NEW TECHNOLOGY RESERVE GRANT PROGRAM
ADVANCED TRANSIT AND TRANSPORTATION PROJECTS

Fiscal Year 2020-2021 Grant Application

Project/Program Name/Description: Fresno Yosemite International Airport Parking Structure – Technology Upgrades Automated Parking Guidance System, Pay on Foot Kiosks, Electric Vehicle Charging Stations and Canopy Mounted Solar Power Generation		
Lead Agency (Applicant) Legal Name: City of Fresno – Airports Department		
Physical Address (No P.O. Box): 4995 East Clinton Way		
City: Fresno	County: Fresno	Zip: 93727
Contact Person (Grant Manager): Mark Davis, Airports Planning Manager		
Phone: 559-621-4532	Email: Mark.Davis@fresno.gov	

Name of Authorizing Representative certifying that the information contained in this application is true and accurate:

Printed Name: Mark W. Davis Title: Airports Planning Manager

Email Address: Mark.Davis@fresno.gov

Signature: Mark W Davis 7/21/2020

Fresno Council of Governments

2035 Tulare Street, Suite 201
Fresno, CA 93721
(559) 233-4148

APPLICANT CHECKLIST/TABLE OF CONTENTS

Applicants should use this checklist to ensure that all applicable parts of the application and attachments are completed and submitted.

BACKGROUND

The Fresno Council of Governments (Fresno COG) is seeking proposals from eligible public agencies for advanced transit projects that have the potential for broad benefits to Fresno County residents and will assist the region in meeting its air quality goals. Fresno COG is proposing to fund projects of regional significance in the areas of research, development, demonstration, and deployment that will advance public transit and transportation.

Fresno COG is a consensus builder, developing acceptable programs and solutions to issues that do not respect political boundaries. Fresno COG is a voluntary association of local governments, one of California's 38 regional planning agencies, and one of 500+ nationwide. In 1967 elected officials of Fresno County and its incorporated cities informally created the agency, formalizing Fresno COG in 1969 through a Joint Powers Agreement. Fresno COG undertakes comprehensive regional planning with an emphasis on transportation, provides citizens an opportunity to be involved in the planning process, and supplies technical services to its members.

Fresno County voters approved Measure C, a ½ cent transportation sales tax, in 1986 and again in 2006. Fresno COG prepared the Measure C Expenditure Plan, a guide to how $1.2 billion in Measure C transportation dollars will be spent through the year 2027. It was prepared with our partners, the cities, the County, Caltrans and the Fresno County Transportation Authority (administrators of the tax) and other community stakeholder groups. In its first 20 years, Measure C delivered more than $1 billion of improvements to state highways and county roadways, and has helped the building of additional lanes and freeway improvements throughout the County. As a result of the successful original measure, Fresno County voters chose to extend Measure C for an additional 20 years. The Measure C Extension (2007-2027) not only funds improvements of local roadways by repairing potholes and paving streets and sidewalks, but also funds ride-share incentive programs and environmental enhancement programs.

The Fresno County Transportation Authority (FCTA) is the entity created by legislation to administer the Measure C Program(s) and ensure the revenue is received and distributed appropriately. Fresno COG is responsible for the implementation of several Measure C programs including the Measure C New Technology Reserve Grant Program (New Technology Grant Program). For information on the Measure C sales tax visit www.measurec.com.

This Request for Proposals (RFP) is being issued to eligible public agencies within Fresno County including the Fresno COG, Fresno County Rural Transit Agency, Fresno County, and the cities in Fresno County who propose projects meeting the eligibility requirements of the Measure C New Technology Reserve Grant Program and demonstrate the need for advanced transit and transportation. Entities deemed ineligible to apply for New Technology Grant funds may apply as a partnering agency but **must** partner with an **eligible** applicant that will be responsible for implementing the project. **Agencies wishing to request to partner with Fresno COG must submit an electronic copy of their proposal by June 18, 2020.** The implementing agency assumes responsibility and accountability for the use and expenditure of program funds. The eligible public agency will need to sign a Cooperative Agreement with the FCTA.

FUNDING DISTRIBUTION/TIMELINE

The Measure C New Technology Program makes $5.38 million available for the Fiscal Year 20/21 award cycle. An additional $6,000,000 - $9,000,000 can be made available over time through the next 5 years. Fresno COG will release an Application for New Technology Projects/Proposals on a biennial basis.

Fresno COG is committed to ensuring that grant funding from the RFP is equally distributed throughout the Fresno County Region to the extent feasible. From the most qualified proposals with the highest scores, Fresno COG will select projects for funding in a manner that is consistent with this commitment.

Fresno COG reserves the right to reject all proposals and make no awards under this announcement if the proposals submitted do not meet the goals of this RFP.

TIMELINE:

ACTIVITY	**DATE**
Request for Proposals Released	April 10, 2020
Last day to submit requests for clarification	June 4, 2020
Deadline for Electronic Proposal Submittal for agencies	
requesting to partner with Fresno COG	June 18, 2020
Deadline for Proposal Submittal	July 22, 2020
Scoring (Tentative)	July 27 - August 14, 2020
Potential Interviews (Tentative)	August 17 - 28, 2020
Policy Board Approval (Tentative)	September 24, 2020
FCTA Board Approval (Tentative)	October 28, 2020
Notice to Proceed - Subject to Contract Signing (Tentative)	January 2021

GOALS AND OBJECTIVES

The goal of the New Technology Reserve Subprogram is the set-aside Measure "C" funding to finance new transit technologies that may be developed in the future. To further its Measure C New Technology Program goals, Fresno COG is focusing on technological advances in public systems, safety features, fuel efficiencies and alternatives, intelligent transportation system (ITS) applications, and information dissemination. These areas help to promote passenger safety and satisfaction, attract customers, improve capital and operating efficiencies, reduce environmental pollution, and ease dependence on fossil fuels.

Expenditures on funded projects must be directed into the Fresno County economy, and must have a strong potential to attract future financial investment in that economy. To the extent possible, the Measure C New Technology Program funds should be used to leverage additional funding from other sources to create more viable projects.

Examples of eligible projects or project components include, but are not limited to:

1. The evaluation of viability and local benefits of new transit technologies.
2. Planning, design and construction of new transit technologies, including construction of track and ancillary improvements
3. Purchase of vehicles only if they are an integral part of a new-technology system, not replacement vehicles in an already existing system; hiring of staff to seek additional funding for new transit technologies after project is awarded
4. Environmental Review
5. Right-of-way acquisition
6. Other necessary projects, programs, systems, or services that enable new technology transit and transportation systems to provide the desired objectives.

Previous cycles awarded the following types of projects:

1. Public transit buses retrofitted with Near-Zero Emission engines
2. Electric public transit vehicles
3. Electric school buses
4. Solar tree charging stations
5. Electric aircraft/commercial flight training service
6. University Transportation Institute
7. BRT Route Synchronization
8. Advanced Propulsion Systems Training Program

APPLICANT ELIGIBILITY

Public Agency

This application is open to selected eligible public agencies within Fresno County. These agencies include:

- Fresno Council of Governments
- Fresno County
- Incorporated cities within Fresno County
- Fresno County Rural Transit Agency

Entities deemed ineligible to apply for New Technology Grant funds may apply as a partnering agency but **must** partner with an **eligible** public agency that will be responsible for implementing the project. Eligible public agencies wishing to partner will need a resolution from their governing body. This resolution must be submitted as an attachment to this application. In addition, public agencies must attach an authorizing resolution, designating a person authorized to sign on behalf of the agency, as an Appendix to the application. Furthermore, if a school district is one of the partnering agencies, a resolution from the school district's board must be submitted as an attachment to this application.

Eligible Public Agencies must provide a representative's contact information.

Legal Name of Applicant: City of Fresno – Airports Department		
Address: 4995 East Clinton Way		
City, State, and Zip: Fresno, CA 93727	Phone: 559-621-4500	Email: Kevin.Meikle@fresno.gov

Eligible Public Agency's Representative

Name (print): Mark W. Davis	Title (print): Airports Planning Manager
Signature:	Date: 7/21/2020
Email: Mark.Davis@fresno.gov	

APPLICANT ELIGIBILITY

Civil Rights

Describe any lawsuits or complaints that have been received or acted on in the last year based on Title VI of the Civil Rights Act or other relevant civil rights requirements by the partnering agency and/or the eligible applicant. This list should include only those lawsuits or complaints that pertain to allegations of discrimination on the basis of race, color, and/or national origin that pertain to the department of the agency submitting this application, not necessarily the larger agency of which the applicant is a part.

There were no lawsuits or complaints received or acted on by the City of Fresno, Airports Department, in the last year relating to Title VI or other relevant Civil Rights requirements.

Furthermore, provide a status of lawsuits or an explanation of how complaints were resolved including corrective actions taken.

If **NO** lawsuits or complaints were received or acted on – subrecipient must provide the following statement:

THERE WERE NO LAWSUITS OR COMPLAINTS RECEIVED OR ACTED ON IN THE LAST YEAR RELATING TO TITLE VI OR OTHER RELEVANT CIVIL RIGHTS REQUIREMENTS.

GRANT APPLICATION PROCEDURES

Project Selection Process

All project applications will be evaluated in accordance with the scoring criteria on pages 8-23 to determine the extent to which the proposed project meets the overall program goals and objectives of the programs. **Fresno COG will use volunteers from various multidisciplinary groups to recommend projects for funding through a competitive process and recommend funding levels.**

Fifteen (15) bound hard-copies, one (1) reproducible copy and one electronic copy (on CD or flash drive) of the **application must be submitted to Fresno COG before noon on July 22, 2020**. All copies shall be securely bound, e.g. spiral or comb bound (no clips, clamps, ringed binders, or rubber bands) except for the one reproducible copy. **All printing (including appendixes, but excluding maps) shall be limited to no more than 50 pages. All printing must be double-sided. If an application is single sided or over 50 double-sided pages, it will be rejected.** The original application must be marked "ORIGINAL COPY". All documents contained in the original application package must have original signatures. The copies of the application may contain photocopies of the original package (so long as the maps, photographs and other detailed exhibits are in color and/or high resolution that clearly depicts all relevant information.)

