



1660 South Highway 100, Suite 545  
Minneapolis, MN 55416

952.595.9116  
walkerconsultants.com

December 6, 2019

Mr. Dan Letellier  
Executive Director  
Sioux Falls Regional Airport  
2801 Jaycee Lane  
Sioux Falls, SD 57104

Re: Parking Garage Pre-Design Study Update  
Sioux Falls, South Dakota  
Walker Control Number 21-4577.00

Dear Mr. Letellier:

Walker Parking is pleased to submit the following Parking Garage Pre-Design Update report for Sioux Falls Regional Airport Joe Foss Field.

This report's plans and narrative have been prepared to outline the project in enough detail for the airport to understand parking demand determination, concept design, facility functional and operational relationships, traffic patterns, garage relative capacity and cost for the project procurement.

The overriding goal for the report is to more explicitly define project parking demand resultant after TNC's arrival in Sioux Falls. Other important planning parameter updates are the addition of 617 stalls of economy parking and provisions for future garage expansion to the 20-year horizon.

We thank the Sioux Falls Regional Airport Authority for the opportunity to provide integrated planning and design parking consulting services.

Sincerely,

WALKER CONSULTANTS

A blue ink signature of Scott R. Froemming, written in a cursive style.

Scott R. Froemming, PE  
Vice President



# Parking Garage Predesign Study Update

Sioux Falls Regional Airport

December 6, 2019 (Final)

Prepared for: Mr. Dan Letellier



**WALKER**  
CONSULTANTS

## Contents

|  |    |
|--|----|
| Executive Summary                            | 1  |
| Introduction                                 | 3  |
| Background                                   | 3  |
| Airport Authority                            | 4  |
| Existing Conditions                          | 4  |
| Parking Stall Inventory                      | 4  |
| Public Parking Rates                         | 5  |
| Wayfinding Parameters                        | 6  |
| Forecast Parking Demand                      | 7  |
| Parking Demand                               | 7  |
| Effective Parking Supply                     | 9  |
| Public Parking Assumptions - Existing        | 9  |
| Transportation Network Companies (TNC's)     | 10 |
| Airport Shuttle Service                      | 16 |
| Planning Horizon                             | 16 |
| Public Parking Assumptions - Future          | 17 |
| Net Parking Capacity                         | 18 |
| Parking Facility Site Plan - 10-year Horizon | 19 |
| Parking Facility Site Plan - 20-year Horizon | 20 |
| Facility Design Considerations               | 20 |
| Structure Occupancies/Accessibility          | 20 |
| Skyway Connection                            | 20 |
| Functional Design                            | 22 |
| Enabling Projects                            | 22 |
| Conceptual Renderings                        | 22 |
| Schedule                                     | 23 |
| Cost Estimates                               | 23 |
| Recommendation Summary                       | 24 |
| Appendix                                     |    |

## Figures and Tables

|  |    |
|--|----|
| Figure 1. Parking Capacity by Location   | 5  |
| Figure 2. Wayfinding Parameters  | 7  |
| Figure 3. TNC Approximate Percentage of Total Enplanements, Sioux Falls Regional Airport | 10 |
| Figure 4. Arrival to Airport, 2017 versus 2019 Transportation Surveys                    | 11 |
| Figure 5. Percentage of Total Enplanements, Hector International Airport – July          | 12 |
| Figure 6. Percentage of Total Enplanements, Hector International Airport – December      | 13 |
| Figure 7. Transportation Mode Split at Medford International Airport                     | 14 |
| Figure 8. Growth of TNC Use at San Francisco International Airport                       | 14 |
| Figure 9. 10-Year horizon parking facility site plan                                     | 19 |
| Figure 10. 20-Year Horizon Parking Facility Site Plan                                    | 20 |
| Figure 11. Skyway Plan and Section   | 21 |
|  |    |
| Table 1. Parking Inventory   | 4  |
| Table 2. Current Parking Rates   | 5  |
| Table 3. Enplanement Statistics  | 8  |
| Table 4. Preferred Forecast Enplanements   | 8  |
| Table 5. Effective Parking Supply  | 9  |
| Table 6. Existing Parking Adequacy   | 10 |
| Table 7. 10-Year Horizon Future Parking Demand   | 17 |
| Table 8. 20-Year Horizon Future Parking Demand   | 17 |
| Table 9. Probable Garage Cost of Construction  | 24 |
| Table 10. Probable Skyway Cost of Construction   | 24 |



# Executive Summary

The purpose of the parking garage pre-design update is to conceptually explore and develop future parking improvements necessary to accommodate airport customer demands in the age of Uber and Lyft commonly known as Transportation Network Companies (TNC's). Structured parking improvements need to be coordinated with the airport's current and forecast capacities.

Airport parking demand for commercial service airports is directly related to the annual enplaned passengers. Currently, Sioux Falls Regional Airport has an effective total public parking capacity of 2,376 public parking stalls equating to a parking deficit of 258 parking stalls. Because *peak* airfield parking demand exceeds effective parking supply, additional on-site parking supply must be provided.

If the airport does not meet current and future parking demand, customer service will be compromised causing customers to find alternate transportation modes, or park offsite. Offsite parking would reduce parking revenues, airport convenience and make incentivizing disenchanted parkers to return to on-site parking facilities difficult and expensive.

The airport is currently planning to reduce this deficient and encourage onsite parking through construction of 617 economy stalls south/east of the Economy Lot to accommodate this deficit and additional deficits related to planned future construction.

To forecast the 10-20-year parking demand we calculate current parking adequacy and project future parking demand growth. The public parking program capacity increase provides for a 10-year capacity horizon, anticipating 2-year program development. The parking capacities to meet these requirements will require a garage of capacity 1020 - 1,093 stalls. This demand equates to a four-level parking structure, with about 250 stalls per level. The proposed future garage shall be proportioned to house multiple parking occupancies including short term, long term and not preclude the possibility for future adaptive re-use as a multimodal transportation center.

The second purpose for the garage pre-design study is to confirm the relative cost of providing the garage and its effect on the surrounding parking field and pedestrian wayfinding. To enhance the convenience and security of the garage we have included design consideration of an enclosed and conditioned skyway connecting the garage stair elevator tower to the terminal concourse level. Construction cost estimates for these improvements are included individually to assist in determination of need vs. expense.

The east (front) parking garage site is the proposed garage location. The front site was previously vetted as it provides the closest, most convenient parking while mitigating front curbside drop off traffic volume. The garage site solidifies its superiority by providing ability for centralized pedestrian vertical circulation access to a pedestrian skyway terminal connection while allowing unimpeded southward terminal expansion.



Spring parking utilization during morning departures/arrivals taxes the parking system with limited stall availability. See current parking deficient in Table 6, page 10.

In summary, the garage pre-design update proposes a 4-level parking garage located east of the terminal supplying approximately 1006 parking stalls. The proposed occupancy includes short- & long-term public parkers. Additional premium parking occupancies could be developed within the ground tier.

Anticipated customers of the parking garage are those patrons who desire and find value in a close, convenient, and secure parking environment.

Garage construction costs excluding owner soft cost, enabling projects, or land expense approximate \$22,325 per stall or \$22,500,000 total including 10% design contingency, excluding cost escalation for delayed project procurement.

Garage project cost including design, testing and other traditional Owner soft costs increase estimated total construction cost by 20%. Therefore, project cost excluding enabling projects in current dollars is conceptualized  $1.2 \times \$22,500,000$  equal \$27,000,000.

# Introduction

The purpose of the parking garage pre-design update is to explore and develop future parking improvements necessary to accommodate airport customer demands in the age of Uber and Lyft. Future structured parking improvements need to be coordinated with the airports current and forecast needs and capacities.

The parking pre-design has been developed in conjunction with airport staff and the most recent Sioux Falls Regional Airport Master Plan. As such, this report will rely on master plan derived future airside operation limits and terminal improvement layouts presented in the KLJ fall 2013 document.

The parking garage pre-design more specifically focuses on developing parking structure alternatives including facility size and location supporting long term parking and airport planning needs. The pre-design involves consideration of usual airport parking practice as they relate to planning principals, functional design, and program occupancy. Parking alternatives herein will consider demands for all airport users including public, employee and rental car. The focus of the pre-design update is to re-test the parking demand assumptions utilizing peer regional airport experience with TNC's. Secondly, we engage in best practice functional design for parking facility adaptive-reuse for longer term planning flexibility.

This update endeavors to conceptualize the parking program for 10- and 20-year horizons, provide graphic massing representations of the garage facility and appurtenance rendered to assist the owner to envision proposed garage solution. As part of this pre-design update effort conceptual construction cost estimates and conceptual planning schedules have been brought to current costs.

# Background

Sioux Falls Regional Airport (FSD) is known as Joe Foss Field, honoring Joseph J. Foss a brigadier general and former World War II ace pilot. The airfield is the largest airport in South Dakota, serving southeast South Dakota, southwest Minnesota, and northwestern Iowa.

Established in 1937, the airport provides scheduled passenger service, complete general aviation service, overnight cargo, and U.S. Customs Port of Entry. Additionally, a portion of the airport is leased to South Dakota 114<sup>th</sup> fighter group nicknamed "lobos".

September 2014 marked the 75<sup>th</sup> anniversary of the Sioux Falls Regional Airport. The airport has been a staple of the community and region reflecting the vibrancy of the local business community in the states most populous city. For the calendar year 2018 Sioux Falls is identified by the FAA as a small hub commercial service airport of 123<sup>rd</sup> national ranking, with 529,895 passenger enplanements.

Since established on-site in 1937 the airport has continually expanded to accommodate the aviation needs of the area. Sioux Falls is a regional commercial business and social hub within an agricultural region of the country. Sioux Falls is home to diversified industries including growing banking, and healthcare companies. Growth in tourism is seen locally as the area is the gateway for access to recreational land and waterways, particularly fall months with pheasant hunting. Sioux Falls metropolitan population is 265,653 accounting for 29% of South Dakotas population.

The popular city continues to grow its downtown nightlife and invest in its urban parks and now has a population of nearly 181,000 people within its borders up an estimated 11,000 residents from 2015.

## Airport Authority

The Sioux Falls Regional Airport Authority is made up of five members appointed by the mayor and approved by the city council acting as an independent government entity that has overall administrative, development and operational authority. This authority has been in place since 1986 and is self-funded not relying on tax dollars from the Sioux Falls community. We understand the parking garage procurement is most likely to be funded primarily from airport reserves. Should additional funds be required the airport would likely entertain commercial loans in lieu of project bonding.

## Existing Conditions

### Parking Stall Inventory

The existing parking capacity conditions for the airport have been collected from information gathered from the Master Plan, airport staff and parking operator.

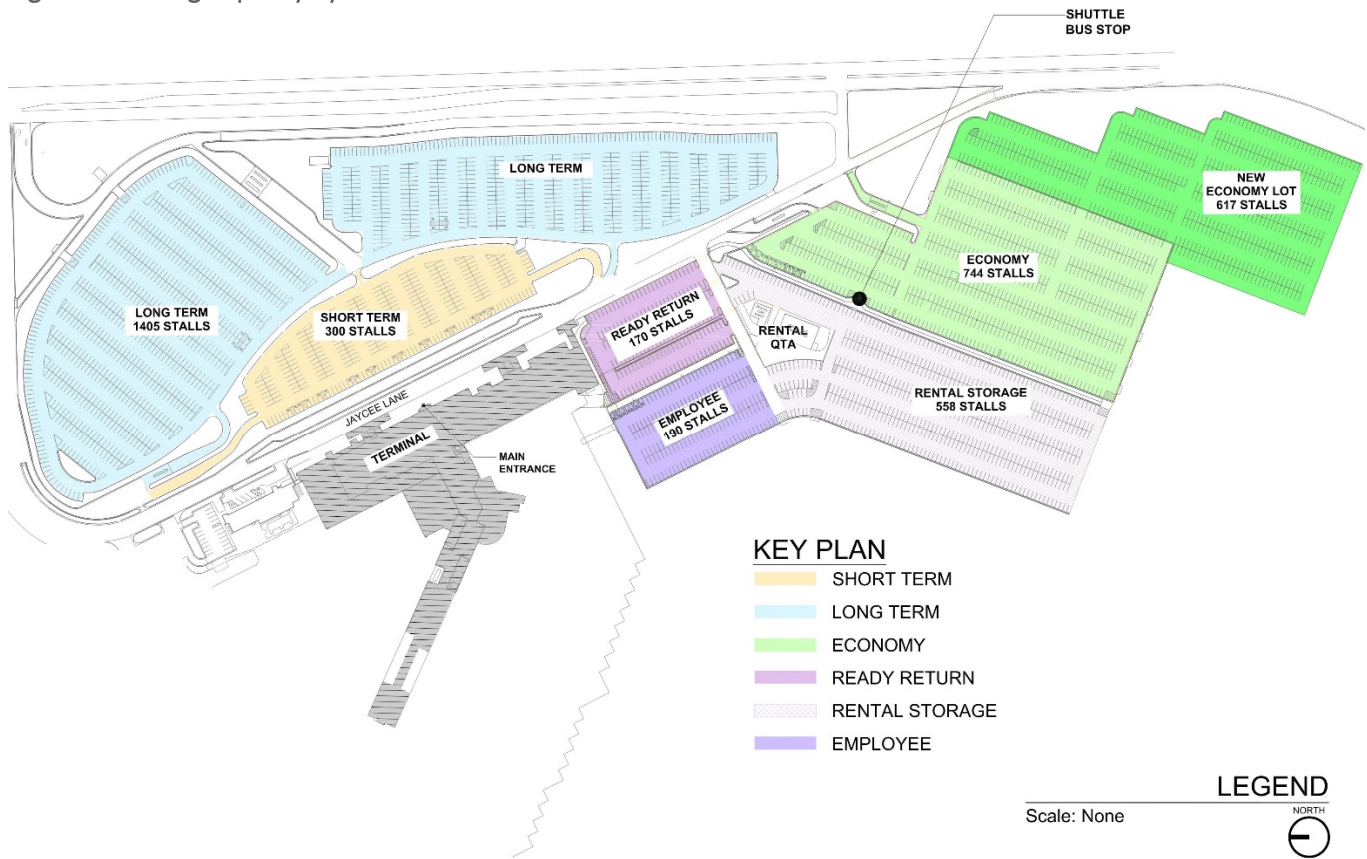
Currently, the Airport consists of one (1) short-term surface lot, one (1) long-term lot, and one (1) economy lot. Additionally, there are two (2) surface lots for rental cars, one (1) cell phone waiting lot, and one (1) surface lot for employee parking. For the purposes of this analysis, the rental car lot, cell phone waiting lot, and employee parking lot were not considered for airport patron parking. There are currently plans to expand the Economy Lot to the south by 617 spaces, with construction scheduled for the summer of 2020. This lot expansion is provided to accommodate parking during garage construction activity, as well as for overflow for peak period demand. This is not a prime parking location and should only be available for peak season overflow. Please see the Table 1 below for a detailed breakdown of the current parking inventory at the Airport.

