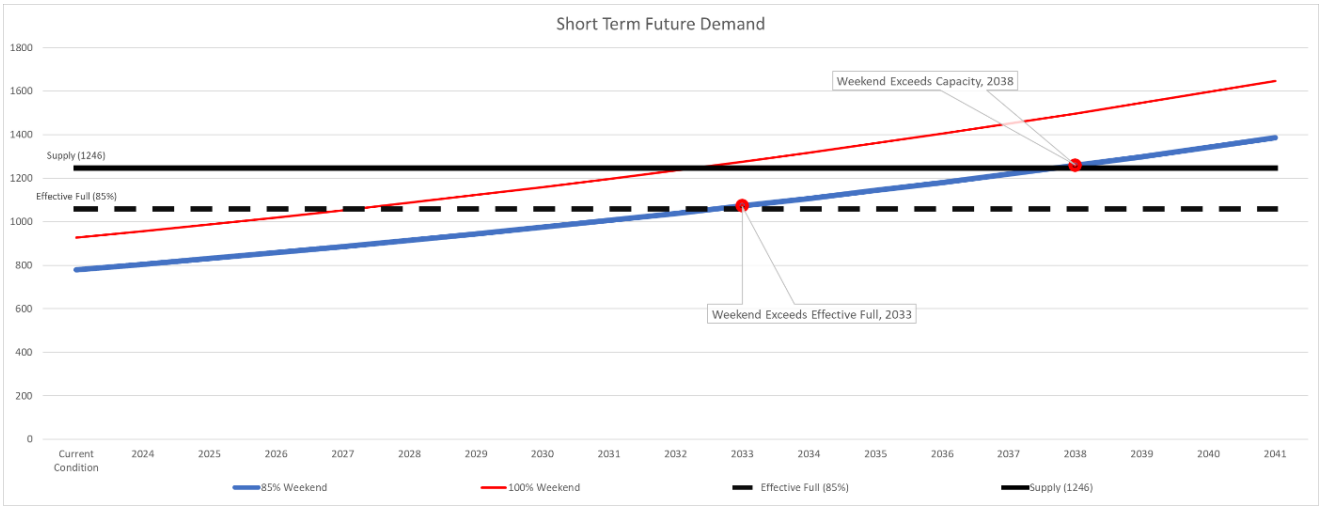
FUTURE DEMAND – SHORT-TERM PARKING

Future Weekday Demand – Short-Term Parking



Based on the included analysis, weekday short-term parking demand will exceed the effective full capacity (85%) in 2026 and will exceed actual capacity in 2031.

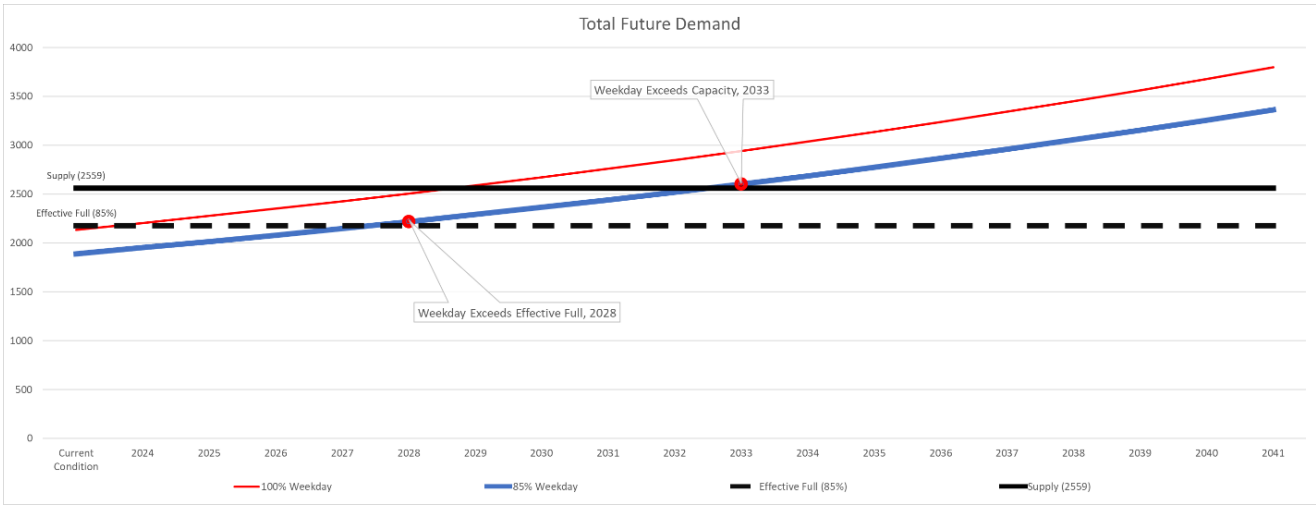
Future Weekend Demand – Short-Term Parking



Based on the included analysis, weekend short-term parking demand will exceed the effective full capacity (85%) in 2033 and will exceed actual capacity in 2038.

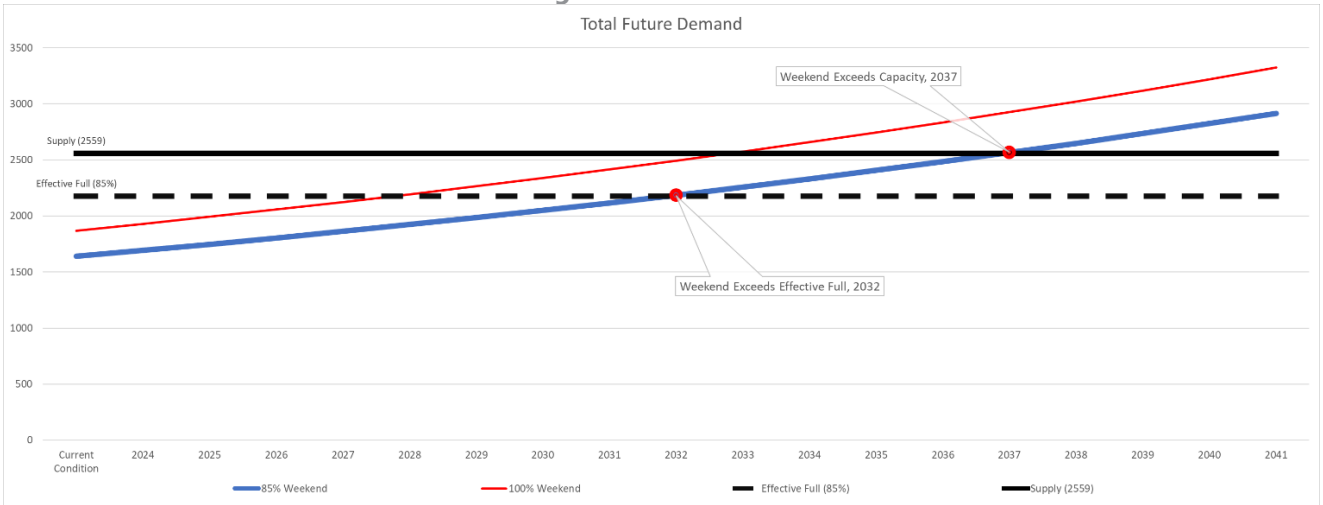
FUTURE DEMAND – COMBINED PARKING

Future Weekday Demand – Combined Parking



Based on the included analysis, total weekday parking demand will exceed the effective full capacity (85%) in 2028 and will exceed actual capacity in 2033.

Future Weekend Demand – Combined Parking



Based on the included analysis, total weekend parking demand will exceed the effective full capacity (85%) in 2032 and will exceed actual capacity in 2037.