Applications must be submitted to the following address:

Fresno Council of Governments
2035 Tulare Street, Suite 201
Fresno, CA 93721

To the attention of: Peggy Arnest

Inquiries and Updates: Requests for clarification regarding this application must be submitted in writing via email to Peggy Arnest at parnest@fresnocog.org, and received by Fresno COG no later than 4:00 pm, Thursday, June 4, 2020. Such information as is reasonably available and will facilitate preparation of responses hereto; requests for clarification and associated responses; and any Addenda to this RFP will be posted at: http://www.fresnocog.org/Doing-Buisness-With-Fresno-COG and will not otherwise be distributed.

The information in this application is public record. Therefore, applicants should not include information regarded as confidential.

GRANT APPLICATION PROCEDURES

Transmittal Letter

A. Applicant Information:	
Legal Name: City of Fresno – Airports Department	
Address: 4995 East Clinton Way	
City/State/Zip: Fresno, CA 93727	
Contact Person: Mark W. Davis, Airports Planning Manager	
E-mail: Mark.Davis@fresno.gov	
Phone: 559-621-4532	Fax: 559-251-4825
B. Project Type (check one):	
☒ Capital Only	☐ Capital and Operating
☐ Operating Only	☐ Other, please specify___Planning Project_____
C. Project Information:	
Project Title: Fresno Yosemite International Airport Parking Structure – Technology Upgrades	
Project Description: *(Location/Boundaries, Nature of Project, Scope):* The Fresno Yosemite International Airport Parking Structure Project is located in the Terminal parking lot at 5175 E. Clinton Way, Fresno, CA. The proposed Technology Upgrades, which are the subject of this application, will ethe new facility with an Automated Parking Guidance System, Pay on Foot Kiosks, Electric Vehicle Charging Stations and Canopy Mounted Solar Power Generation.	
D. Funding Request:	**FFY 2020/2021**
New Technology Funds Request:	$ 4,100,000
Total Matching Funds: *(DOT federal, state, local, private, etc.)*	$ 35,000,000
Total Cost of Project:	$ 39,100,00.00
E. Authorized Signature:	
Name (print): Mark W. Davis	
Title (print): Airports Planning Manager	
Signature: Mark W. Davis	Date 7/21/2020

PROJECT/PROGRAM ELIGIBILITY - Subjective Evaluation (0 – 15points)

APPLICATION INSTRUCTIONS:
NARRATIVE RESPONSES SHOULD BE CLEAR, COMPLETE, AND CONCISE. INSERT ADDITIONAL SPACE WHERE NEEDED TO COMPLETE QUESTIONS (e.g., application for page 8, continuing pages should be numbered 8a, 8b, 8c…etc.). ALL ADDITIONAL DOCUMENTATION SHOULD BE INCLUDED IN A DISTINCTLY LABELED SECOND PART OF YOUR APPLICATION LABELED AS THE "APPENDIX." THE NARRATIVE SHOULD INDICATE SPECIFIC DOCUMENTATION AND INCLUDE A REFERENCE TO WHERE IT CAN BE FOUND IN YOUR APPENDIX. USE MULTIPLE TABS IN THE APPENDICES, IF NEEDED, TO IDENTIFY CORRESPONDING DOCUMENTATION.

1. Provide a brief executive summary of your project/program – **no more than 100 words**. Include a description, objective, information on the organization and the partnering agency (if any). Provide a summary of the funding request, total project/program cost, and important timelines. There is a question asking for a detailed description of the project/program in the Readiness section on page 11.

   The City of Fresno Airports Department is constructing a new 900 stall, multi-story parking structure in the existing surface parking lot at Fresno Yosemite International Airport (FAT). The proposed technology components funded by this grant will provide Automated Parking Guidance, Pay on Foot Kiosks, Electric Vehicle Charging and Solar Power Generation. These state-of-the-art elements will facilitate efficient movement of vehicles, encourage electric vehicle usage, provide "net-zero" electricity consumption for the building and improve cue/wait times throughout the Airport parking system while serving to reduce air pollution and energy consumption, enrich the customer experience and complement the Airport's sustainability goals.

2. **Briefly** describe the geographic area that will be served by the project/program.
   Attach an 8½ x 11 map of the service area.

   FAT is a regional transportation hub serving Fresno County and the Central San Joaquin Valley with a geographically large catchment area including over 2 million people in the County and beyond. (Attachment 2 – Catchment Area Map)

PROJECT/PROGRAM ELIGIBILITY - Subjective Evaluation (continued)

3. Briefly list and describe all agencies with which your eligible public agency will partner with on this project/program. (If your public agency is not partnering, then please skip to the next page.)

N/A - There are no partners included in this project

This information should include, but not be limited to the following:

- General business history

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- General experience with the development and implementation of transportation projects/programs

- Specific experience with projects similar to the proposed project/program

- Ability to deliver projects/programs in a timely manner. Provide examples.

PROJECT/PROGRAM ELIGIBILITY - Subjective Evaluation (continued)

4. Briefly describe the following aspects of your project/program, if applicable:

   - Consistency with the most current adopted Regional Transportation Plan & Sustainable Community Strategy (RTP/SCS). Cite applicable verbiage from the 2018 RTP/SCS and the Chapter and Page numbers where found.

The City of Fresno Airports Department (Airport) will soon begin construction on a new multilevel parking garage. Numerous technology enhancements are available to further align the Project with various goals of the 2018 Regional Transportation Plan. Proceeds from a Measure C New Technology Grant, would allow the Airport to provide an Automated Parking Guidance System (APGS), Pay-on-Foot Kiosks (POF), electric vehicle (EV) charging stations and a rooftop photovoltaic (PV) system which will serve to reduce congestion, conserve energy, reduce air pollution and increase operational efficiency consistent with the following policies outlined in Chapter 2 of the 2018-2042 RTP/SCS.

Table 2-1A:

- *Develop air transportation facilities and services that are complementary to other modes of transportation. (APGS), (POF), (EV), (PV)*

Table 2-1B:

- *Manage the transportation system in a manner designed to increase operational efficiency, conserve energy and space, reduce air pollution and noise, and provide for effective goods movement, safety, personal mobility and accessibility. (APGS), (POF), (EV), (PV)*
- *Procure and leverage federal, state and local transportation funding to the maximum degree possible, in order to develop a regional transportation network which serves the residents of the region in the most economical, effective and efficient manner possible. (APGS), (POF), (EV), (PV)*

Table 2-1E:

- *Encourage energy conservation through alternatives to single occupancy vehicles, increased transportation efficiency and facility design. (APGS), (POF), (EV), (PV)*
- *Project level decisions should give priority to safety, air pollution reduction, noise impacts and energy conservation considerations. (APGS), (POF), (EV), (PV)*

Table 2-1G:

- *Improve vehicular flow and efficiency of the region's circulation system using intelligent transportation systems where feasible. (APGS), (POF)*
- *Encourage non-single occupancy and lower/zero emission vehicles as preferred alternatives. (EV)*
- *Support the development of infrastructure required for alternative fueled vehicles as well as zero emission vehicles. (EV)*

Table 2-2A:

- *Develop a convenient, safe and efficient interface between transportation modes. (APGS), (POF)*

Table 2-2B:

- *Support research, development, demonstration projects, and deployment of new and innovative technologies. (APGS), (POF), (EV), (PV)*

Table 2-4:

- *Encourage air travel as an energy efficient mode of transportation for long-distance travel. (APGS), (POF), (EV), (PV)*

- Describe how this project/program will be integrated into the member agency's circulation element of its general plan or their Complete Streets Policy.

The installation of enhanced parking technology (which includes Automated Parking Guidance Systems and Pay-on-Foot machines), electric vehicle charging stations and a rooftop photovoltaic system in the new FAT Parking Structure, aligns with a number of the City of Fresno General Plan goals and policies included in both the Mobility & Transportation (aka circulation element) and Resource Conservation chapters.

Goal 13 of the General Plan states that the City will act as a role model for environmental quality, while policies MT-8-e and RC-4-a both address the need for regional collaboration to promote efficient transportation and air quality improvement. As an airport that provides an important service to the region, the installation of technologies such as solar panels enhanced parking systems, and EV stations will be a step toward reducing the impact of increased demand for vehicle travel to the airport. Policy RC-4-k also speaks directly to the General Plan's desire for charging infrastructure to accommodate the growth of electric vehicles.

The General Plan additionally contains specific objectives and policies related to the improvement of airport facilities, such as MT-12 that directs the operation of the airport to meet present and anticipated demands; MT-12-a that supports the pursuit of funding to provide a modern and efficient infrastructure for the airport; and MT-13-d that instructs the development of airport properties to support economic growth.

The PV system, EV charging stations, and enhanced parking technology system will a) reduce energy consumption so the structure will have net-zero energy use, b) will reduce idling and circulation time for parking, and c) increase access to electric vehicle users. Together, these proposed systems work towards the General Plan vision of promoting a competitive airport while improving air quality and transportation efficiency.

***Policy MT-8-e:** Regional Coordination. Continue to work with local and regional governmental institutions to promote efficient transportation policies and coordinated programs.*

***Objective MT-12:** Operate the City's municipal airport facilities to meet present and anticipated demands in a manner that maintains compliance with federal regulations, enhances safety to the public, minimizes the adverse effects of aircraft operations on people, and promotes the economic health of the community.*

***Policy MT-12-a:** Funding for Airport Capital Improvements. Pursue appropriate funding*

sources and capital improvement budget enhancements that will:

- *Provide a modern, safe, and efficient municipal airport terminal facility including the Federal Inspection Station and airfield;*
- *Maintain airfield compliance with FAA Part 139 operating requirements;*
- *Maintain financial self-sufficiency and long-term sustainability; and*
- *Continue to implement the master plans for FYI Airport and Fresno Chandler Executive Airport to meet projected air passenger travel, air cargo transportation and general aviation demands.*

Policy MT-13-d: *Airport Property Development. Develop airport properties as outlined in the applicable airport and environs master plans to support economic growth.*

Objective RC-1: *Make efficient use of existing and future public infrastructure*

Policy RC-4-a: *Support Regional Efforts. Support and lead, where appropriate, regional, efforts to monitor and control air pollutants from both stationary and mobile sources and implement Reasonably Available Control Measures in the Ozone Attainment Plan.*
Commentary: A list of Reasonably Available Control Measures was submitted by the SJVAPCD to the U.S. Environmental Protection Agency as part of the Ozone Attainment Plan designed to reduce ozone-forming emissions. The City is responsible for implementing measures related to operations and/or services that the City controls.