Table 1. Parking Inventory

| Surface Lot                | Inventory    |
|----------------------------|--------------|
| Short-Term                 | 300          |
| Long-Term                  | 1,405        |
| Economy                    | 744          |
| <b>Total</b>               | <b>2,449</b> |
| <i>Economy (Expansion)</i> | <i>617</i>   |

See Figure 1 identifying parking capacity by location.

Figure 1. Parking Capacity by Location



## Public Parking Rates

Parking demand at the Airport is directly related to passenger enplanements. With no current off-airport parking operators, and limited park-and-fly hotel parking demand, the on-airport surface lots continue to be the primary option for airport passenger parking. The rates currently charged at the on-airport lots are provided in the following Table 2.

Table 2. Current Parking Rates

| Parking Type | Up to One Hour | Each Additional Hour | Daily Max | Weekly Max |
|--------------|----------------|----------------------|-----------|------------|
| Short-Term   | \$1.00         | \$2.00               | \$14.00   | N/A        |
| Long-Term    | \$1.00         | \$1.00               | \$8.00    | N/A        |
| Economy      | \$1.00         | \$1.00               | \$7.00    | \$35.00    |

Source: Sioux Falls Regional Airport, 2019

Another option at the Airport is reserved paid parking through the Parkmobile mobile application which is available for front-row spaces in the Short-Term Lot. The reservation fee through the app is \$4.00 for every 24 hours of parking. This fee is in addition to the standard parking rates charged upon exiting the lot and is paid separately through the app. When entering the lot, a ticket is still pulled by the parker and normal parking rates apply.

Sioux Falls Airport parking rates are competitive with the market having slightly lower costs than comparable mid-western regional airports. The current short-term daily rate maximum approximates long term garage pricing rates at Des Moines International airport rate of \$15/day. Omaha's Eppley Airfield long term garage rates are similar at \$16/day.

Fargo's Hector International airport which does not have a structure has a short-term rate of \$18/day maximum.

Omaha and Des Moines airports, each with parking structures, have additional higher rates for short term or premium parking, within structured facilities with close, convenient locations and skywalk accessibility with rates ranging from \$23.50–\$36.00/day.

This parking fee assessment would indicate there is a marketplace for close, convenient structured parking that can command additional parking fees in excess of current Short-term daily maximum. See Table 2 Current Parking Rates above.

## Wayfinding Parameters

The overwhelming attribute that defines the desirability of parking is the perceived proximity of the destination. Public parkers want to be located closest to the front door and have preference to walk to their destination. Locating parking at remote lots reduces desirability and for some parkers eliminates the possibility of walking to the destination. Once a parking destination reaches a significant distance above Level of Service (LOS) D a shuttle system must be employed. Continuing to add parking at the most remote locations beyond 1400' from the destination will have the effect of lowering the overall convenience of the parker as the greater percentage of the parking capacity moves further from the destination. See Figure 2 attached maximum walking distance wayfinding parameters resultant with expanded economy stalls.

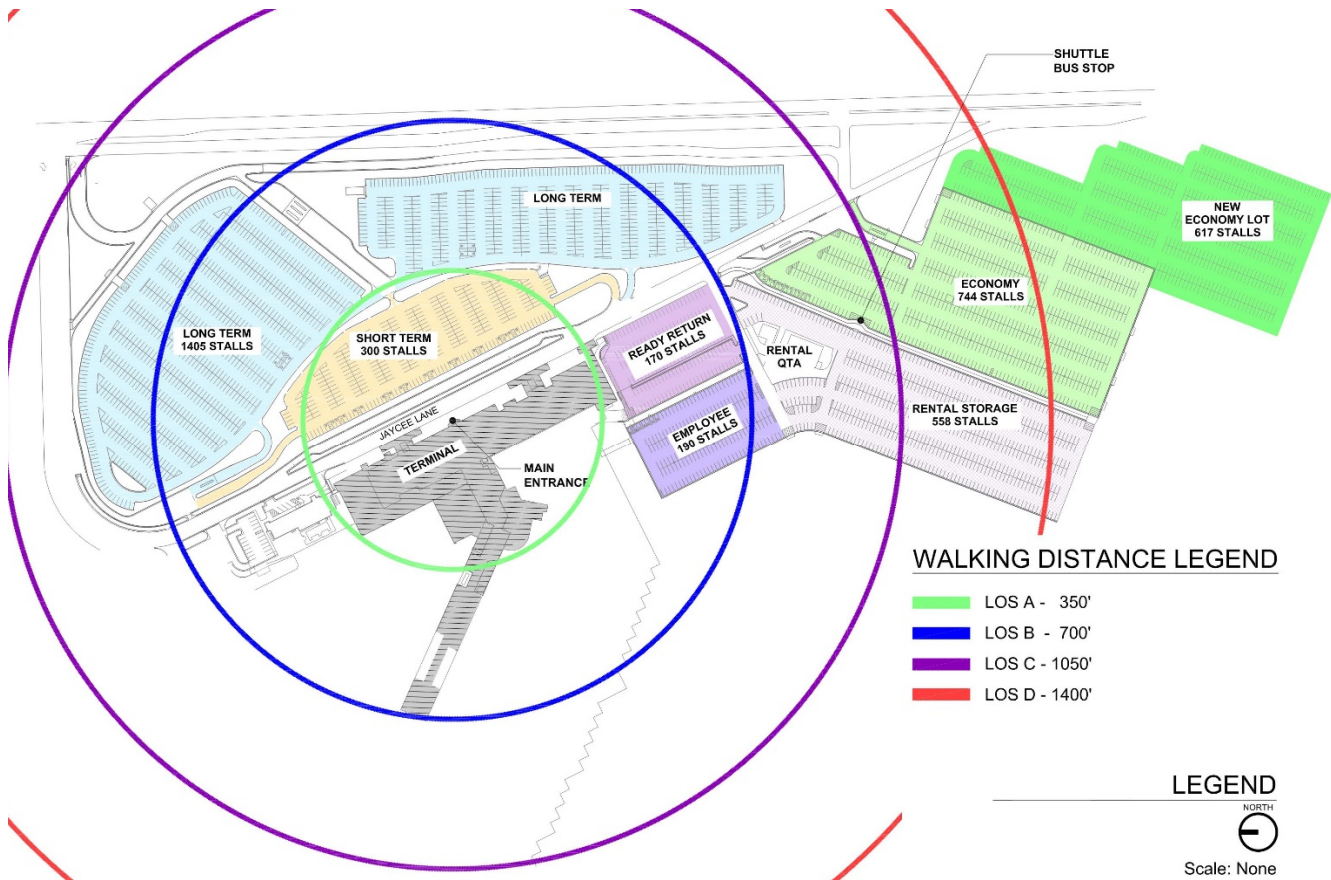
---

*Continuing to add parking at the most remote locations beyond 1400' from the destination will have the effect of lowering the overall convenience of the parker as the greater percentage of the parking capacity moves further from the destination*

---



Figure 2. Wayfinding Parameters



Shuttle busing is not favored by the parking patron as this becomes another step in the process to reach the destination. Customers take exception to additional time to load, unload and travel the distance to the destination while on the shuttle route. Female customers often report an uneasiness for personal safety especially during quiet, or late-night periods. This customer will seek out alternative arrival or parking solutions regardless of nominal parking rate differentials.

## Forecast Parking Demand

### Parking Demand

Parking demand at the Airport is directly related to passenger enplanements. As stated before, with no current off-airport parking operators, and limited park-and-fly hotel parking demand, the on-airport surface lots continue to be the primary option for airport passenger parking. Enplanements at the airport have consistently rose over the last eight years. The largest growth occurred from 2012 -13 at 6.5 percent, and from 2016 - 17 at 6.1 percent with estimated 2018 - 19 growth of 7.6%.

The following Table presents recent enplanement statistics at the Airport.

Table 3. Enplanement Statistics

| Year  | Total Enplanements | Year Over Year Growth |
|---|--------------------|-----------------------|
| 2012  | 453,026            | -                     |
| 2013  | 482,645            | 6.5%                  |
| 2014  | 487,127            | 0.9%                  |
| 2015  | 490,448            | 0.7%                  |
| 2016  | 510,554            | 4.1%                  |
| 2017  | 541,589            | 6.1%                  |
| 2018  | 533,614            | -1.5%                 |
| 2019 <sup>1</sup>                                     | 574,000            | 7.6%                  |
| <sup>1</sup> 2019 estimate based on YTD enplanements. |                    |                       |

Source: Sioux Falls Regional Airport, 2019

The Airport's enplanement annual growth assumption will be used to inform the future demand projections for on-airport parking. According to the most recent Airport Master Plan, from 2016, the forecast CAGR (Compounded Annual Growth Rate) for enplanement growth from 2013-2033 is 2.37 percent. The following Exhibit provides a summary of the forecasted enplanements at the airport, as well as the forecasted CAGR.

Table 4. Preferred Forecast Enplanements

| Year                           | Total Enplanements | Previous 5-year CAGR |
|--------------------------------|--------------------|----------------------|
| 2013                           | 474,118            | -                    |
| 2018                           | 547,938            | 2.94%                |
| 2023                           | 604,872            | 2.00%                |
| 2028                           | 676,594            | 2.27%                |
| 2033                           | 756,820            | 2.27%                |
| <b>Forecast CAGR (Average)</b> |                    | <b>2.37%</b>         |

Source: Sioux Falls Regional Airport Master Plan, Chapter 3 Exhibit 10, 2016

Based on the most recent enplanement statistics (previous seven years of available data), the CAGR from 2012 to 2019 was 4.02 percent. Using the same statistics, the CAGR from 2013 to 2019 was 3.53 percent. This lower growth rate is likely attributed to the large growth in enplanements between 2012 and 2013, as shown in Table 3. As stated in the Airport Master Plan, the forecast CAGR for enplanement growth is 2.37 percent. This growth rate is slightly conservative when compared to the Federal Aviation Administration's projected enplanement growth factor of 2.5-2.7 percent for the Airport and the CAGR growth rates discussed above. For the purpose of this report, however, we will utilize the **2.37 percent** forecast enplanement CAGR as our anticipated growth rate for projecting future parking demand at the Airport.



## Effective Parking Supply

The effective supply is the supply that is realistically usable by airport customers or employees, usually three (3) to ten (10) percent smaller than the actual “full” supply depending on the space type and whom the spaces are designed to serve. Employees, for example, know the facilities well and tend to park in the same place each day. They also park for longer periods, and thus do not generate as much in-and-out traffic; they therefore spend less time searching for spaces. Customers generally are unfamiliar with the parking system and generate higher turnover. Consequently, this group often needs a greater circulation cushion. Additionally, a parking supply needs a smaller percentage cushion as it increases in size. For the purposes of this analysis we used an effective supply factor of .97 for the entire system, due to the high quality of the condition of the surface lots and customers relative familiarity with parking at the Airport. Additionally, airport patrons generally work hard to find the last remaining available spaces, as the alternatives are less convenient (or sometimes non-existent). The Table below is representative of the Airport’s future effective parking supply, after the Economy Lot is expanded in 2020.