Policy RC-4-k: *Electric Vehicle Charging. Develop standards to facilitate electric vehicle charging infrastructure in both new and existing public and private buildings, in order to accommodate these vehicles as the technology becomes more widespread.*

Goal 13. *Emphasize the City as a role model for good growth management planning, efficient processing and permit streamlining, effective urban development policies, environmental quality, and a strong economy. Work collaboratively with other jurisdictions and institutions to further these values throughout the region.*

PROJECT/PROGRAM ELIGIBILITY - Readiness (0 – 10 points)

1. Provide a detailed description of the project/program.

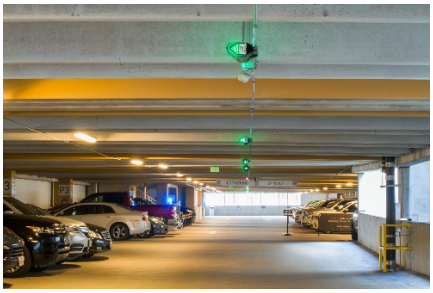
FAT is a regional transportation hub and the only primary air carrier airport in the Fresno COG planning region. To ensure that FAT continues to serve the air transportation and economic development needs of Central California, the City of Fresno Airports Department (Airport) commissioned an Airport Master Plan Update which was completed in 2018. The study provides a strategic vision for the growth and operation of the Airport in a responsible and fiscally feasible manner over the next 20 years. As part of that vision and in response to growing demand in the Central Valley, the Airport is embarking on a multi-year, multi-phased expansion program to support the region's ongoing growth and to maintain the safe and efficient movement of aircraft, vehicles, passengers and products in and around the Airport. Implementation of these projects has been branded "FATforward" to identify their role in moving Fresno and the surrounding region forward. FATforward projects include Terminal Building and Apron expansion, a new Federal Inspection Station to support increased International travel and a new multi-level Parking facility.

The Airport has secured funding for a new 4-level, 900 space parking garage and will begin construction in August 2020. The proceeds of a Measure C New Technology Grant would leverage the funding already in place to provide technology elements that will minimize vehicle miles traveled, lessen dependence on fossil-fuels, reduce greenhouse gas emissions and contribute to a safer, more convenient, parking experience consistent with the New Technology Program local objectives outlined in the RTP (Ch. 4, p. 4-48).

The proposed technology enhancements include an Automated Parking Guidance System (APGS), Pay-on-Foot (POF) kiosks, electric vehicle (EV) charging stations and a rooftop photovoltaic (PV) system, as described in detail below.

<u>AUTOMATED PARKING GUIDANCE SYSTEM</u>

An Automated Parking Guidance System is a specialized Intelligent Transportation System that utilizes a variety of advanced technologies to present drivers with dynamic traffic monitoring, active guidance, and variable messaging resulting in a safe, efficient and environmentally friendly parking experience.



APGS's utilize modern sensor technology to determine the number and location of available parking spaces in a parking facility, and then push information to parkers about those open spaces via a combination of overhead guidance lights inside the garage and

digital message signs both inside and outside the garage. APGS systems can also support added-value features such as License Plate Recognition (LPR) to make car location and parking payment easier while also enhancing security.

The APGS will be designed into the new airport garage from the start, in order to have the most efficient and cost-effective installation. Although these systems can be retrofitted after a garage is fully constructed, the installation cost would be higher.

The proposed APGS will incorporate "single space" technology, which provides tracking of and guidance to specific open spaces in the garage. This type of system has become the "APGS of choice" for many customers over the last few years, in particular for airports. Many major airports, including nearby facilities such as SFO, have opted for these systems.

This adaptive form of parking guidance minimizes circling and contributes to an improved "time to park" which will decrease congestion and shorten wait times at garage entrances, in parking lanes, and at the exits. By streamlining the parking experience, an APGS will lessen both vehicle miles traveled and idling time, translating into reductions in congestion, energy consumption, air pollution and greenhouse gas emissions.

<u>PAY ON FOOT KIOSKS</u>

POF kiosks will be provided as a convenient method to speed up the payment process when travelers exit the Terminal Parking Lot. On entry, via an automatic barrier, the customer will receive a ticket with a barcode which will be retained by the parker for the duration of their stay. This ticket is then fed into the POF machine when the parker is ready to leave the facility. The customer is presented with the correct fee and makes payment at the kiosk. The payment machine will issue a ticket that will enable them to exit the parking lot by inserting the ticket into an unmanned gate arm machine.

A study conducted by Walker Consultants found that it takes an average of 26 seconds for a traveler to pay the cashier with cash at the exit booth; 24 seconds to pay with credit card; and 8.3 seconds at the exit for those who have used the POF kiosks. This advanced POF technology allows customers to exit an average of 3 times quicker than those using cash or credit cards at the exit booth. This efficiency translates into less congestion and a reduction in GHG emissions by decreasing the amount of time vehicles spend idling in line or making payments at the exit plaza booths and is further enhanced as more customers turn to POF kiosks as the preferred payment option. Consequently, this project element would help improve cue/wait times and frustration at the exit plaza for all parking

passengers. The large-format displays on the POF kiosks could also be used to provide travelers with helpful information on tariffs, tips on the surrounding area, weather, etc., thus furthering the region's economic well-being.

ELECTRIC VEHICLE CHARGING STATIONS

The Airport currently has 38 EV charging stations available to employees and the public, which are heavily used and at times full. This project will provide 14 new "no fee" EV charging stations (including infrastructure) in the new parking structure and additional infrastructure for up to 44 future charging stations. This investment will encourage the use of electric vehicles by providing additional "no fee" charging options in the region and afford confidence to travelers that their vehicles will be fully charged when they return home. The resulting increase in the use of electric vehicles will contribute to reductions in air pollution and greenhouse gas emissions.

SOLAR POWER GENERATION SYSTEM

The upper deck of the Parking Structure will be provided with 23,400 square feet of shade canopies upon which photovoltaic (PV) panels will be mounted. The proposed 400 kw Solar Power System will generate approximately 630,000 kwh of useable AC power annually, sufficient to meet the electrical power needs of the garage.

2. Describe the project/program work plan. This section of the application documents the current delivery phase of a project/program and the applicant's proposed schedule for implementation. For each of the project milestones or significant stage in development, applicants must list the dates that previous milestones were completed or the dates applicants anticipate completing current and/or future milestones.

The various elements of this grant proposal have been included as optional components of the larger FAT Parking Structure Project. These technology upgrades will be added to the construction scope of work as funding becomes available. Program milestones include:

Airport Master Plan Update – February 2019 (completed)
Progressive Design-Builder Recruitment – September 2019 (completed)
City Council Award of Phase One (Design) services – December 2019 (completed)
CEQA Mitigated Negative Declaration – February 2020 (completed)
Schematic Design Phase – January 2020 (completed)
Design Development Phase – March 2020 (completed)
Construction Documents – March 2020 thru July 2020
City Council Award of Phase 2 (Construction) services – August 2020
Construction – August 2020 thru October 2021

3. Applicants must demonstrate the ability (staff and resources) of the agency to complete the project/program on time and within budget. Attach a project/program schedule in the appendix.

The FAT parking garage project has been fully defined and planned, resources allocated, and staffing to manage its execution are in place. The project is being delivered as a Progressive Design Build procurement, which provides the highest level of cost and schedule certainty.

(Attachment 3 – Construction Schedule)

PROJECT/PROGRAM ELIGIBILITY - Environment (0 – 5 points)

1. Describe if and how the project/program will reduce greenhouse gas emissions.

AUTOMATED PARKING GUIDANCE SYSTEM

An APGS and related wayfinding tools effectively guide a motorist through the parking structure with real-time information about the location of available parking stalls. The intrinsic efficiencies in such a system will reduce distances traveled to locate parking, minimize vehicle idling due to congestion within the facility and decrease the distance traveled to exit the structure. These measures translate to a reduction in the amount of fuel used to park a vehicle and a corresponding decrease in greenhouse gas emissions..

A 2018 industry study at Brisbane Airport in Australia (BNE) demonstrates these benefits. Although FAT's number of annual passengers (2M/year) is less than BNE's, we believe that the BME results can be extrapolated to apply to FAT and demonstrates a significant positive contribution toward improving air quality in the Fresno area.

(Attachment 4 – BNE Whitepaper)

PAY ON FOOT KIOSKS

POF kiosks will be provided as a convenient method to speed up the payment process when travelers exit the Terminal Parking Lot. Historically it takes approximately 25 seconds per vehicle to pay the cashier at the exit plaza. A study conducted by Walker Consultants analyzed dwell times in various scenarios: 26 seconds for pay by cash; 24 seconds for pay by credit card; and 8.3 seconds for those who use the POF kiosks. This represents an average of 3 times quicker than those using cash or credit cards at the exit booth. This efficiency translates into a reduction in GHG emissions by decreasing the amount of time vehicles spend idling in line, or making payments at the exit plaza toll booths and is further enhanced as more customers turn to POF kiosks as the preferred payment option.

ELECTRIC VEHICLE CHARGING STATIONS

FAT will provide 14 new "no fee" EV charging stations (including infrastructure) and additional infrastructure for up to 44 future EV charging stations in the new parking structure. This investment will encourage the use of Electric Vehicles by providing a "free" charge and help with "range anxiety" by giving EV drivers the confidence that their vehicle will be fully charged for the trip home.

Electric Vehicles emit no Greenhouse Gas. Even when factoring in the greenhouse gases emitted by the power company to provide the electricity for charging, an Electric Vehicle accounts for the equivalent greenhouse gas emissions as a gasoline powered vehicle getting 109mpg! Anything that can be done to encourage the use of Electric Vehicles will have a direct impact on reducing GHG emissions.

SOLAR POWER GENERATION SYSTEM

Solar produces less life-cycle GHG emissions than conventional fossil fuel energy sources. While there may be some GHG emissions produced during the manufacturing and recycling of a photovoltaic system, the actual energy generated by the sun results in zero GHG emissions and zero environmental impact. The proposed system will be sized to make as much electrical power as the building uses, including for EV charging. This "net-zero" energy status translates to building operations that will generate "net-zero" greenhouse gas emissions.

2. Describe if and how the project/program will improve the environment in other ways.

Environmental improvements beyond GHG emission reductions can be realized through the implementation of APGS which serves to increase the occupancy rate by providing guidance to specific open stalls within the Parking Structure. This increase in occupancy, also called "infill", leads to a better-utilized garage facility and can potentially avoid or delay the need to build additional structures resulting in a reduction in use of open land, minimized impervious paved surfaces and less construction-related pollution.

PROJECT/PROGRAM ELIGIBILITY - Public Benefit (0 – 15 points)

1. Describe how the project/program will impact and provide a direct public benefit to Fresno County residents that are both transit and non-transit users.

   Transit Users:

   The APGS and POF kiosks will directly benefit Fresno County residents that visit or fly out of FAT by minimizing the time and frustration associated with finding a parking space and by reducing the wait time required to pay and exit the parking facility. These technology upgrades help to lessen some of the anxiety associated with flying and serve to elevate the overall customer experience at FAT. The impact on time to park and the overall customer experience has been quantified in a study conducted by Park Assist, an industry leader, at Brisbane Airport in Australia. The Whitepaper reports a significant improvement in the average "time to park" of between 33% and 36%, as well as an improvement in the overall customer experience. (Exhibit 3 – Park Assist Whitepaper)

   In addition, the inclusion of Electric Vehicle Charging Stations in the FAT Parking Structure will have a significant and direct benefit to electric vehicle owners that park at FAT. This technology infrastructure will increase the affordability and convenience of driving an electric car to the Airport by providing an opportunity to charge their vehicle for free (they will only pay for parking) and by giving EV drivers the confidence that their vehicle will be fully charged when they are ready to leave the facility.

   Non-Transit Users:

   The new FAT Parking Structure, including the proposed technology improvements, will benefit all residents of Fresno County and the region by reducing the use of roadways and the interstate highway system, minimizing congestion and improving air quality.

   A passenger choosing to park at the Airport rather than being dropped-off and picked-up has cut the number of trips to and from the Airport in half resulting in an equivalent reduction in vehicle miles traveled. Fewer vehicle miles traveled translate directly into a corresponding reduction in air pollution and less congestion on County roadways. As discussed in the previous section, each of the proposed technology improvements will also provide reductions in air pollution. Construction of a new Parking Structure with the proposed technology improvements will ensure that ample, affordable parking will be available to realize those benefits for all residents of Fresno County.

2. Explain the public need for the project/program.
   If applicable, attach a feasibility study for the project/program as an appendix. If one is not available, provide justification to how the public need was determined.

   The City of Fresno Airports Department completed an Airport Master Plan Update for Fresno Yosemite International Airport in 2018. As part of this planning effort, terminal parking inventory was evaluated based on current (2016) demand and in consideration of future needs as a function of enplanement growth. Based on preferred utilization rates

discussed in the MPU, the effective parking capacity was reached in 2018. Surface parking was recently expanded to meet immediate demand and to accommodate losses that will be experienced during construction of the first phase of the preferred parking alternative discussed in the MPU. As a result of the recommendations outlined in the MPU and actual growth rates experienced since conclusion of the study, the Airport is proceeding with construction of a 900 stall multilevel Parking Structure. As stated previously in this application, providing ample parking in combination with the proposed technology upgrades will minimize vehicle miles traveled, lessen dependence on fossil-fuels, reduce air pollution and contribute to a safer, more convenient, parking experience.

3. Describe how the project/program will improve the economic vitality of Fresno County.

Fresno Yosemite International Airport is one of the largest drivers of economic activity in the Central Valley, in 2019 accounting for 10,769 direct, induced and indirect jobs, and $928 million in economic activity, most of which is focused within Fresno County. The project is directly tied to accommodating current ridership demands. The 609 net-new parking stalls represents a potential annual Fresno County economic impact of up to 56,028 additional direct, induced and indirect jobs, and $565,152 in annual economic activity, as interpolated from 2019 data. In 2019, an average of 10,960 people used the terminal every day, including departing and arriving passengers from throughout the US and world along with those who come to the Airport to meet and greet our passengers.

The specific project elements under this grant request are holistically tied to FAT's parking utilization rate. Customer surveys indicate that convenience and ease of use are key drivers of using FAT versus driving to an alternate airport in the LA basin or SF Bay Area.

PROJECT/PROGRAM ELIGIBILITY - Public Benefit (continued)

4. Describe the safety/security features of the project/program.

The Parking structure will be fitted with security cameras throughout, emergency "blue phone" call stations on each level and lighting levels in excess of industry standards. In addition the video obtained from the proposed APGS detection cameras can used to augment the security video surveillance system. This abundance of cameras will serve as a crime deterrent, reduce "blind spots" and help to detect suspicious activity.

Security and safety will be further enhanced by the APGS element of the proposed technology upgrades through its ability to detect and capture license plate numbers of parked vehicles, also known as License Plate Recognition (LPR). The LPR feature can be used to enhance payment processing and minimize "lost my car" situations by providing parkers an opportunity to use either a Pay on Foot kiosk or a smartphone application to determine the location of their vehicle and the most direct route to retrieve it. This will minimize the amount of time a person must spend searching through the parking structure exposed to traffic and other risks.

The LPR feature will also interface with the Airport Public Safety database to identify "flagged" license plates of stolen vehicles, Amber Alerts and vehicles associated with other criminal activity to ensure that such vehicles and their occupants are quickly and appropriately dealt with.

5. How will the project/program improve accessibility for disabled Fresno County residents?

The APGS will be configured to provide specific wayfinding information for disabled members of the community visiting the Airport. By tracking the status of each individual parking space within the garage, the system will determine availability of ADA spaces and identify their location with blue overhead guidance lights and overhead wayfinding signage as shown below. The system may be further enhanced with additional light color codes to identify parking locations set aside for those with temporary limited mobility, such as Expectant Mothers which are often indicated by pink overhead lights.

6. Describe how the project/program will improve connectivity and enhance current transportation operations.

As described above, an enhanced APGS is expected to significantly improve the parking public's customer experience at FAT through the use of technology and smartphone connectivity when retrieving their vehicle. In addition, the system will support a web-based or mobile application to display parking availability to the public while still at home, or in route to the airport, giving them knowledge through technology of the availability and location of parking before they arrive.

PROJECT/PROGRAM ELIGIBILITY - Innovation (0 – 25 points)

1. Identify and clearly describe the advanced technology(ies) utilized in the project/program and how the project/program utilizes advanced technology(ies) beyond the level of existing technology(ies) currently used in transit and transportation systems in widespread applications.

Automated Parking Guidance Systems utilize advanced camera-based or ultrasonic vehicle sensing technology to detect vehicle presence. The proceeds of a New Technology Reserve Grant will afford the Airport an opportunity to implement camera-based sensing technology, which is the most modern, advanced and feature-rich alternative. Innovative features extending beyond merely counting spaces are available with camera-based systems including: License Plate Recognition, FindMyCar, and security video interface. In addition to the sensors, the APGS proposed in this grant application utilizes advanced LED display technology for both overhead space indicator lights and for dynamic LED signage which can display full color, flexible messaging. The parking information from this and other APGS-equipped facilities could eventually be rolled up into a regional parking wayfinding system for broader public and government benefit. The technology is constantly evolving and will be optimized to meet or exceed the expectations of the travelling public and provide a positive parking experience.

Pay on Foot kiosks will provide an advanced technology alternative to the current practice of paying for parking at the toll booth when leaving the parking facility. The POF Kiosks allow patrons to pay for parking before they get to their vehicle which will reduce congestion and minimize time spent idling at the exit booths. The large-format displays on the POF kiosks could also be used to provide travelers with helpful information on local events, travel tips for the surrounding area, weather, etc., thus furthering the region's economic well-being.

2. Describe if and how this project incorporates energy storage.

The upper deck of the Parking Structure will be provided with 1,080 canopy mounted photovoltaic (PV) panels which will generate approximately 630,000 kwh of useable AC power annually, sufficient to meet the electrical power needs for the garage and for operation of the 14 new Electric Vehicle Charging Stations located in the structure. The combination of Solar Power generation and EV chargers will provide for direct, readily useable storage of energy in the batteries of electric vehicles, resulting in a conversion of sun power to emission free transportation! The project includes additional infrastructure for up to 44 future EV charging stations as electric vehicles become more popular.

PROJECT/PROGRAM ELIGIBILITY - Innovation (continued)

3. If applicable, describe how a research project(s)/program(s) will further the goal of developing and deploying new and innovative ideas, practices, and approaches.

   N/A

4. Explain how the project/program will provide more efficient and effective delivery of public transportation services through the use of the new technology or technological capacity improvements.

   More efficient delivery of public transportation in the context of an international airport environment will be achieved by decreasing the time required to find a parking place and increasing the efficiency of the payment and exiting processes.

   Parking can be an exceptionally frustrating experience at airports. Travelers are often anxious about dealing with check in procedures, getting through the security checkpoint and navigating to the boarding gate in time for their flight. An Automated Parking Guidance System will improve this first step in the overall process by providing a more efficient and effective way to quickly find a parking space while serving to ease travelers' angst and enhancing the customer experience.

   Implementation of a Pay on Foot system will further boost customer satisfaction on the return trip by providing a more efficient and effective approach to exiting the parking facility with reduced congestion at the toll booths and minimizing the time travelers spend waiting in line to leave the airport.

PROJECT/PROGRAM ELIGIBILITY - Replication & Regional Applicability (0 – 10 points)

1. Explain how the project/program has the potential for replication and/or growth in other areas of the Fresno County region.

The technology enhancements provided by Automated Parking Guidance Systems, Pay on Foot Kiosks, Electric Vehicle Charging Stations and Solar Systems similar to those being proposed in this grant application could easily be replicated at any new parking structure and may be applicable to surface parking lots or retrofitted at existing parking facilities throughout out the County.

PROJECT/PROGRAM ELIGIBILITY - Environmental Justice Benefits (0 – 10 points)

1. Describe if and how the project/program will provide **health benefits** to disadvantaged communities.

   The proceeds of this technology grant will provide an Automated Parking Guidance System, Pay on Foot Kiosks, Electric Vehicle Charging Stations and a canopy mounted Solar System for the new Parking Structure at FAT. As described previously, each of these systems will play a role in reducing air pollution which translates into a healthier environment for all residents of Fresno County including disadvantaged communities.