Table 5. Effective Parking Supply

| Surface Lot                | Current Inventory | Current Effective Inventory (97%) | Future Inventory | Future Effective Inventory (97%) |
|----------------------------|-------------------|-----------------------------------|------------------|----------------------------------|
| Short-Term                 | 300               | 291                               | 0                | 0                                |
| Long-Term                  | 1,405             | 1,363                             | 1,399            | 1,357                            |
| Economy                    | 744               | 722                               | 744              | 722                              |
| <i>Economy (Expansion)</i> |                   |                                   | 617              | 598                              |
| <b>Total</b>               | <b>2,449</b>      | <b>2,376</b>                      | <b>2,760</b>     | <b>2,677</b>                     |

Source: SP+ Parking, Walker Consultants, 2019

## Public Parking Assumptions - Existing

Based on parking occupancy data provided by the Airport parking operator, the airport parking system reached a peak overnight parking demand of **2,195 vehicles** in March 2019. These occupancy figures are slightly higher than the occupancies counted in February and March 2018. Utilizing typical airport parking data metrics, it is derived that the daytime peak on-site parking demand is 20 percent in excess of the overnight demand. Therefore, existing peak parking demand is  $2,195 \times 1.20 = \mathbf{2,634 \text{ parking spaces}}$ .

Utilizing the effective parking supply, when subtracting the existing parking demand for 2,634 spaces from the current effective supply of 2,376, we calculate the Airport is in a parking *deficit* condition of 258 spaces, as shown in the Table 6 below.

Table 6. Existing Parking Adequacy

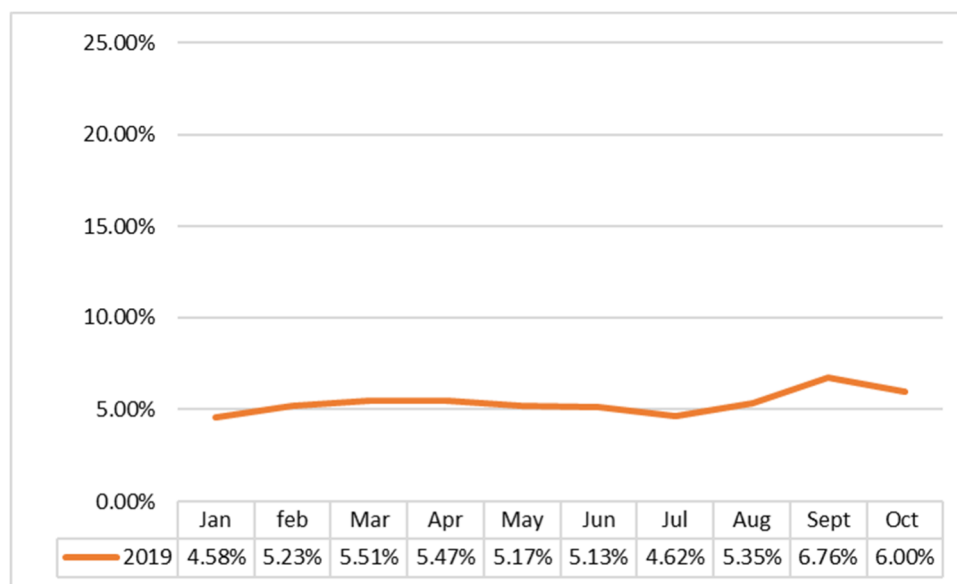
|                                    | Spaces      |
|------------------------------------|-------------|
| Existing Parking Demand            | 2,634       |
| Effective Parking Supply           | 2,376       |
| <b>Parking Adequacy/ (Deficit)</b> | <b>-258</b> |

Source: Walker Consultants, 2019

## Transportation Network Company (TNC's)

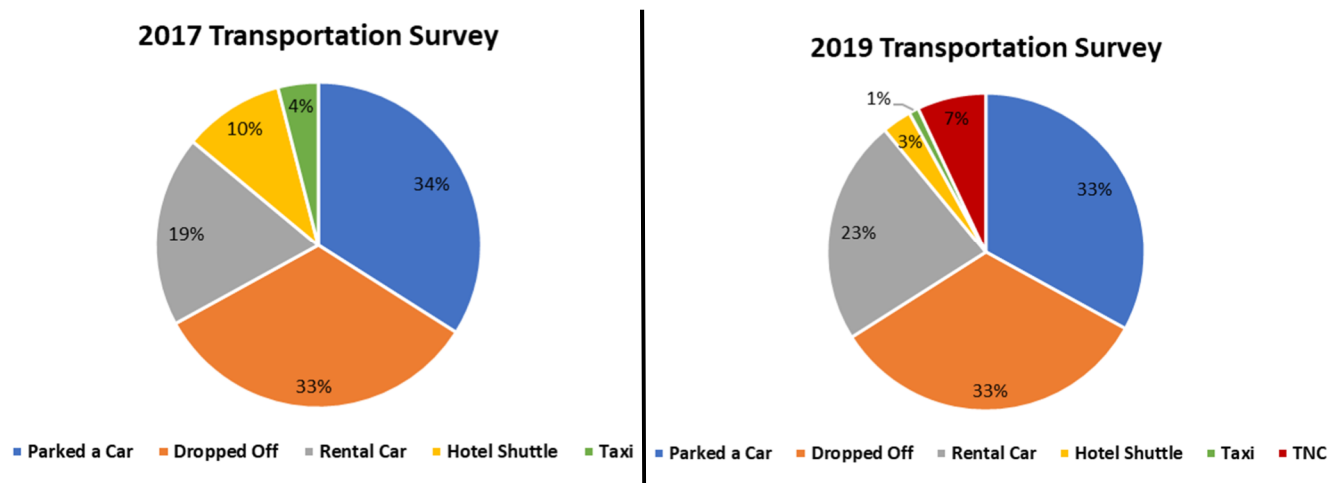
Transportation Network Company's (TNC's) began operating in the Sioux Falls metro area with Lyft's introduction in late October 2017. The airport has been tracking Lyft pick-up volumes since January of 2018. During 2018 the airport saw the number of average daily Lyft pick-ups nearly double from 26 daily pick-ups to 52 daily pick-ups. During this period the airport instituted fees for Lyft to access the airport (\$2.00 per pick-up and drop-off). TNC's continue to operate service to and from the Airport during 2019, with Uber beginning service in August. TNC pick-ups from April through August held steady in a range of 79 to 86 pick-ups per day. As a percentage of total enplanements at the Airport, the figure has been between 4.50 and 6.75 percent year-to-date in 2019, as shown in the following Figure. This is slightly below the seven percent figure that was determined in the May 2019 transportation survey performed by SP+. This survey asked passengers enplaning at the airport what ground transportation option they used to arrive at the airport. Airport officials did note that TNC usage spiked slightly during the winter months (particularly March) and again in the fall (September and October) in 2019. The average for 2019 YTD is 5.38 percent.

Figure 3. TNC Percentage of Total Enplanements, Sioux Falls Regional Airport



Nationally, the airport industry is experiencing a major shift in taxi and TNC operations. TNC's are consuming the taxi and hotel drop-off/shuttle market share. The expansion of this alternative ride service is thought to be brought upon as TNC's are perceived to be more convenient, of lower cost, and of a higher-level customer experience than traditional ground transportation solutions. TNC market penetration within airports of similar size in Midwestern locations is difficult to quantify as many airports have not yet begun TNC pick-up/drop-off fee collection or quantification of total pick-ups and drop-offs on airport properties.

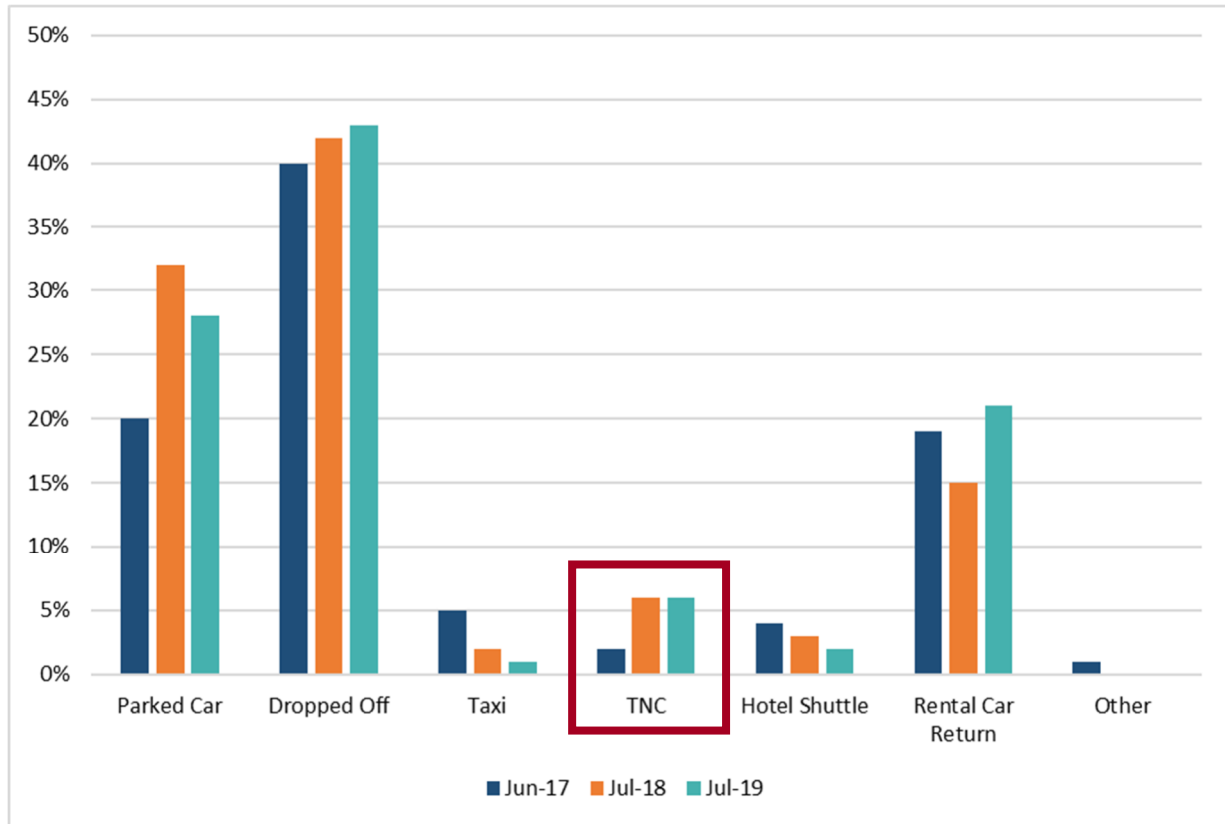
Figure 4. Arrival to Airport, 2017 versus 2019 Transportation Surveys



Utilizing the SP+ Transportation Survey results from 2017 and 2019, Figure 4 shows that, similar to national trends, TNC's (in red) are replacing taxi and hotel shuttle modes of transportation to the airport.