2. Describe if and how the project/program will provide **economic and/or improved public services** to disadvantaged communities.

   While not specifically targeted at disadvantaged communities the proposed equipment will provide significant gains in parking efficiency, offer new options for payment, advance sustainability and contribute to an enriched customer experience. This investment in advanced technology and enhanced services encourages travelers to fly out of FAT rather than traveling to the Bay Area or Southern California serving to keep those travel dollars local and retain the considerable economic benefits a flourishing International Airport brings to all residents of Fresno County including disadvantaged communities.

For more information on environmental justice areas in Fresno County, see the Fresno COG environmental justice plan found at http://www.fresnocog.org/environmental-justice.

PROJECT/PROGRAM MATCH FUNDING COMMITMENTS (0 – 10 points)

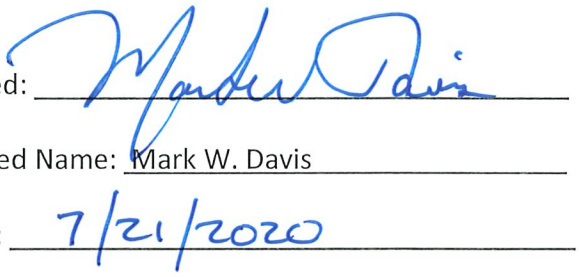
1. Discuss the project/program funding strategy, clearly indicating total cost, authorization amounts and dates for all funding sources committed or anticipated to fully fund the project. Include a contingency plan if anticipated funding does not materialize.
   Attach an electronic copy of a current audited financial statement of all agencies with which your eligible public agency will partner as an appendix to the electronic copy of your agency's application. Do NOT submit a hard copy of the audited financial statement. Additionally, do NOT submit a copy of a Fresno COG member agency's audited financial statement.

PROPOSED FUNDING									
Fund No. 1:	Infrastructure State Revolving Fund Program – Airport Revenue Bonds								**Program Code**
Proposed Funding									
Component	Prior	20/21	21/22	22/23	23/24	24/25	25/ 26+	Total	**Funding Agency**
E&P (PA&ED)									IBank
PS&E									Bond issuance authorized 4-26-2019
R/W SUP									
CON SUP									
R/W									
CON	35,000,000							35,000,000	
TOTAL	35,000,000							35,000,000	

Fund No. 2:	Measure C New Technology							**Program Code**
Proposed Funding								
Component	Prior	20/21	21/22	22/23	23/24	24/25	25/26+	Total	**Funding Agency**
E&P (PA&ED)									FCOG/FCTA
PS&E									
R/W SUP									
CON SUP									
R/W									
CON		4,100,000						4,100,000	
TOTAL		4,100,000						4,100,000	

Fund No. 3:								**Program Code**
Proposed Funding								
Component	Prior	20/21	21/22	22/23	23/24	24/25	25/26+	Total	**Funding Agency**
E&P (PA&ED)									
PS&E									
R/W SUP									
CON SUP									
R/W									
CON									
TOTAL									

I certify that the information contained in the Proposed Funding table above is accurate to the best of my knowledge and that I am authorized to submit the project/program proposal for scoring and possible programming. The agency is required to identify matching funds, if any, and deliver the project as proposed within the scope and schedule specified in the application should the project be awarded funding.

Signed: 

Printed Name: Mark W. Davis

Date: 7/21/2020

PROPOSED BUDGET FOR OPERATIONAL PROJECTS/PROGRAMS

PROJECT ANNUAL BUDGET:

Estimated Income:	
a. Passenger Revenue	$ N/A
b. Other Revenues	$
c. Total grants*, donations, subsidy from other agency funds	$
TOTAL INCOME	$
***Not including this grant request.	
Estimated Expenses:	
a. Wages, Salaries and Benefits (non-maintenance personnel)	$
b. Maintenance & Repair (include maintenance salaries)	$
c. Fuels	$
d. Casualty & Liability Insurance	$
e. Administrative & General Expense	$
f. Other Expenses (e.g., materials & supplies, taxes)	$
g. Contract Services (specify)_____	$
TOTAL EXPENSES	$

PERFORMANCE MEASURES

1. List performance measures your agency will use to track the effectiveness of this project.

   FAT tracks parking utilization rates on an ongoing basis and will receive additional parking information as well as data specific to the Parking Structure and use of the EV Charging Stations from the APGS and POF machines. Electrical power generated by the Solar Power System will be tracked and compared with overall power demands from the Parking Structure to verify that the new Garage is achieving the "Net Zero" goal for electrical consumption.

2. Describe how your agency will monitor, evaluate, and report on the service your agency proposes to provide.

   The City of Fresno Airports Department provides for air service development at FAT with safe, convenient and efficient facilities that are economically, environmentally and socially sustainable. One of our primary objectives is to proactively facilitate the growth of the Airport which then contributes to the economic development of Fresno County and the Region. This is achieved though continuous stakeholder engagement, marketing, incentivizing, data collection, planning and managing the operation in a safe, regulatory compliant and fiscally responsible manner in accordance with aviation industry best practices. Our success is continually assessed through monitoring, evaluating and reporting on passenger enplanements, number of flights, airline participation, parking utilization, leakage studies and passenger satisfaction surveys all of which will be made available to Fresno COG as necessary to validate the effectiveness of New Technology Reserve Grant Program proceeds entrusted to the City of Fresno Airports Department.

Attachment 1

RESOLUTION NO. 2020-032

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, AUTHORIZING THE SUBMISSION OF APPLICATIONS FOR THE FRESNO COUNCIL OF GOVERNMENTS (COG) 2020/21 MEASURE C NEW TECHNOLOGY RESERVE GRANT PROGRAM FOR ADVANCED TRANSIT PROJECTS AND AUTHORIZING THE EXECUTION OF ALL APPLICATION RELATED DOCUMENTS BY THE DIRECTOR OF AVIATION OR DESIGNEES

WHEREAS, the City of Fresno is an eligible applicant of Measure C New Technology Reserve Grant funds; and

WHEREAS, the Fresno Council of Governments has issued a call for eligible applicants to submit proposal for projects to be funded in fiscal year 2020/21, for an estimated available funding of $5,800,000.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Fresno as follows:

1. The foregoing recitals are true and correct and incorporated herein.

2. Council authorizes submission of grant applications for FY2020/21 Measure C New Technology funds for the Airports Department – Parking Garage Parking Guidance System.

3. Council authorizes the Director of Aviation or designee to execute all application related documents.

****

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, YVONNE SPENCE, City Clerk of the City of Fresno, certify that the foregoing resolution was adopted by the Council of the City of Fresno, at a regular meeting held on the 27th day of February 2020.

AYES : Bredefeld, Caprioglio, Chavez, Esparza, Karbassi, Soria, Arias
NOES : None
ABSENT : None
ABSTAIN : None