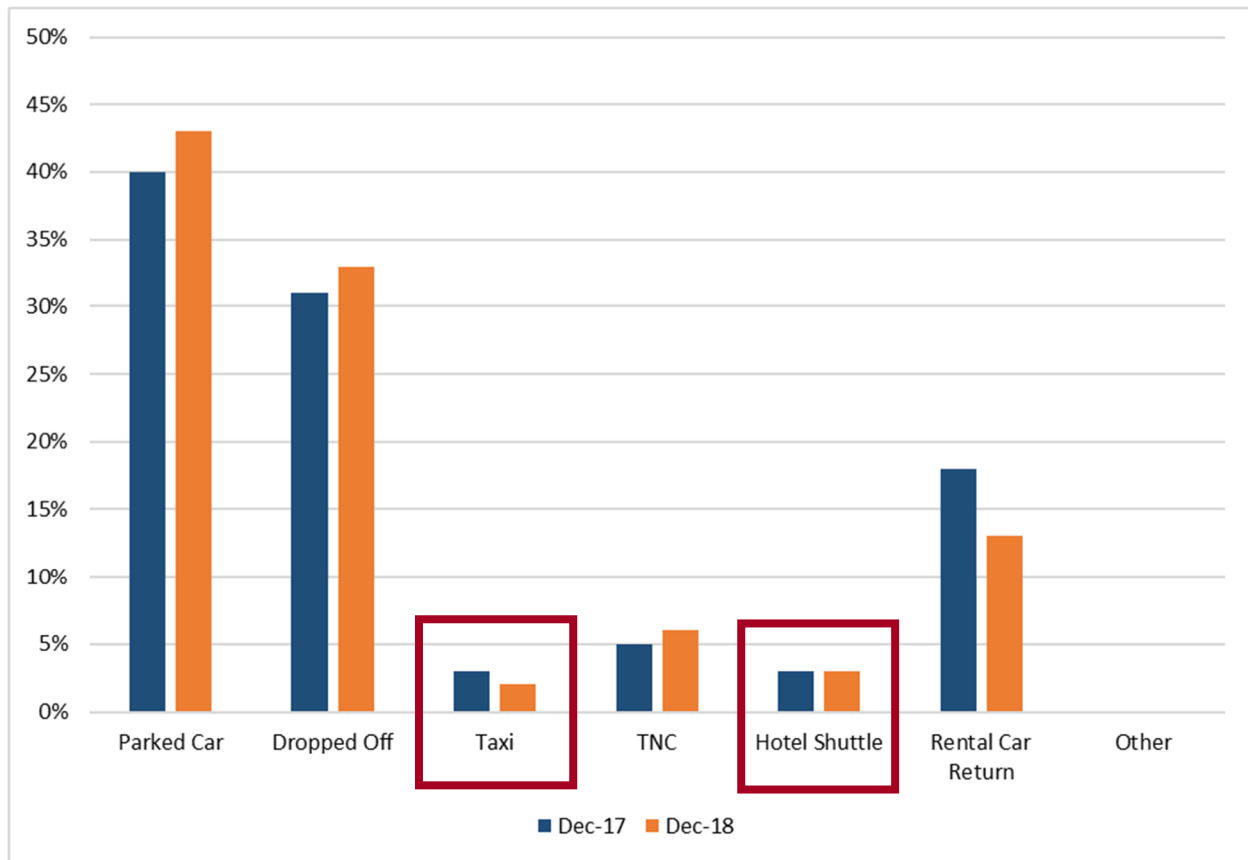
The following figure provides information based on the survey SP+ conducted at Fargo's Hector International Airport. The survey occurred in July 2019, and like the survey at SFRA, asked enplaning passengers how they arrived at the airport. This was the fifth survey SP+ has conducted over the last two and a half years, with other surveys occurring in July and December 2017, and July and December 2018.

Figure 5. Percentage of Total Enplanements, Hector International Airport – July



As shown in the figure above, TNC usage has started to flat-line at Hector International Airport. After rising to six percent from two percent of total enplanements between July 2017 and July 2018, it remained flat for July 2019 at six percent. Additionally, taxi and hotel shuttle usage has consistently dropped between 2017 and 2019. This is a common trend being seen around the country that as TNC usage increases, taxi and hotel shuttle usage falls off. Moreover, parking demand continues to raise slightly or remain constant, as seen here at Hector Airport.

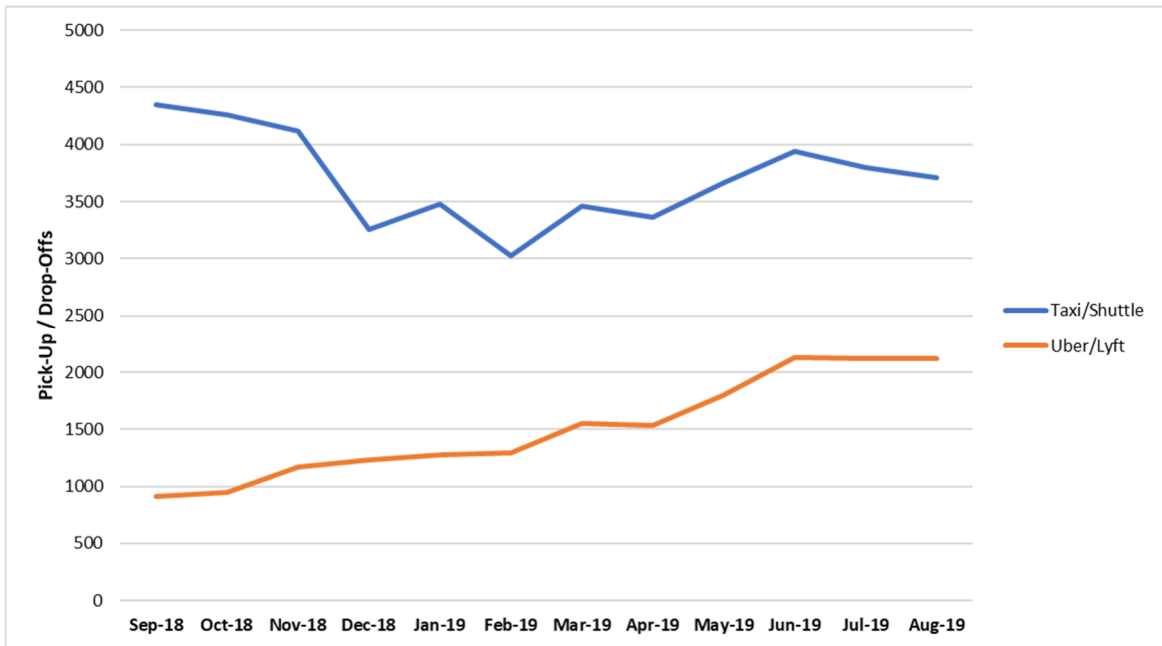
Figure 6. Percentage of Total Enplanements, Hector International Airport – December



Looking at December enplanement survey responses, parking demand rose slightly between 2017 and 2018, while taxi usage dropped off slightly and hotel shuttle usage remained largely constant. While there was a slight increase in TNC usage from five percent to six percent, this likely does not account for the leveling off of TNC use being seen in 2019.

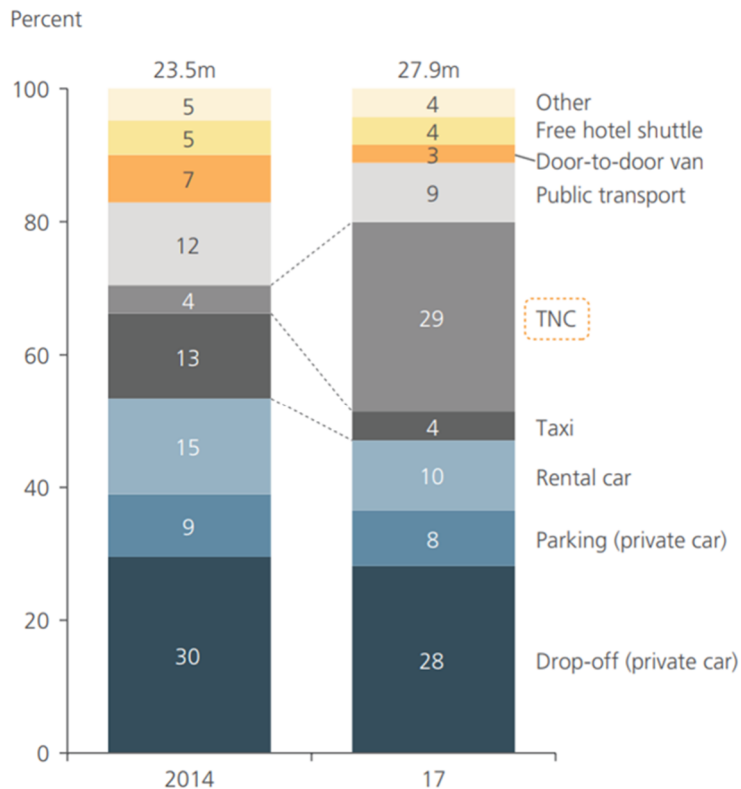
In addition to the passenger drop-off and survey information provided by the airport and SP+, the following figures show TNC usage at other airports across the United States.

Figure 7. Transportation Mode Split at Medford International Airport



At the small hub Medford-Rogue Valley International Airport in Medford, Oregon, Uber/Lyft (TNC) usage has slowly risen, while taxi and shuttle usage has slightly dipped. This shows the continuing trend of TNC passenger trips largely replacing trips taken by taxi or airport shuttle. Additionally, TNC usage has leveled off in Q3 2019.

Figure 8. Growth of TNC Use at San Francisco International Airport



San Francisco International Airport is the market leader in TNC usage and has seen a similar shift in ground transportation patterns. Figure 8, a 2018 graphic provided by L.E.K. Consulting, shows the percentage of enplaned passengers by mode of access between 2014 and 2017. TNC's were the only mode that grew in that time, while taxis had far and away the biggest drop. Rental car, door-to-door van, and public transportation also saw relative drops in usage. Parking demand had only a slight drop, from nine to eight percent likely from constrained capacity, while private car drop-off, free hotel shuttle, and other were eroded by TNC's.

In addition to statistics collected from around the country, Walker performed interviews in September and October 2019, with several mid-size airports throughout the Midwest. As stated earlier, many airports continue to not track (nor impose fees on) TNC pick-up and drop-offs, but the qualitative information provided in the following bullet points allows for a comparison with operations at other similarly-sized airports in the region.

#### **Omaha Eppley Airfield, Omaha, NE – Dan Owens, Director of Planning and Engineering**

- The airport has a current unsubstantiated estimate 15percent of arrivals/pick-ups are provided by TNCs.
- The airport has not instituted a pick-up or drop-off fee for any landside transportation companies.
  - This policy is currently under review by the airport.
- Parking revenues have not been reduced as a result of TNC activities. Parking fee increases and increased enplanements have negated this effect.

#### **Eastern Iowa Airport, Cedar Rapids, IA – Marty Lenss, Airport Director**

- Uber and Lyft operations occurring for the last three to four years.
- Uber and Lyft have been provided a staging area with capacity of 15-20 cars.
- \$2.00 fee charged for TNC pick-up only. Airport will increase fee to \$3.00 in future with both drop and pick-up fees expected.
- Parking revenue continues to increase because of increasing enplanements.
- Parking demand continues to increase due to increasing enplanements.
- TNC's drop-off approximately 1,500 rides per month. No percentage statistics are available.
  - This is approximately 50 rides per day, similar to SFRA.
- TNC's have effectively replaced taxi's for ride service activity.
- TNC's have influenced parking revenue and occupancy. They are slowing the growth of these airport services, however at a rate less than enplanement growth. The factor for CID appears as about a four percent parking lag versus enplanement growth.

#### **Chippewa Valley Regional Airport, Eau Claire, WI – Charity Zich, Airport Director**

- Uber and Lyft have been operating at the airport since 2018.
- The airport is collecting a yearly fee from both Uber and Lyft.
- It is a flat fee of \$250 yearly as a ground service advertisement fee.
- They estimate arrival and pick-up of under 10 percent using TNC's and/or Taxi's.
- Uber and Lyft have displaced taxi without substantial increase in arrival and departure mode.
- Parking revenue has continued to grow after Uber and Lyft operations have begun. No parking rate increase has occurred during this time.

While TNC's are a popular new way to arrive and depart from an airport, their usage is beginning to level-off as fee's are implemented and increased, airport roadway congestion (particularly at larger airports) increases, and

public transportation options improve. Largely, TNC's have replaced (or displaced) taxi and hotel shuttle transportation modes, while parking revenues continue to climb as enplanements continue to increase nationwide.

## Airport Shuttle Service

The airport currently offers a shuttle service to and from the Economy Lot from December through March. It operates from 4:00 am until the last flight of the day arrives, which can be anywhere from midnight to 3:00 or 4:00 am, depending on flight delays. On average, 100 people per day use the shuttle. In 2019, it cost the airport approximately \$20,255 per month to operate the shuttle, or \$60,764 total (January through March). The current hourly rate to run the shuttle is \$30.88. It is scheduled to increase to \$31.81 in 2020, \$32.76 in 2021, and \$33.75 in 2022.

With the expansion of the economy lot to locations further away from the terminal building, the airport will need to add shuttle service. Because of additional economy lot demand, the airport will potentially need to run the schedule year-round and add a second shuttle during peak months (September through March) to decrease wait times, particularly with the longer route and additional stops needed to service the lot expansion. If the airport were to operate the shuttle for 12 months a year, while adding a second shuttle for seven months (September through March) the total annual expense would be approximately \$385,838 at the 2020 current contract rates. Please note this is an estimate and can shift depending on shuttle schedule and offerings.

Adding a new garage, with close convenient covered parking, will allow for a reduction in future shuttle schedule and operating cost growth, as fewer parkers would be parking in the furthest afield spaces. Additionally, while it has higher immediate capital costs, the garage will allow for greater revenue providing a more valuable long-term investment.

## Planning Horizon

For a large capital improvement like a garage, it is best practice and more financially feasible to plan for phased stall capacity increase. Typical parking facility planning horizons are 10-year and 20-year outlooks. The base proposed garage is therefore sized to accommodate the near-term horizon parking capacity, considering location, functionality and flexibility. The long-term horizon is utilized to consider future garage phase planning parameters so adjustments to the earlier phases may be conceived now. We have included in our planning the scope of the parking facility for the 20-year horizon. This exercise informs the plan to locate the garage slightly further north to more reasonably accommodate the facility for the longer-term horizon. Walker's assessment of the future growth of TNC's is factored into our public parking assumptions through a TNC impact factor. See Table 7,8 Public Parking Assumptions – Future parking demand. Please note that both planning horizons begin in 2022, when the proposed garage would potentially open.



## Public Parking Assumptions – Future

Tables 7 and 8. Future Parking Demand

### Future: 10-year

|                                    | Actual Parking Demand (Counts) | Peak Hour Factor | Peak Hour Parking Demand | Change (+) | Enplanement Growth Factor | Future (10-yr) | TNC Impact Factor | TNC Impact (.5%) |
|------------------------------------|--------------------------------|------------------|--------------------------|------------|---------------------------|----------------|-------------------|------------------|
| Short Term Lot                     | 252                            | 0.2              | 302                      |            | 0.0237                    | 401            | -0.5%             | 399              |
| North Long Term Lot                | 859                            | 0.2              | 1,031                    |            | 0.0237                    | 1,365          | -0.5%             | 1,359            |
| South Long Term Lot                | 560                            | 0.2              | 672                      |            | 0.0237                    | 890            | -0.5%             | 886              |
| Economy Lot                        | 524                            | 0.2              | 629                      |            | 0.0237                    | 833            | -0.5%             | 829              |
| <b>Total</b>                       | <b>2,195</b>                   |                  | <b>2,634</b>             | <b>855</b> |                           | <b>3,489</b>   |                   | <b>3,471</b>     |
| Future Supply (Actual)             | 2,452                          |                  | 2,452                    |            |                           | 2,452          |                   | 2,452            |
| <b>Parking Adequacy/ (Deficit)</b> | <b>257</b>                     |                  | <b>(183)</b>             |            |                           | <b>(1,037)</b> |                   | <b>(1,020)</b>   |
| Future Supply (Effective)          | 2,378                          |                  | 2,378                    |            |                           | 2,378          |                   | 2,378            |
| <b>Parking Adequacy/ (Deficit)</b> | <b>183</b>                     |                  | <b>(256)</b>             |            |                           | <b>(1,111)</b> |                   | <b>(1,093)</b>   |

### Future: 20-year

|                                    | Actual Parking Demand (Counts) | Peak Hour Factor | Peak Hour Parking Demand (Year 10) | Change (+) | Enplanement Growth Factor | Future (20-yr) | TNC Impact Factor | TNC Impact (1%) |
|------------------------------------|--------------------------------|------------------|------------------------------------|------------|---------------------------|----------------|-------------------|-----------------|
| Short Term Lot                     | 252                            | 0.2              | 401                                |            | 0.0237                    | 506            | -1.0%             | 501             |
| North Long Term Lot                | 859                            | 0.2              | 1,365                              |            | 0.0237                    | 1,726          | -1.0%             | 1,708           |
| South Long Term Lot                | 560                            | 0.2              | 890                                |            | 0.0237                    | 1,125          | -1.0%             | 1,114           |
| Economy Lot                        | 524                            | 0.2              | 833                                |            | 0.0237                    | 1,053          | -1.0%             | 1,042           |
| <b>Total</b>                       | <b>2,195</b>                   |                  | <b>3,489</b>                       | <b>921</b> |                           | <b>4,410</b>   |                   | <b>4,366</b>    |
| Future Supply (Actual)             | 2,760                          |                  | 2,760                              |            |                           | 2,760          |                   | 2,760           |
| <b>Parking Adequacy/ (Deficit)</b> | <b>565</b>                     |                  | <b>(729)</b>                       |            |                           | <b>(1,650)</b> |                   | <b>(1,606)</b>  |
| Future Supply (Effective)          | 2,677                          |                  | 2,677                              |            |                           | 2,677          |                   | 2,677           |
| <b>Parking Adequacy/ (Deficit)</b> | <b>482</b>                     |                  | <b>(812)</b>                       |            |                           | <b>(1,733)</b> |                   | <b>(1,688)</b>  |

For the 10-year planning horizon, Walker recommends a design capacity of **1020 - 1093 spaces**. Please note Walker does consider some flexibility in final determination of garage space counts. The recommended garage capacity is based on maintaining limited service period for shuttle operations to the economy lot, should higher levels of shuttling be a preferred accommodation by the airport a lower garage capacity could be considered. The resultant parking service level to the public would be significantly reduced therefore this is not recommended. Please also note that both future inventories include the removal of the Short-Term Lot and removal of spaces in the Long-Term Lot, to allow for construction of the new garage, while also including the 617-space Economy Lot expansion.

For the 20-year planning horizon, Walker recommends a design capacity **between 1,606 and 1,688 spaces**. For this assessment Walker has included a larger TNC future parking demand impact raising from 0.5% to 1.0% reduction in public arrival at the airport via private vehicle and parking.

## Net Parking Capacity

Our on-site parking demand analysis relates directly to public stall capacity for use as the base metric for garage capacity planning. Garage capacity planning must include the net parking stalls created. Placing the 10-Year recommended garage design capacity facility in the most desirable location will eliminate approximately 334 surface parking stalls while adding 1006 structured stalls. Net additional stalls for the ten-year planning horizon total  $1006 - 334 = 672$  net additional airfield stalls.

Looking forward to the 20-year forecast garage design we will eliminate a total of approximately 569 surface parking stalls with an additional 1660 stalls therefore  $1660 - 569 = 1091$  net additional airfield stalls.

To accommodate this net loss of parking stalls the parking garage shall be designed to accommodate the displaced parking stalls. Quantities of displaced parking stalls have been calculated based on site plan diagrams for phase 10-year and 20-year horizon garage construction. The 10- and 20-year parking demand calculations inform the garage scope, which in turn informs the site location of the facility. The proposed ground location of the 10- & 20-year horizon parking garage are presented in Figures 9 and 10.

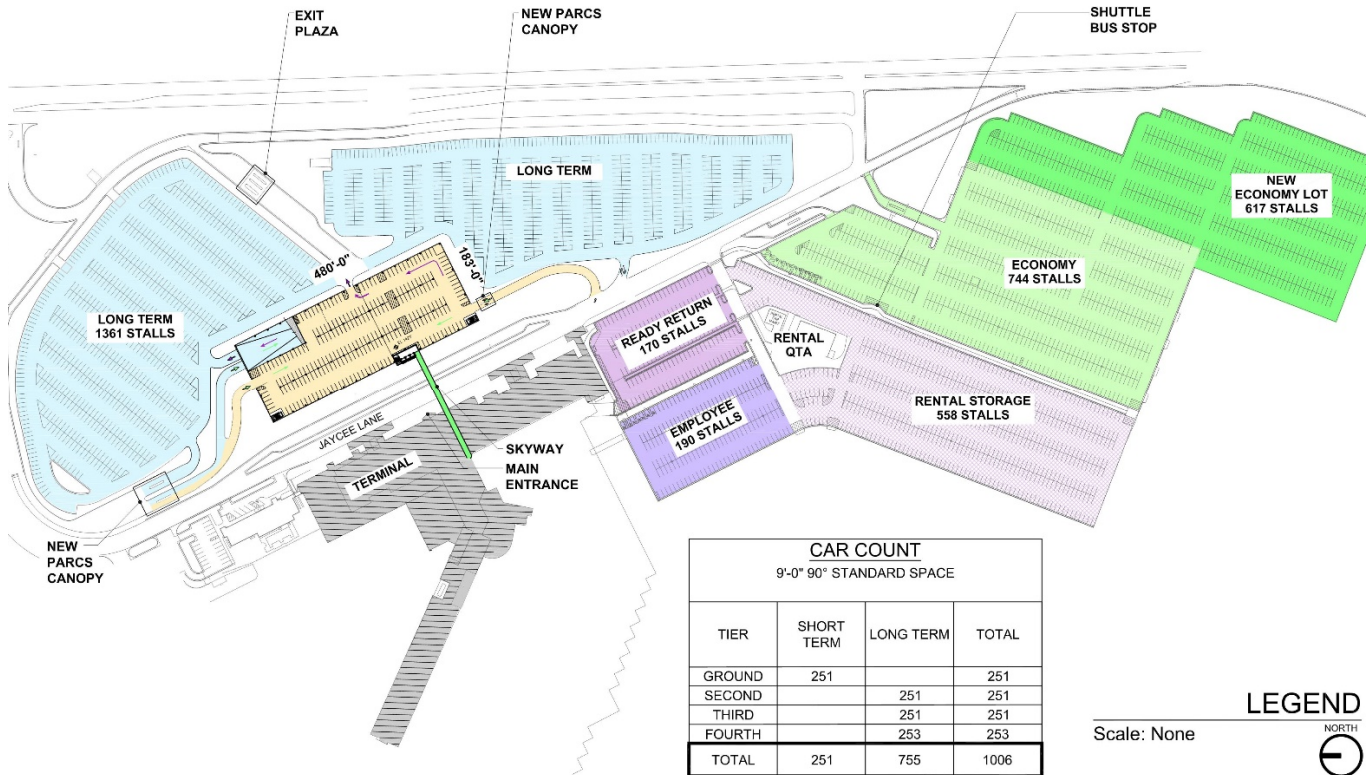
---

*Customers of the facility are those patrons who desire and find value in a close, convenient, and secure parking environment.*

---

# Parking Facility Site Plan – 10-year horizon

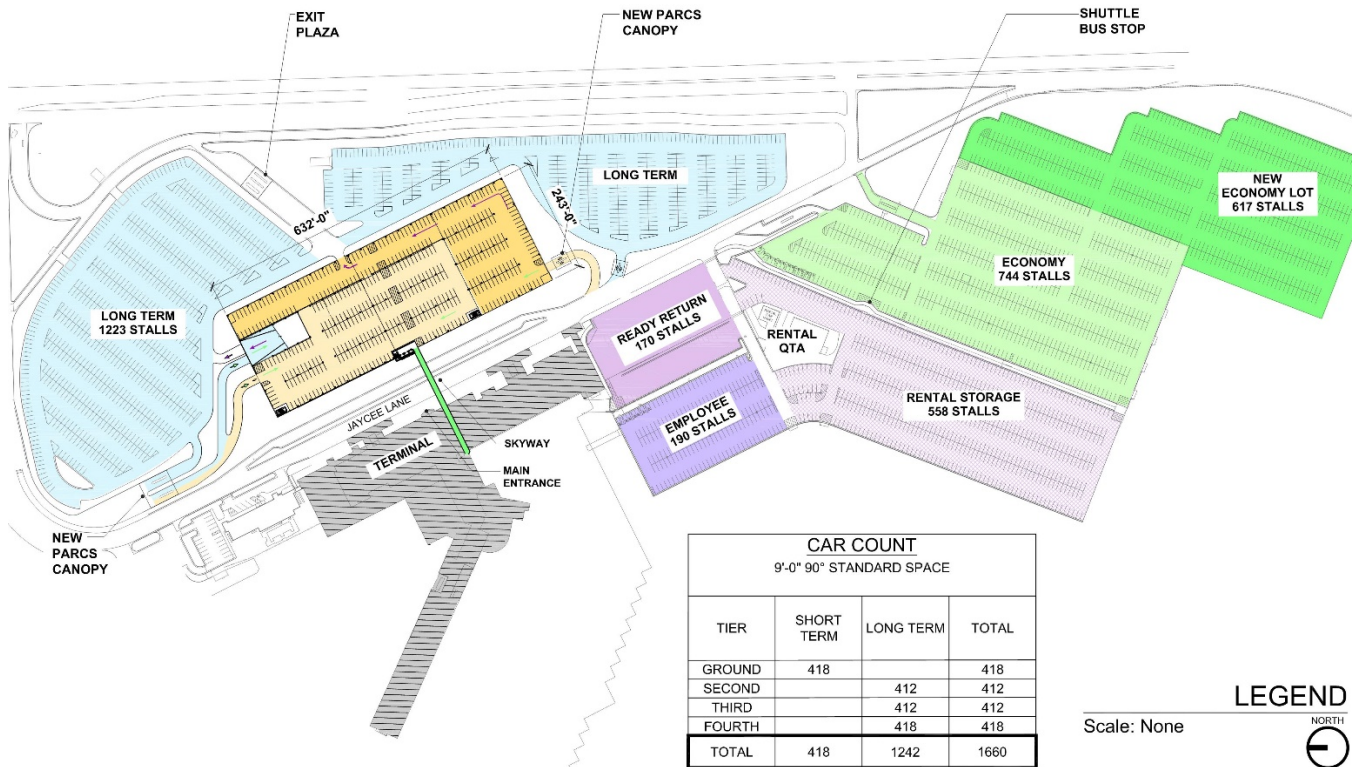
Figure 9. 10-Year horizon parking facility site plan



Parking system consisting of a 480' x 183' four story facility with 1006 stall capacity. Parking function is a single threaded, two-way express ramp from ground to top level. One stair elevator tower with three elevator shafts and two elevator cabs with future skyway connectivity.

## Parking Facility Site Plan – 20-year horizon

Figure 10. 20-Year horizon parking facility site plan



Parking system consisting of a 632' x 243' four story facility with 1,660 stall capacity. Parking function is a single threaded two-way express ramp from ground to top level. One stair elevator tower with three elevator shafts and three elevator cabs with future skyway connectivity.