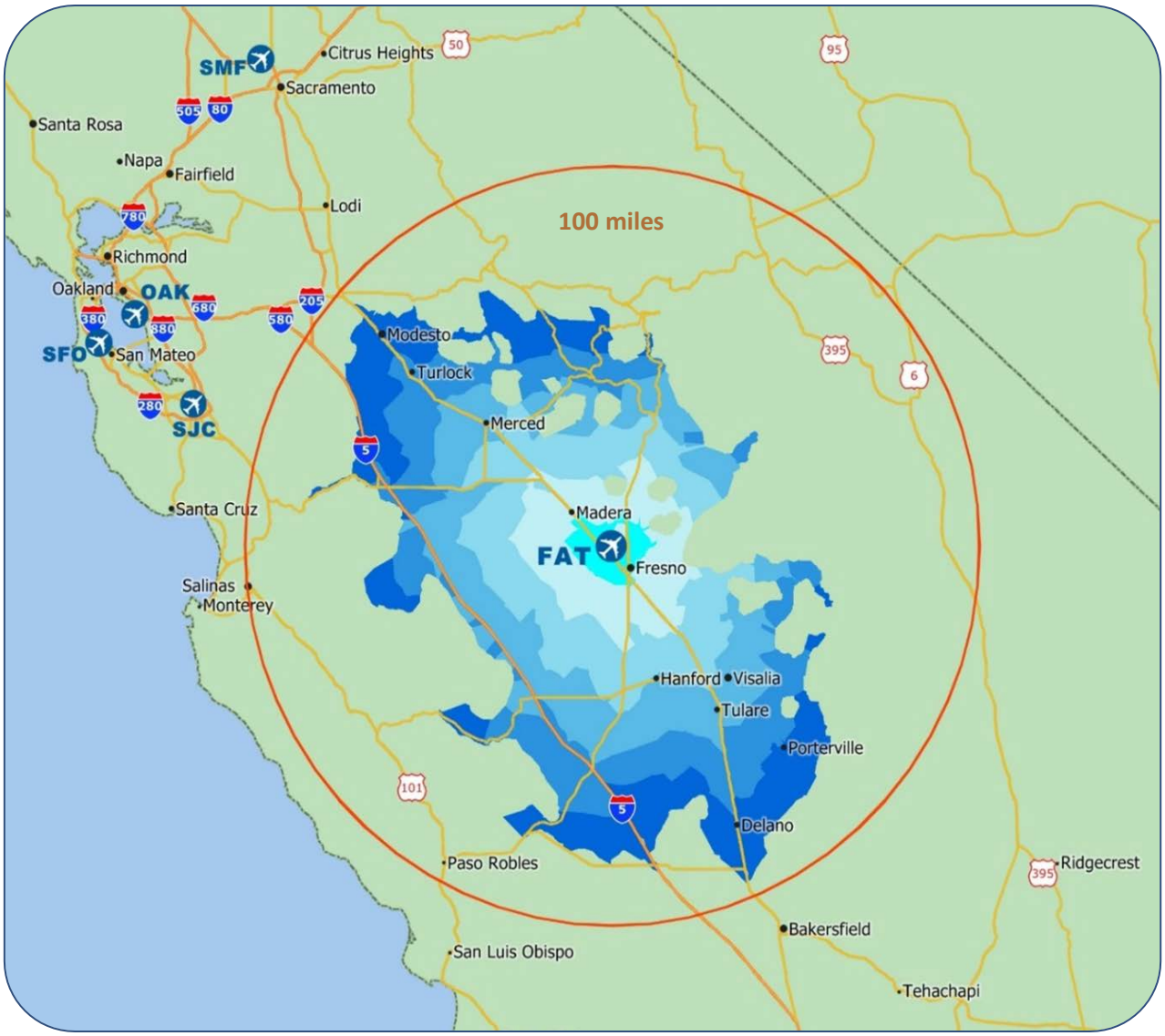
YVONNE SPENCE, MMC CRM
City Clerk

By: Yvonne Spence 3/4/2020
Deputy Date

APPROVED AS TO FORM
DOUGLAS T. SLOAN
City Attorney

By: 3/3/2020
Brandon Collet Date
Senior Deputy City Attorney

Attachment 2



<u>FAT's Catchment Area:</u>

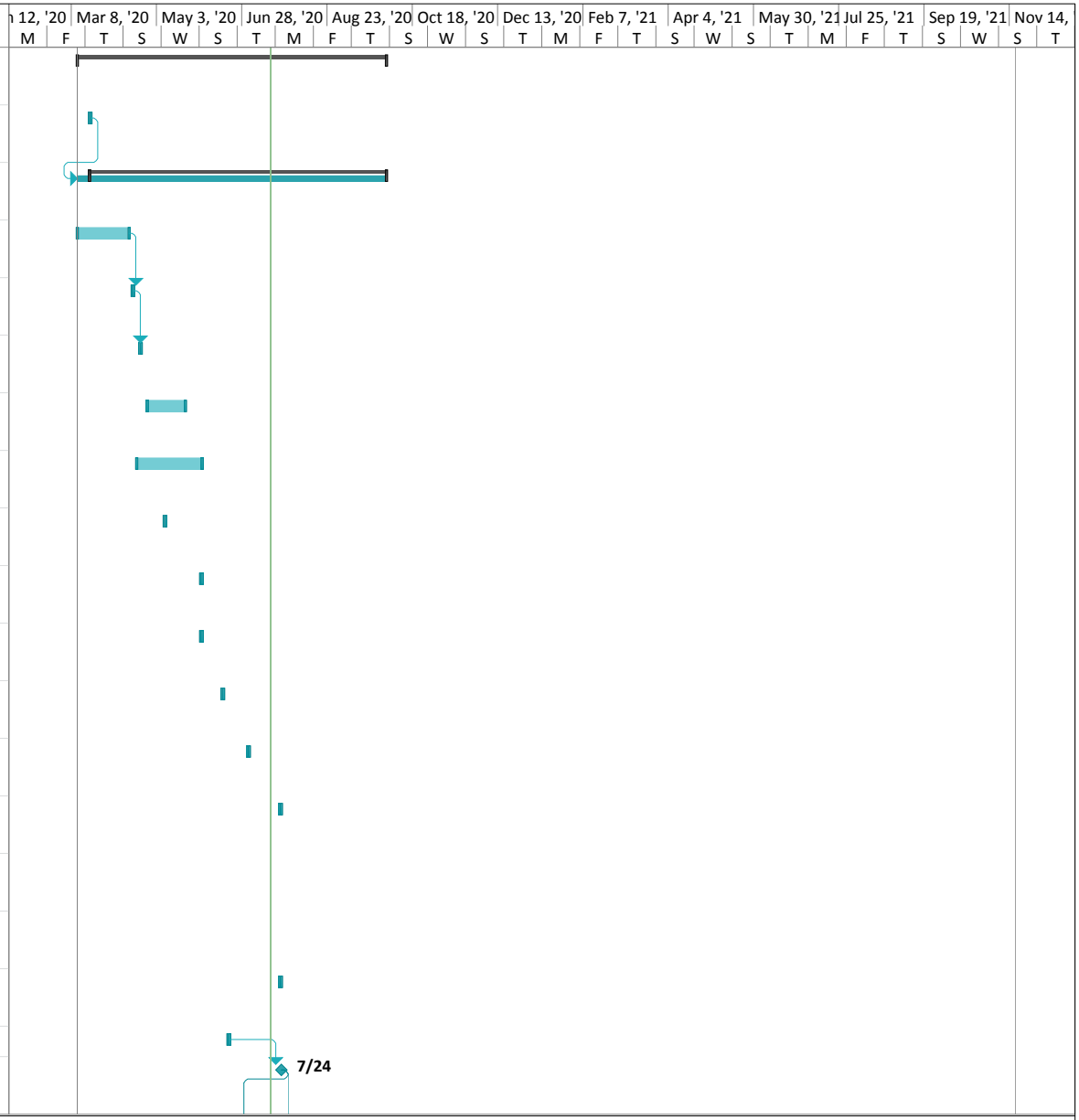
- 1.9 million population within 90 minute drive
- 55% Local/45% Regional
- 50/50 Leisure/Business

<u>Top Markets:</u>

- Fresno 41%
- Clovis 14%
- Visalia 10%
- Other 35%

FAT also draws from: Central Coast Region, Salinas/Gilroy, Stockton, and Bakersfield

ID	Task Name	Duration	Start	Finish
1	**Design/Pre-Construction**	**145 days**	**Thu 3/12/20**	**Wed 9/30/20**
2	100% DD Documents	1 day	Fri 3/20/20	Fri 3/20/20
3	**100% CD Documents**	**139 days**	**Fri 3/20/20**	**Wed 9/30/20**
4	Bid Effort #1 (MEPS/Elevator)	24 days	Thu 3/12/20	Tue 4/14/20
5	Approval of MEPS/Elevator Subcontractors	1 day	Fri 4/17/20	Fri 4/17/20
6	MEP/FR/Elevator - Issue Contrac	1 day	Wed 4/22/20	Wed 4/22/20
7	Bid Effort #2 (Remaining Trades)	19 days	Mon 4/27/20	Thu 5/21/20
8	Prepare Contract Price Amendment (Exhibit B)	31 days	Mon 4/20/20	Mon 6/1/20
9	Submit Draft Outline CPA to FAT	1 day	Fri 5/8/20	Fri 5/8/20
10	Drafts Exhibits C, D, & E (FAT) Du	1 day	Mon 6/1/20	Mon 6/1/20
11	Drafts Exhibits H &I (Overaa) Due	1 day	Mon 6/1/20	Mon 6/1/20
12	Finalize all Exhibits	1 day	Mon 6/15/20	Mon 6/15/20
13	Submit Contract to City Council	1 day	Thu 7/2/20	Thu 7/2/20
14	City Council Approves Contract	1 day	Thu 7/23/20	Thu 7/23/20
15	Contract Price Development			
16	Final Contract Price - Submitted to FAT			
17	City Council Meeting	1 day	Thu 7/23/20	Thu 7/23/20
18	Demo and Site Permit Submittal	1 day	Fri 6/19/20	Fri 6/19/20
19	Demo and Site Permit Issued	0 days	Fri 7/24/20	Fri 7/24/20

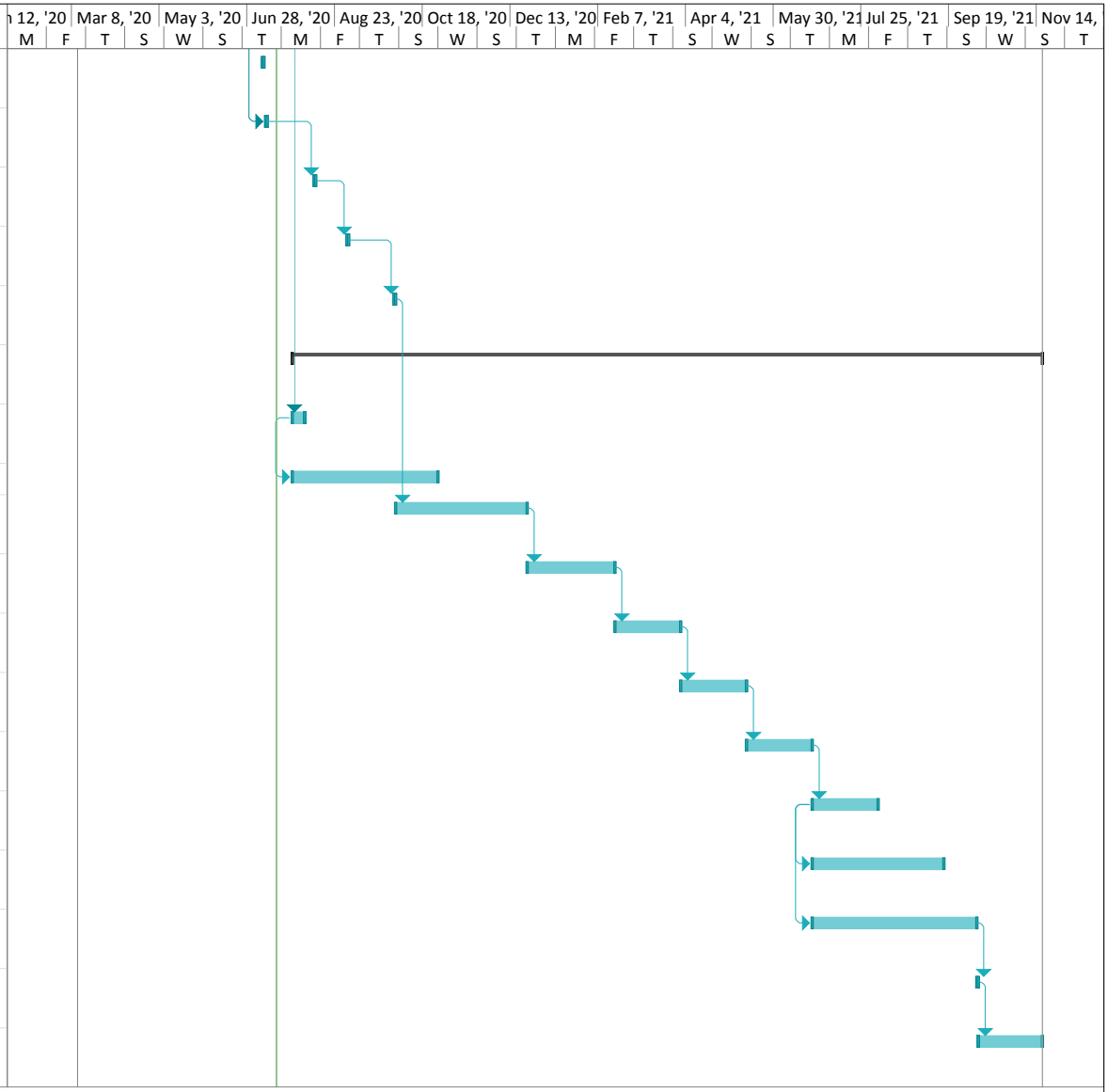


Project: FAT Schedule
Date: Fri 7/17/20

Task	External Tasks	Manual Task	Finish-only
Split	External Milestone	Duration-only	Deadline
Milestone	Inactive Task	Manual Summary Rollup	Progress
Summary	Inactive Milestone	Manual Summary	Manual Progress
Project Summary	Inactive Summary	Start-only	