## Facility Design Considerations

### Structure Occupancies/Accessibility

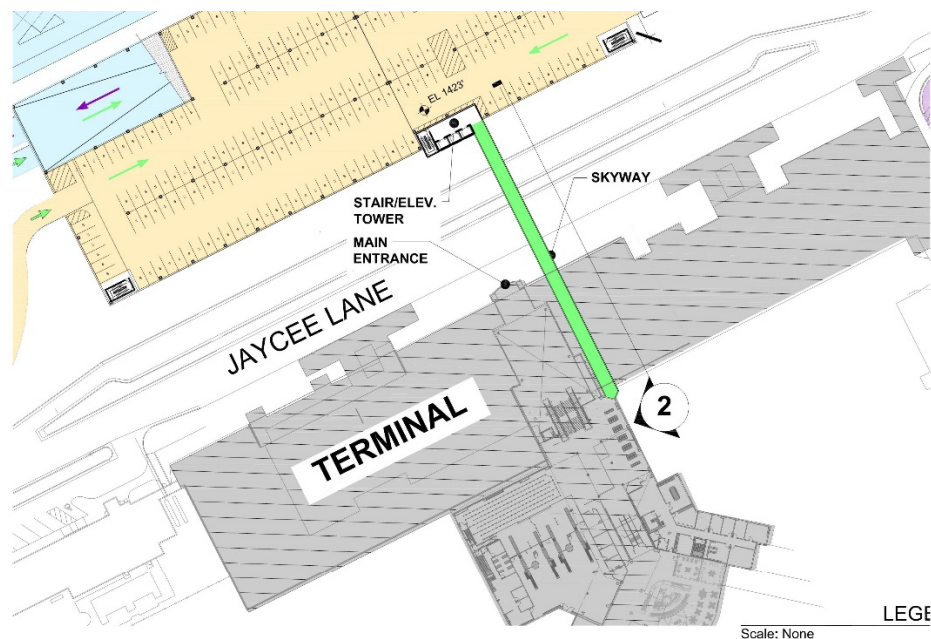
As the garage is currently conceived the proposed garage shall be proportioned to house multiple parking occupancies including short-term and long-term parking. Basic functional requirements for each occupancy shall include accessible access to the Terminal.

Because the garage will be multiple levels accessible accommodations must include an elevator, accessible stairs, emergency egress lighting and emergency elevator operation. As such, an elevator, with enclosed conditioned lobby and stops at all levels shall be provided.

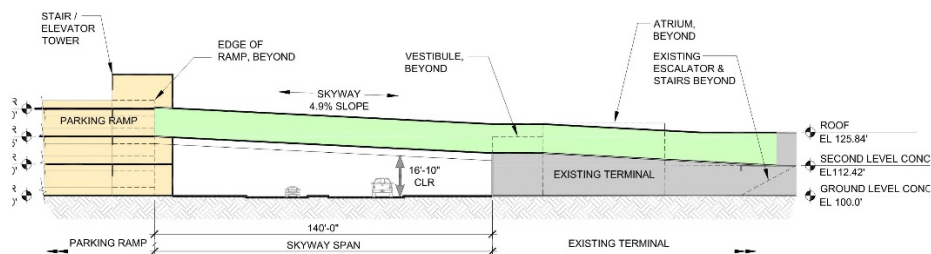
## Skyway Connection

A skyway connection to the terminal has been conceptually conceived as part of the pre-design update. The skyway pedestrian bridge connection would meet with the garage central stair/elevator tower third tier lobby. External supports would be provided on each end of the span over terminal drive. The walkway is displayed as 12'-0" width and a 144' span reaching the terminal immediately adjacent the main entry. The bridge will maintain greater than 15'-0" terminal drive clearance while sloping down to departures gate level. The skyway slope is less than 5% meeting accessible requirements. Once inside the limit of the terminal the walkway would extend towards security arriving at the top landing of the departure gate stair and escalator. Passenger with ticketing destination would utilize the existing stair/elevator/escalator systems. See Figure 11 below.

Figure 11. Skyway Plan and Section



1 SKYWAY PLAN



2 SECTION THROUGH SKYWAY



## Functional Design

The phase one 10-year horizon parking garage solution is a four story, three bay parking facility utilizing flat parking floors and a non-park-on express ramp vertical circulation system. This layout provides ground tier short term parking capacity of about 213 stalls and a long-term capacity on levels two-four of 644 stalls. Total garage capacity represented is 857 parking stalls for accommodating the 10-year parking deficient.

To provide a premium wayfinding and parking experience certain functional element guiding principles are implemented. Parking is provided on flat floors, pedestrians and vehicles are separated, vehicles will load/unload from the back, and a clear pedestrian path is provided to the stair elevator pedestrian circulation core. In addition, ground tier floor-to-floor clearance is enhanced providing future flexibility for possibility of future public transit loading. For the purpose of this study we conceptualize a minimum 13'-0" first supported tier elevation with subsequent 11'-4" inter-floor elevations.

Finally, we have diagrammatically displayed entrance access circulation to the garage ground tier (short term) and upper tiers (long term). As a customer service redundancy, we have maintained a parking entrance for short- and long-term parkers after passing the terminal.

## Enabling Projects

Certain enabling parking projects will need to be completed to maintain parking patron customer service prior to the construction of the parking garage. To allow construction activity to occur a portion of the existing parking capacity will have to be taken off-line. We estimate approximately 320-380 existing parking stalls will be taken from the on-site parking inventory to provide an efficient construction and construction laydown working area. Additionally, site utilities maybe modified in advance to minimized construction duration or minimize disruption. Additional parking demand growth must be accommodated with sufficient parking stall replacement for those stalls lost to construction activity.

It is recommended the airport complete construction of the proposed economy lot expansion prior to construction activity so patrons will not be required to seek other multi-modal arrival solutions, or off-site parking.

## Conceptual Renderings

Conceptual renderings are provided to assist the airport to understand the massing of the new garage improvement in context with the site. The images indicate the relative size and proximity of the new structure. Arriving patron views are modelled to confirm site wayfinding and destination identification. Garage image displays architectural program development coordinated with proposed construction cost estimates.

See attached Appendix: Conceptual Architectural Renderings

## Schedule

The schedule for the Sioux Falls Regional Airport garage is coming into clearer focus. The Up-dated garage pre-design study is the originating document solidifying the need of the structure, and to determine the scale and position of the parking structure for future considerations of procurement. Below is a summary of the current facility planning schedule.

| Milestone   | Date     |      |
|---|----------|------|
| Parking Garage Pre-Design Study                                   | December | 2019 |
| Additional public parking capacity (Economy Expansion 600 stalls) | Summer   | 2020 |
| Parking Facility Design   | Summer   | 2020 |
| Parking Facility Bidding  | Winter   | 2021 |
| Parking Garage Construction                                       | Spring   | 2022 |
| Parking Garage Opening  | Summer   | 2023 |

## Cost Estimates

Probable cost of construction for the parking garage and skyway improvements is preliminary in nature as the garage/skyway schedule, site location, occupancy, infrastructure, soils information, architectural detailing, material selections, soft cost and final stalls capacities are not yet determined. The garage pre-design endeavors to quantify these project metrics, however the scope of the report will only explore solutions to develop an order of magnitude planning cost estimate. See Tables 10 and 11 below defining individual probable cost of construction for the garage and skyway excluding enabling projects.

Project cost not included in the construction cost estimates include project soft cost. Soft costs may include site preparation, landscape, Owner requested modifications and other unknown cost typically be budgeted to include at least 20% of base construction cost.

The project cost estimate has been broken down to relatively simple high-level components that can be utilized to track assumptions and project scopes as the project progresses. See Tables 10–11 on the next page.

Table 10. Probable Garage Cost of Construction

| ITEM | DESCRIPTION                       | UNIT        | TYPICAL COST/UNIT | QUANTITY | COST             | \$/SF   | REMARKS                           |
|------|-----------------------------------|-------------|-------------------|----------|------------------|---------|-----------------------------------|
| 1    | FOOTINGS & FOUNDATIONS (Caissons) | SF GROUND   | \$9.00            | 81,260   | 731,340.00       | \$2.11  |                                   |
| 2    | EXCAVATION                        | CU YDS      | \$18.00           | 7,500    | 135,000.00       | \$0.39  |                                   |
| 3    | CONCRETE SLAB ON GRADE            | SF SLAB     | \$6.00            | 82,075   | 492,450.00       | \$1.42  |                                   |
| 4    | P/T SLABS AND BEAMS               | SUPPRT SF   | \$29.50           | 259,650  | 7,659,675.00     | \$22.07 |                                   |
| 5    | SEALANTS AND CAULK                | SF          | \$1.10            | 336,405  | 370,045.50       | \$1.07  |                                   |
| 6    | EXTERIOR CABLE BARRIER            | LF          | \$111.00          | 4,400    | 488,400.00       | \$1.41  | Eleven strand                     |
|      | ARCHITECTURAL SPANDREL            | SF          | \$57.00           | 20,600   | 1,174,200.00     | \$3.38  | 66% elev wall coverage at 7'-0 ht |
| 7    | SEALER                            | SF          | \$0.60            | 336,405  | 201,843.00       | \$0.58  |                                   |
| 8    | STRIPING                          | SF          | \$0.15            | 336,405  | 50,460.75        | \$0.15  |                                   |
| 9    | SIGNAGE                           | SF          | \$0.35            | 336,405  | 117,741.75       | \$0.34  |                                   |
| 10   | TRAFFIC TOPPING                   | SF          | \$3.75            | 2,000    | 7,500.00         | \$0.02  |                                   |
| 11   | PLUMBING                          | SF          | \$4.90            | 336,405  | 1,648,384.50     | \$4.75  |                                   |
| 12   | ELECTRICAL                        | SF          | \$5.55            | 336,405  | 1,867,047.75     | \$5.38  |                                   |
| 13   | STAIR TOWERS                      | SF          | \$250.00          | 10,720   | 2,680,000.00     | \$7.72  |                                   |
| 14   | ELEVATORS                         | EA          | \$28,000.00       | 8        | 224,000.00       | \$0.65  | Two cabs at 10 yrs hrz            |
| 15   | PARKING CONTROL EQUIPMENT         | EA LANE     | \$26,000.00       | 8        | 208,000.00       | \$0.60  | Access control addnl              |
| 16   | EXPANSION JOINTS                  | LF          | \$66.00           | 1,040    | 68,640.00        | \$0.20  |                                   |
| 17   | INTERCOM/CALL STATIONS            | LS          | \$0.35            | 336,405  | 117,741.75       | \$0.34  |                                   |
| 18   | GENERAL CONDITIONS                | LS          | 12%               | 1        | 2,174,967.39     | \$6.27  |                                   |
|      |                                   | SUBTOTAL    |                   |          | \$ 20,417,437.39 | \$58.82 |                                   |
|      |                                   | CONTINGENCY | 10%               |          | 2,041,743.74     | \$5.88  |                                   |
|      |                                   | TOTAL       |                   |          | \$ 22,459,181.13 | \$64.70 |                                   |
|      |                                   | CARS =      |                   | 1,006    | \$ 22,325.23     | \$/CAR  |                                   |

Note: Garage construction cost estimate. Does not include soft, site modification, or landscape cost

Table 11. Probable Skyway Cost of Construction

| ITEM | DESCRIPTION                       | UNIT        | TYPICAL COST/UNIT | QUANTITY | COST            | \$/SF    | REMARKS                      |
|------|-----------------------------------|-------------|-------------------|----------|-----------------|----------|------------------------------|
| 1    | FOOTINGS & FOUNDATIONS (Caissons) | SF GROUND   | \$35,000.00       | 4        | 140,000.00      | \$46.67  |                              |
| 2    | EXCAVATION                        | CU YDS      | \$20,000.00       | 3        | 60,000.00       | \$20.00  |                              |
| 3    | CONCRETE SLAB                     | SF SLAB     | \$6.00            | 3,000    | 18,000.00       | \$6.00   |                              |
| 4    | SUPER STRUCTURE                   | SUPPRT SF   | \$85.00           | 3,000    | 255,000.00      | \$85.00  |                              |
| 5    | DEMOLITION                        | SF          | \$65.00           | 3,000    | 195,000.00      | \$65.00  |                              |
| 6    | EXTERIOR GLAZING                  | SF          | \$111.00          | 4,000    | 444,000.00      | \$148.00 | Eleven strand                |
|      | ARCHITECTURAL SPANDREL            | SF          | \$100.00          | 1,500    | 150,000.00      | \$50.00  | 66% wall coverage at 7'-0 ht |
| 7    | SEALER                            | SF          | \$1.85            | 9,000    | 16,650.00       | \$5.55   |                              |
| 8    | FLOOR FINISHES                    | SF          | \$4.00            | 3,000    | 12,000.00       | \$4.00   |                              |
| 9    | SIGNAGE                           | SF          | \$0.60            | 3,000    | 1,800.00        | \$0.60   |                              |
| 10   | HANDRAILS                         | SF          | \$145.00          | 600      | 87,000.00       | \$29.00  |                              |
| 11   | PLUMBING                          | SF          | \$25.00           | 3,000    | 75,000.00       | \$25.00  |                              |
| 12   | ELECTRICAL                        | SF          | \$20.00           | 3,000    | 60,000.00       | \$20.00  |                              |
| 13   | STAIR TOWERS                      | SF          | \$0.00            | 0        | -               | \$0.00   | NONE                         |
| 14   | ELEVATORS                         | EA          | \$0.00            | 0        | -               | \$0.00   | NONE                         |
| 15   | PARKING CONTROL EQUIPMENT         | EA LANE     | \$0.00            | 0        | -               | \$0.00   | NONE                         |
| 16   | EXPANSION JOINTS                  | LF          | \$170.00          | 400      | 68,000.00       | \$22.67  |                              |
| 17   | INTERCOM/CALL STATIONS            | LS          | \$0.35            | 3,000    | 1,050.00        | \$0.35   |                              |
| 18   | GENERAL CONDITIONS                | LS          | 12%               | 1        | 189,894.00      | \$63.30  |                              |
|      |                                   | SUBTOTAL    |                   |          | \$ 1,773,394.00 | \$591.13 |                              |
|      |                                   | CONTINGENCY | 10%               |          | 177,339.40      | \$59.11  |                              |
|      |                                   | TOTAL       |                   |          | \$ 1,950,733.40 | \$650.24 |                              |

Note: Skyway construction cost estimate. Does not include soft, site modification, or terminal elevator core. Cost estimate for construction simultaneous with garage

Note: A elevator and stair core maybe considered for the terminal connection of the skyway system. Currently this vertical circulation core is not included in the cost estimate and skyway plan figure. Addition cost for this enhanced improvement is estimated at \$500,000.