Attachment 3

ID	Task Name	Duration	Start	Finish
20	Letter of Conditional Approval from Planning Department	1 day	Wed 7/8/20	Wed 7/8/20
21	Permit Set (95% CD) Submitted to City of Fresno Building	1 day	Fri 7/10/20	Fri 7/10/20
22	City Comments Due on Permit Se	1 day	Mon 8/10/20	Mon 8/10/20
23	Permit Set (95% CD) Resubmittal	1 day	Mon 8/31/20	Mon 8/31/20
24	Building Permit (100% CD) Approved/Issued	1 day	Wed 9/30/20	Wed 9/30/20
25	**Construction**	**343 days**	**Mon 7/27/20**	**Wed 11/17/21**
26	Mobilize/Site Prep for Demo Work and Storm Drain Work	6 days	Mon 7/27/20	Mon 8/3/20
27	Demolition and Site Utilities	67 days	Mon 7/27/20	Tue 10/27/20
28	Foundation	60 days	Thu 10/1/20	Wed 12/23/20
29	Slab on Grade	40 days	Thu 12/24/20	Wed 2/17/21
30	Level 2	30 days	Thu 2/18/21	Wed 3/31/21
31	Level 3	30 days	Thu 4/1/21	Wed 5/12/21
32	Level 4	30 days	Thu 5/13/21	Wed 6/23/21
33	Top Out	30 days	Thu 6/24/21	Wed 8/4/21
34	Finishes	60 days	Thu 6/24/21	Wed 9/15/21
35	Site Work	75 days	Thu 6/24/21	Wed 10/6/21
36	Substantial Completion	1 day	Thu 10/7/21	Thu 10/7/21
37	Project Close-out	29 days	Fri 10/8/21	Wed 11/17/21



Project: FAT Schedule
Date: Fri 7/17/20

Task	External Tasks	Manual Task	Finish-only		
Split	External Milestone	Duration-only	Deadline		
Milestone	Inactive Task	Manual Summary Rollup	Progress		
Summary	Inactive Milestone	Manual Summary	Manual Progress		
Project Summary	Inactive Summary	Start-only			

WHITEPAPER

Quantifying the impact of Park Assist's Parking Guidance Solution on customer experience

Poorvi Kaushik
Jeremy Lewis
Park Assist®

Introduction

In addition to elevating the overall customer experience for visitors, one of the primary benefits of installing a parking guidance system (PGS) is an overall reduction in the time taken to park. Up to now, little has been done in the industry to objectively quantify the effects that a PGS has on driver decision-making and the parking experience itself. General assumptions have been derived from limited manual observation-based studies, customer feedback and onsite observations.

In collaboration with the Brisbane Airport Corporation, Park Assist recently completed a groundbreaking benchmarking study on the quantitative impacts of its M4 PGS on the time between vehicles entering the car park and parking in a vacant bay (referred to in this whitepaper as "Time to Park").

To our knowledge, based on the methodology used and sample size, it is the first of its kind in the industry. Conducted over a period of five months, our results emerge from the acquisition of nearly 1.2 million data points, translating to a total of 127,284 unique customer journeys.

This white paper explores the findings of the study, which verify the ability of a PGS to make the parking experience far more streamlined, consistent and user-friendly. It also takes a look at the design and execution of the supporting science-based methodology used to ensure accuracy and integrity in the results.

Our M4 camera-based Parking Guidance Solution

Basic overview of operational elements.

This study leveraged and correlated data from two independent systems:

1. The Park Assist camera-based PGS at Australia's Brisbane Airport uses a network of M4 smart-sensors to monitor each individual bay in the parking car park for entry and exit events.
2. A third-party Parking & Revenue Control System (PARCS) uses ANPR cameras placed at the entry and exit lanes of each car park to monitor vehicle entry and exit to each car park.

Both systems use automated License Plate Recognition (LPR) to uniquely identify a vehicle.

The data streams from both systems were combined to form a rich dataset, including:

- Millisecond-level timestamps and license plate images for specific vehicles from the entry/exit cameras
- Smart-sensor millisecond tracking of dwell time for specific vehicles in specific bays
- Occupancy levels for all lots across the parking car park and in specific levels/areas
- Location information, including the level a vehicle is parked on and the type of bay it occupies (i.e. casual vs. disabled)

A seamless wayfinding experience.

The overarching goal of the camera-based Park Assist M4 PGS is to remove all stress and uncertainty from the parking process. As such, the M4 smart-sensors and multifaceted wayfinding signage collaborate to guide each parker from car park entry to a vacant space – while improving overall traffic flow throughout a facility. Wayfinding elements at Brisbane Airport include:

Arrival signage. Multi-facility signs announce the number of available spaces at each car park or lot. This continually updated information enables parkers to decide on the best facility to park in at any given moment.

Level signage. Once a parker has decided to park in a specific car park, dedicated signs display the number of available spaces on each level.

Aisle signage. Once a parker has committed to searching for a space on a particular level, pointer signage enables a parker to make on-the-spot decisions (left, right or straight) based on the number of available spaces.

Color-coded pilot lights on the smart-sensors. This is where the M4s – which have been providing up-to-the-second occupancy data to the core system all along – kick in to finish the wayfinding process. In addition to green (vacant) and red (occupied), these bright, clearly viewable LED indicators can be programmed to display thousands of colors to denote special-purpose spaces – i.e. blue for disabled, purple for premium, and so forth.

Study design, focus and methodology

For Park Assist, the focus of the study was to systematically measure the impact of the M4 PGS on a fundamental KPI for operational efficiency and customer experience, that being the average time it takes vehicles entering the car park to park in a vacant bay (Time to Park).

Structured as an A/B experiment, in which Time to Park was measured in the presence and absence of PGS elements, the study encompassed two parking facilities at Brisbane Airport with a combined total of 7,903 individually M4-monitored bays:

P1 – MLCP

Brisbane's main car park for medium-term and long-term parking with 8 levels and 4191 bays.

P2 – LTCP

Brisbane's adjacent car park for long-term parking with 6 levels and 3712 bays.

While the main focus of the study was the P1 car park, which accounts for 70% to 80% of overall parking activity at Brisbane, the study also analyzed parking behaviour in the P2 car park – incorporating trans-facility events via a roadway bridge connecting both car parks.

Occupancy of the car park could significantly impact the time taken to find a parking spot. This had the potential to skew results, and to conflate the effects of the impact of our PGS with the activity onsite. Key to our approach was to remove the effect of occupancy changes on the measured variables. By measuring car park usage over the duration of the experiment we were able to normalise the data for occupancy. Having removed the effect of this important factor from the changes observed in Time to Park, we are confident that the results of our A/B experiment strongly reflect the effect of our PGS.

Multiphase experiment design

The Brisbane Airport benchmarking study took the form of an A/B experiment:

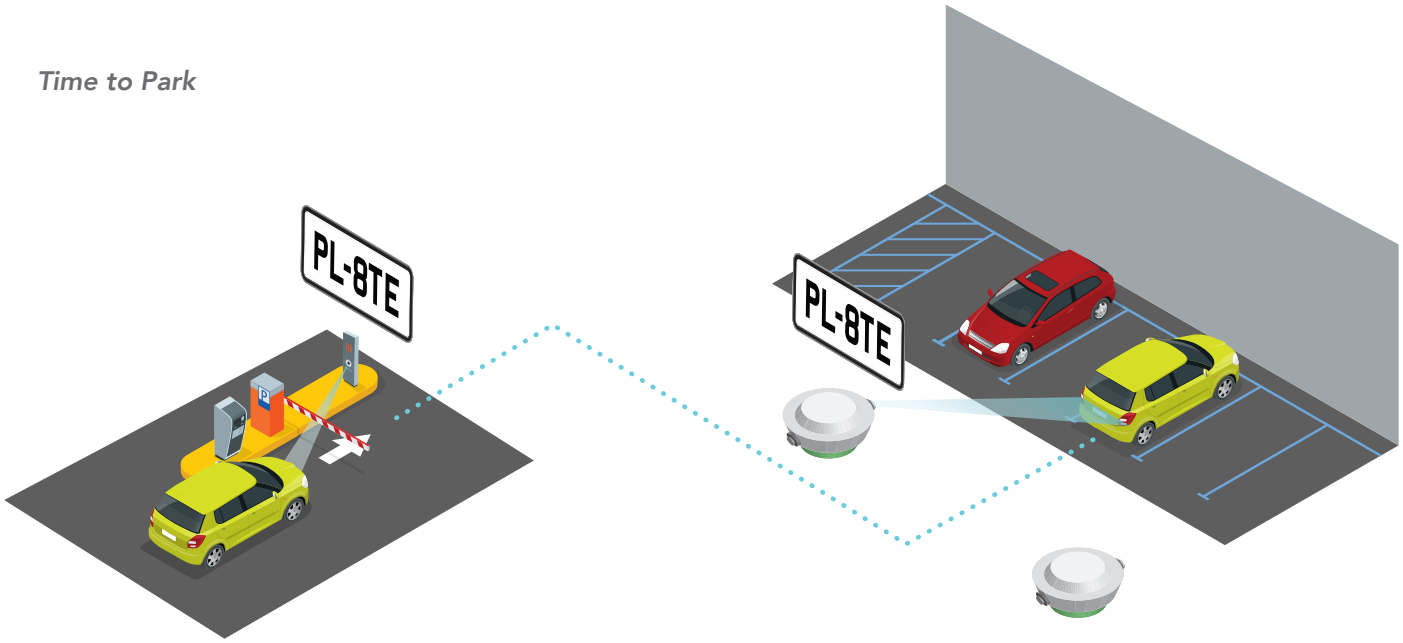
- The initial 6-week phase (Phase A) entailed the collection of existing parker behaviour data. During this phase, the Park Assist M4 system was being used in sensing mode only. All parking guidance elements of the system were disabled (signage and pilot lights), to ensure customers were not influenced by the PGS.
- For the 6-week "holiday" phase (Phase H), the parking guidance elements (signage and pilot lights) were turned on. This phase enabled the study to compensate for any outlier or anomalous behaviours that could affect its integrity, such as the busy end-of-year holiday travel period, behaviours of drivers who are becoming acclimated to the new PGS, and the optimization of the camera-based sensors to the environment.
- The 8-week post go-live measurement phase (Phase B) continued with the use of the fully functional system to collect parker behavioural data during the typical course of day-to-day operations at Brisbane Airport.