## Recommendation Summary

In summary, the garage pre-design proposes a 4-level parking garage accommodating approximately 1,006 total or 672 net additional on-site parking stalls. The proposed building occupancy includes short- & long-term public parkers. Customers of the facility are those patrons who desire and find value in a close, convenient, and secure parking environment.

The parking garage site is located east of the terminal main entrance replacing the short-term parking lot. The front site provides the closest, most convenient parking, helps mitigate front curbside drop-off traffic volume and will not introduce competitive, close, convenient parking while allowing unimpeded southward terminal expansion. This location is anticipated to drive the most garage occupancy to maximizing parking revenues.

The airport must construct additional on-site parking capacity in the economy (south) parking lot to accommodate parking demand during construction, we understand this project has completed design and will be implemented in summer 2020. Constructing a parking facility soon will enhance patron safety and convenience minimizing the possibilities of the airport parkers seeking alternate off-site parking or other multi-modal arrival solutions including TNC'S.

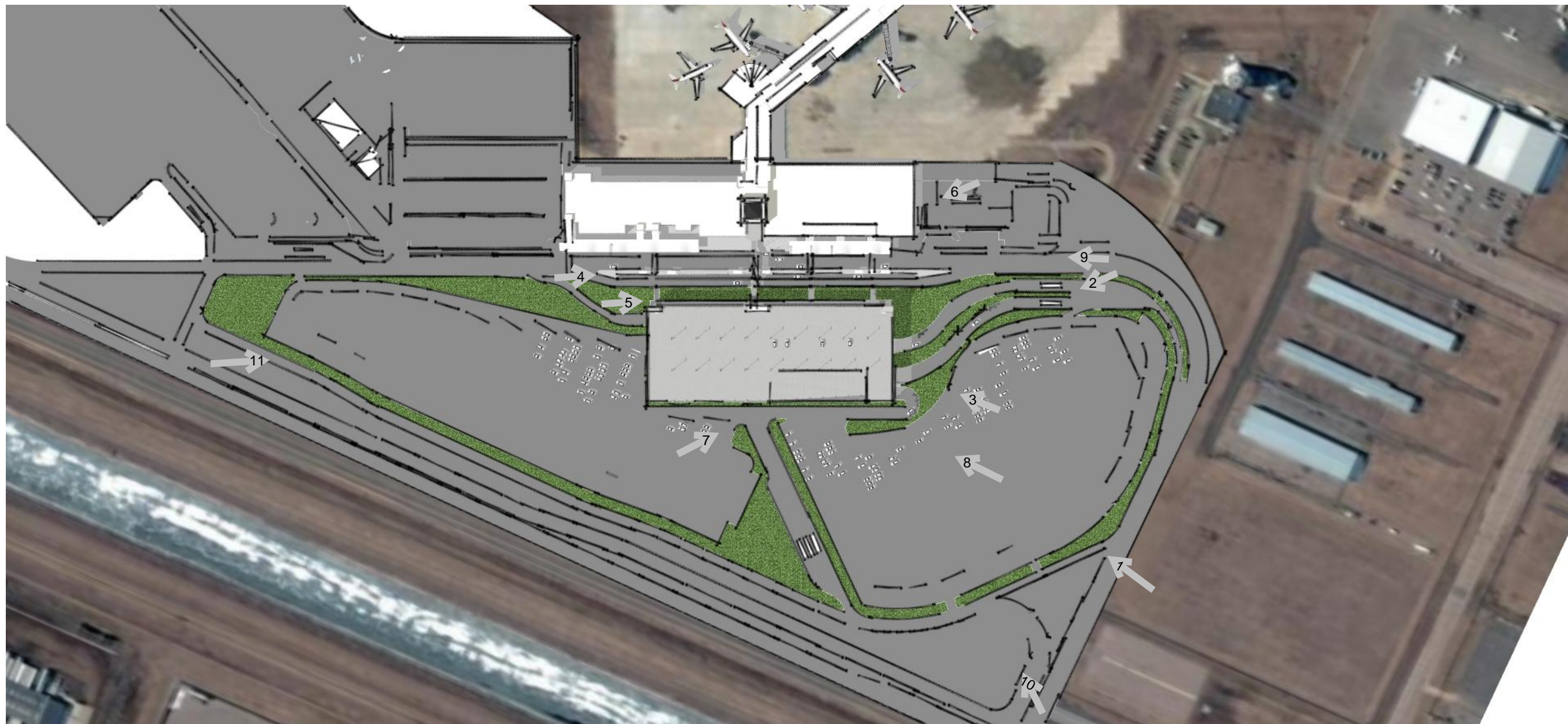
Total proposed economy south lot expansion is 617 stalls. The total quantity of displaced stalls may increase/decrease based on program delivery, schedule and final garage size and location or other unknown conditions. Portions of site preparation or construction activity may be phased to distribute capital costs across multiple budget years.

Garage construction costs excluding owner soft cost, enabling projects, or land expense approximate \$22,335 per stall or \$22,500,000 total including 10% design contingency, excluding cost escalation for project procurement.

Garage project cost including design, testing and other traditional Owner soft costs increase estimated total procurement cost by 20%. Therefore, project cost excluding enabling projects in current dollars is conceptualized as 1.2 x \$22,500,000 for total of \$27,000,000.



## Appendix



## Parking Garage Pre-Design

Architectural Renderings:

**Site Layout -image locator**

*Appendix*





## Parking Garage Pre-Design

Architectural Renderings:

**1- Site Entrance**

*Appendix*



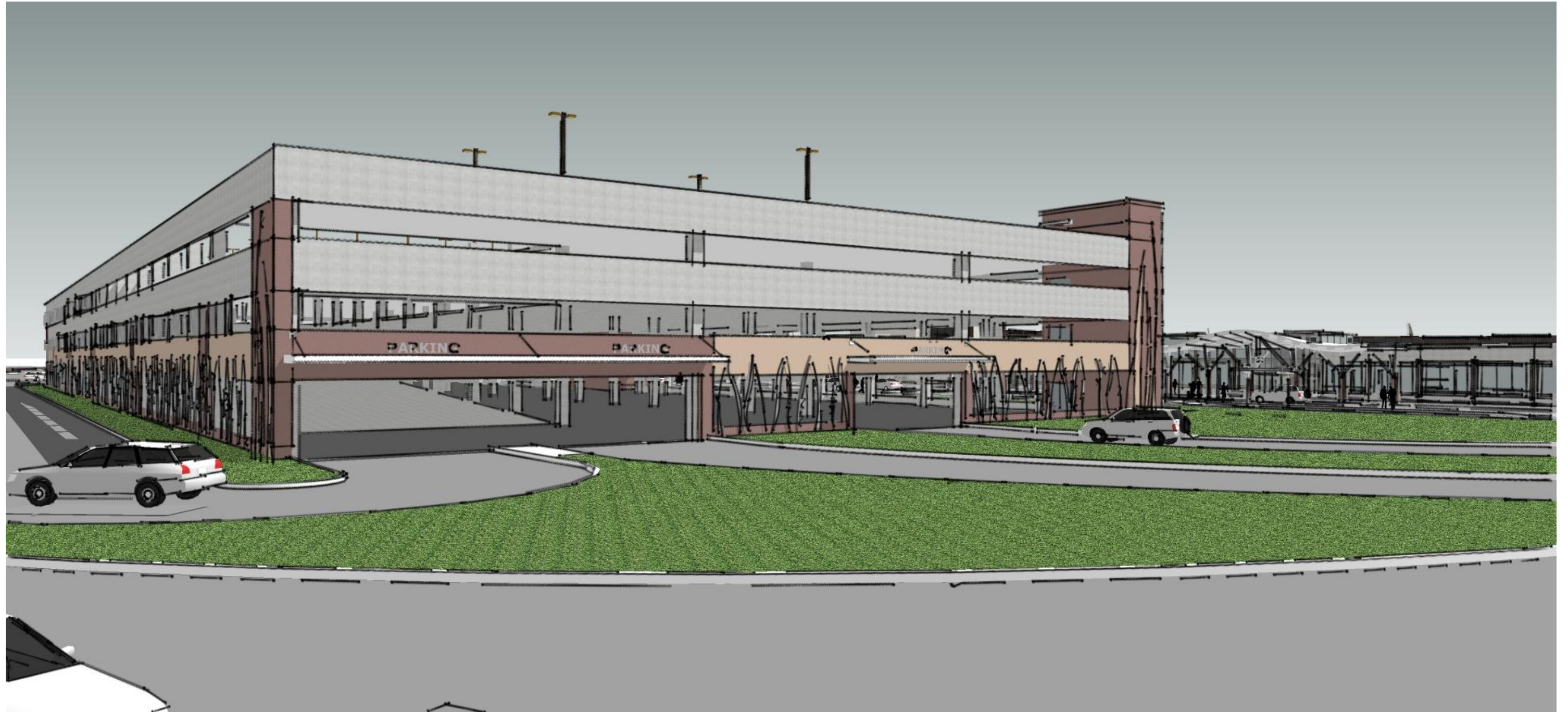
## Parking Garage Pre-Design

Architectural Renderings:

**2- Access Control**

*Appendix*





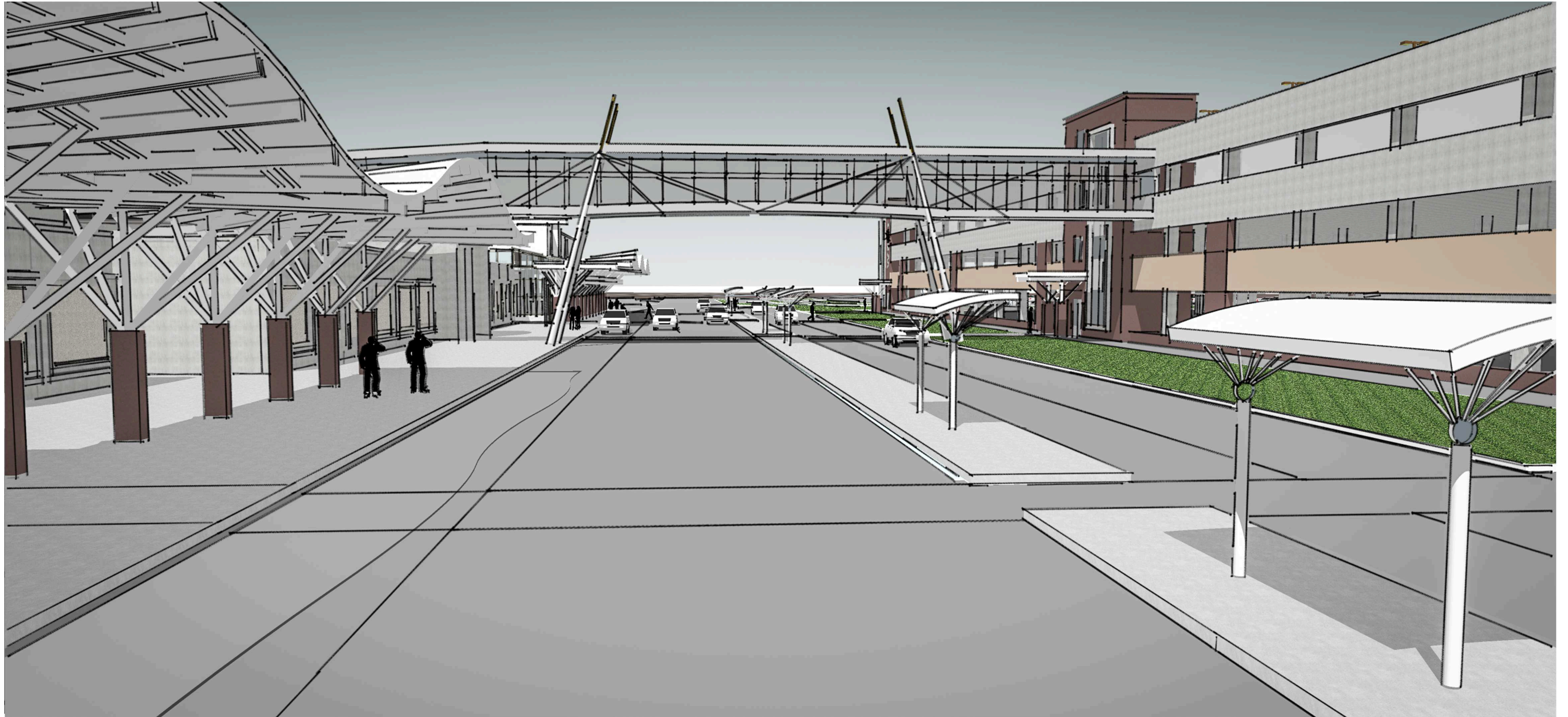
## Parking Garage Pre-Design

Architectural Renderings:

**3- Entry Portal**

*Appendix*





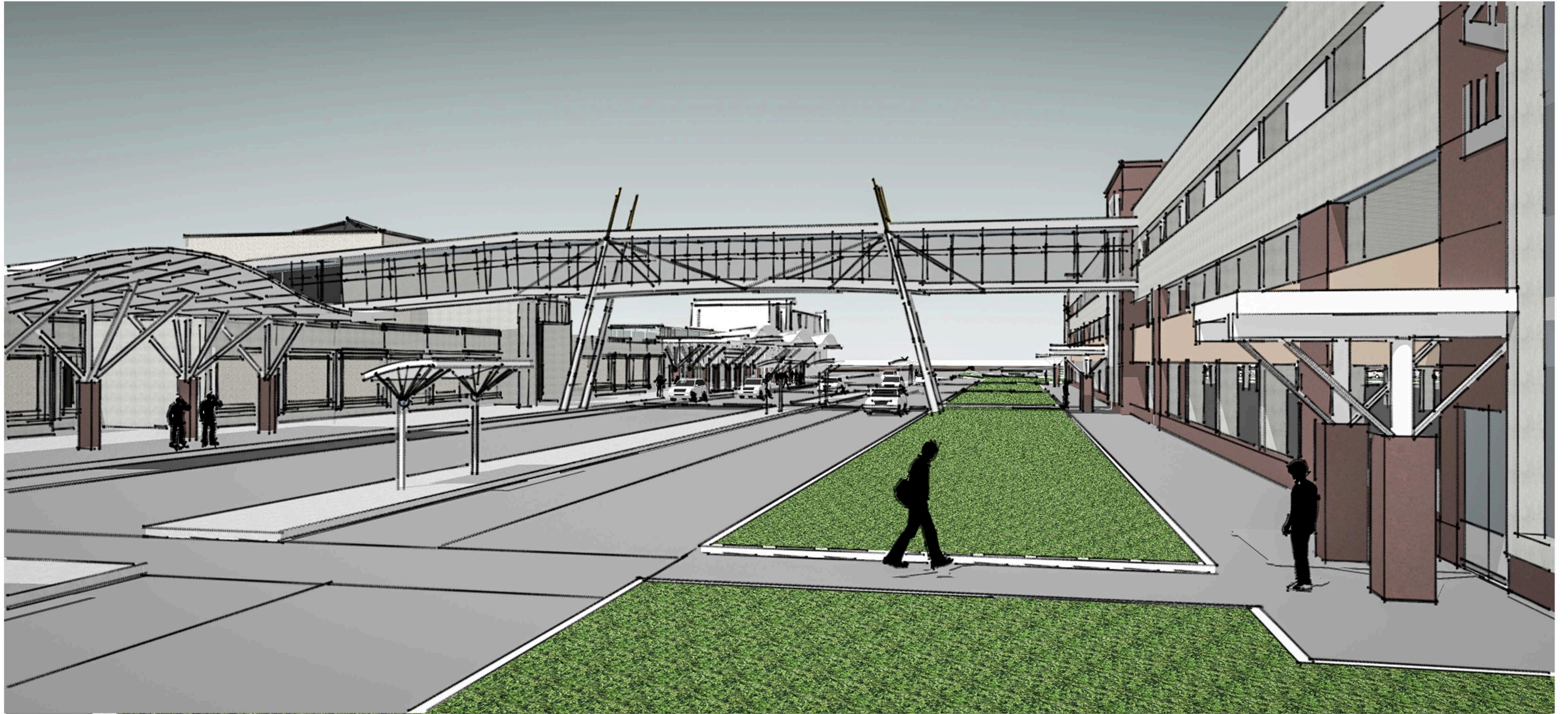
## Parking Garage Pre-Design

Architectural Renderings:

**4- Terminal Destination**

*Appendix*





## Parking Garage Pre-Design

Architectural Renderings:

### **5- Garage Setback**

*Appendix*





## Parking Garage Pre-Design

Architectural Renderings:

**6- Terminal Overview**

*Appendix*





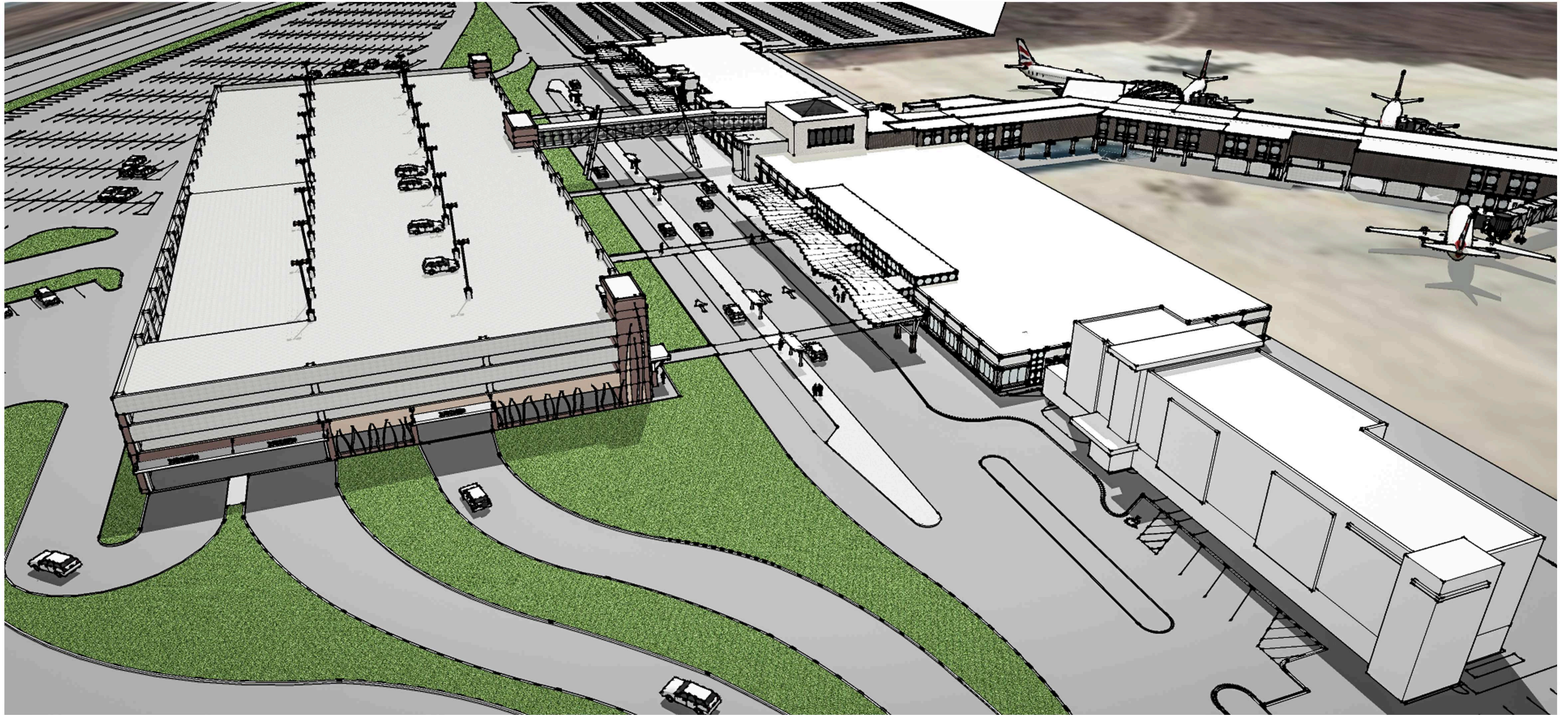
## Parking Garage Pre-Design

Architectural Renderings:

**7- Rear Portal**

*Appendix*





## Parking Garage Pre-Design

Architectural Renderings:

**8- Garage Overview**

*Appendix*





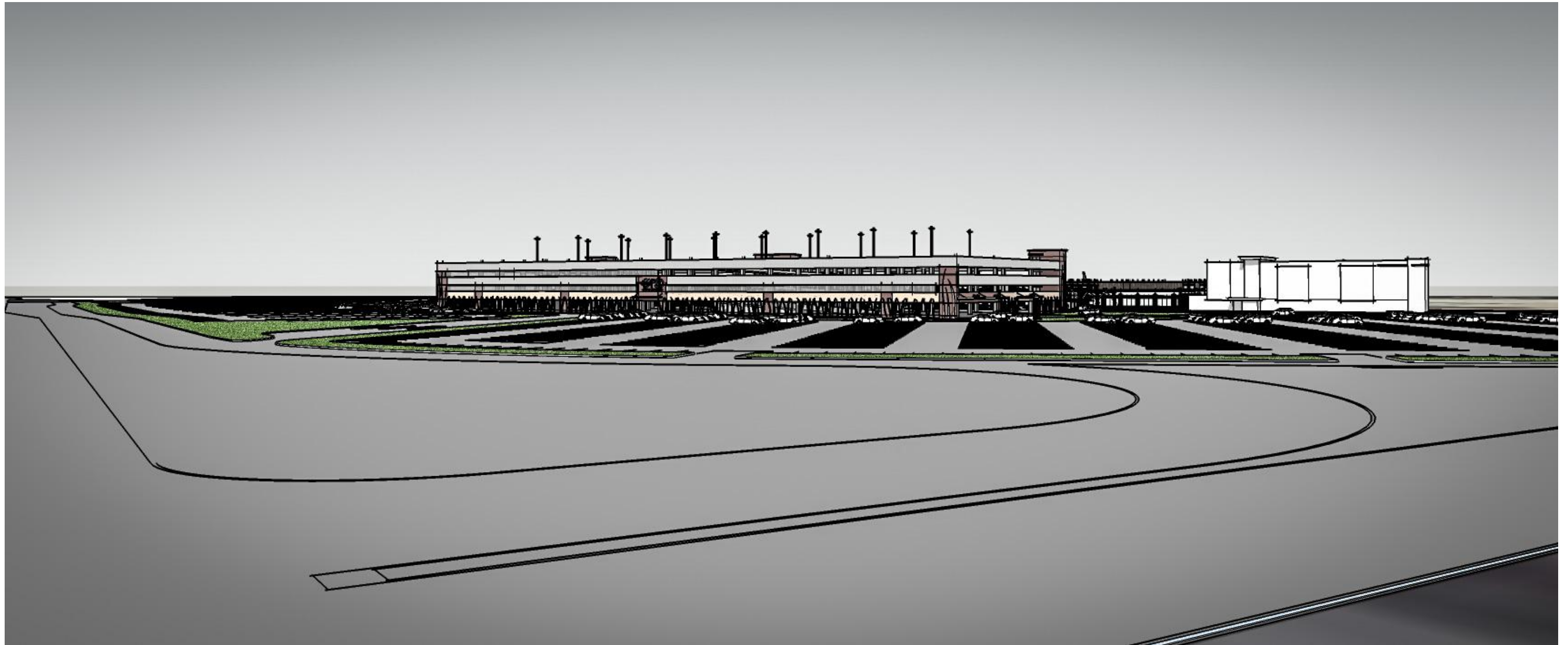
## Parking Garage Pre-Design

Architectural Renderings:

### **9- Skyway Connection**

*Appendix*





## Parking Garage Pre-Design

Architectural Renderings:

**10- Minnesota Avenue / Jaycee Lane**

*Appendix*



## Parking Garage Pre-Design

Architectural Renderings:

**11- Minnesota Avenue / Exit**

*Appendix*