Calculation of Time to Park

In the Brisbane study, Time to Park was obtained by matching events from the two independently acquired datasets: the ANPR vehicular entry and exit dataset, and the entry/exit event dataset from the M4 smart-sensors for the individually monitored bays. Each record in both datasets includes the license plate number of the vehicle image that was captured, along with its associated millisecond-level timestamp.

Time to Park is calculated through exact matching of the license plate numbers in each set. A diagram of this process is shown in the following chart.

Time to Park

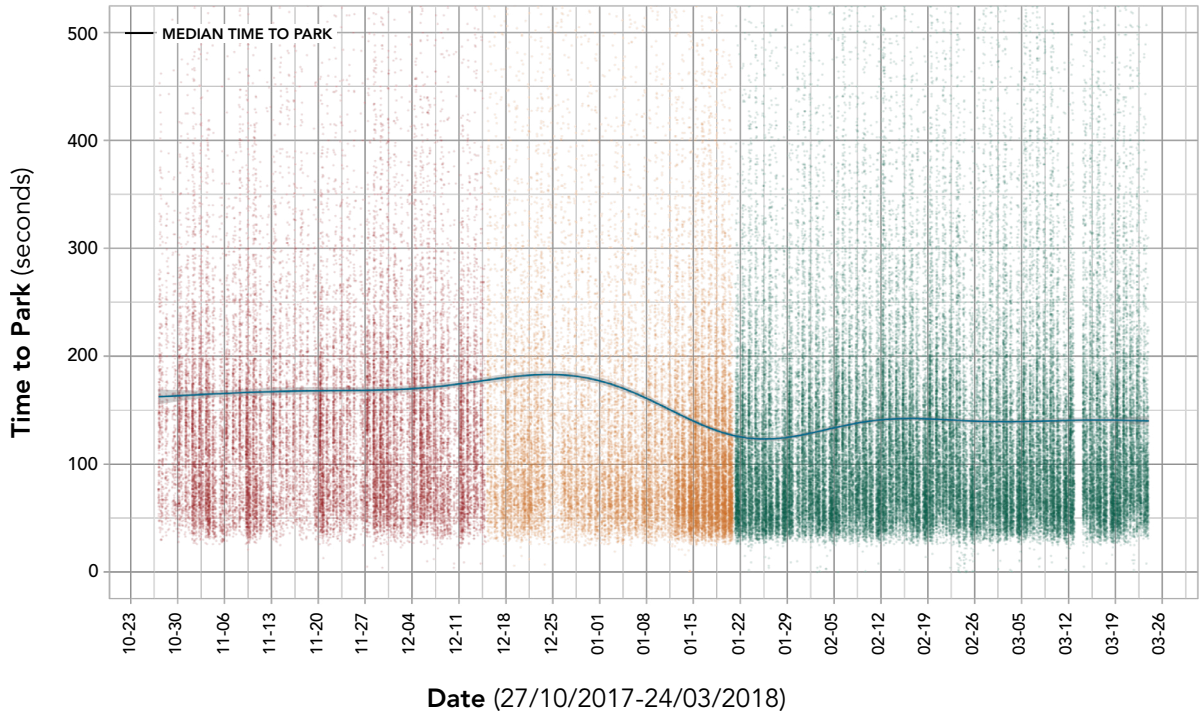


Key findings of the study

Conducted over a 5-month period, the findings of the Brisbane Airport benchmarking study resulted from the acquisition of nearly 1.2 million data points, representing a total of 127,284 unique customer journeys. The scientific analysis of this significantly sized sample of parker behaviour activity, when comparing phases A & B, yielded the following results:

36% reduction in Time to Park in P1 car park.

Comparison of pre and post go-live behaviour showed a 36% decrease in average Time to Park and a 23% decrease in the median Time to Park after the Park Assist PGS system was enabled. The drop in average Time to Park occurs gradually while, as seen in the following chart, median Time to Park drops off almost immediately. This quick median dropoff indicates the majority of drivers are sensitive to the guidance provided by the PGS.



33% reduction in Time to Park across both car parks.

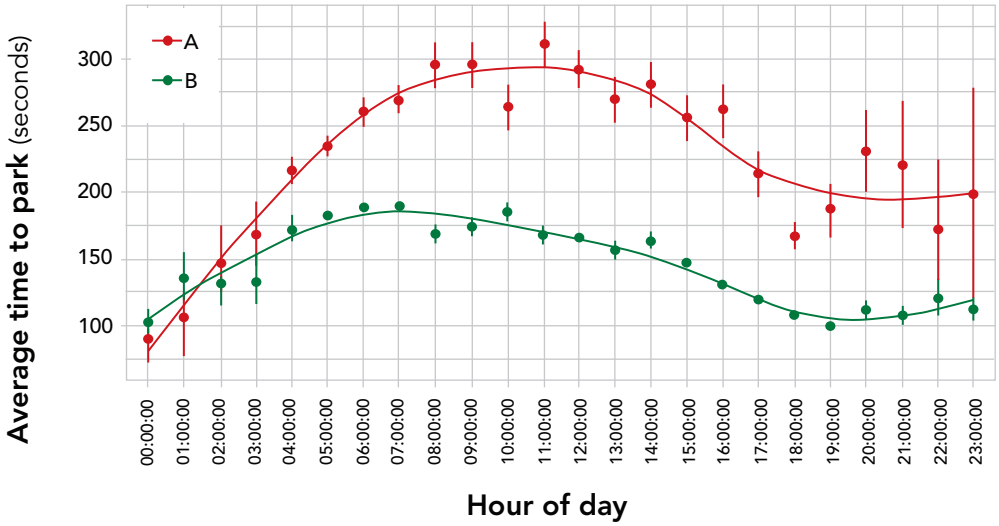
Comparison of pre and post go-live behaviour showed a 33% decrease in average Time to Park and a 20% decrease in the median Time to Park after the Park Assist PGS system was enabled in both car parks.

50% reduction in Time to Park for primary entry levels in P1 servicing short-term parkers.

Upon further analysis, we found short-term parkers enjoy the greatest Time to Park improvements. For levels two and four of the Brisbane P1 car park – where there are a wealth of short-term bays and direct entry points from the roadway – the average Time to Park reduction was 50%. The combination of short-term parking (and therefore higher vehicle turnover) combined with the direct entry points from the roadway culminated in higher vehicle movements on these levels. We infer that this resulted in higher levels of congestion which the PGS helped reduce, translating to an even more substantial reduction in Time to Park on these levels.

Improved and more consistent customer experience.

Parking behaviour shows highly reduced variability with a PGS. The key parker benefit is improved consistency and predictability, key elements of an enhanced customer experience. These factors also enable owners/operators to better forecast parking behaviour and car park usage patterns.



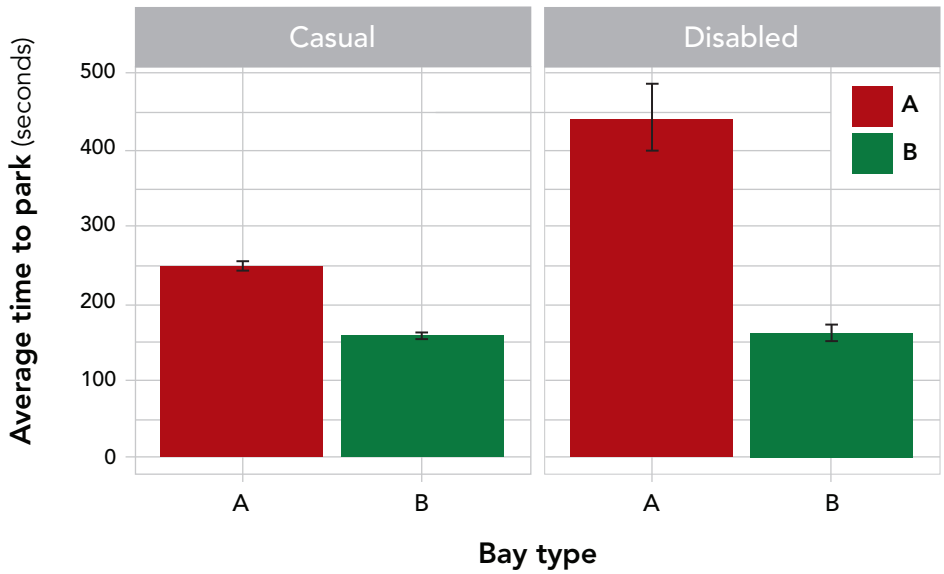
Here are two significant observations, as shown in the graph above:

- Average Time to Park by hour of day was lower across almost all hours of the day
- The maximum differential, average Time to Park savings of over 100 seconds of time, occurred during the morning hours between 9:00 am and 12:00 noon

Drivers parking in disabled bays save up to five minutes finding a parking space.

Analysis for the P1 car park also found that, for drivers parking in disabled bays, a PGS can reduce average Time to Park by nearly 63%. This translates to a time savings of nearly 5 minutes per event.

This use case illustrates the opportunity to better support unique customer segments, by specifically tailoring dynamic parking guidance and navigation to their needs.



An additional half-minute reduction of Time to Park on weekends.

Weekday parkers, from Monday through Friday, benefitted from an average 32% decrease in Time to Park. However, parkers arriving on Saturday and Sunday experienced an average 49% decrease in Time to Park. This translates to a time savings of nearly half a minute or more, when compared to weekday parkers.

Our educated guess as to why this happens, though unproven, is that drivers arriving at Brisbane Airport on weekends tend to be leisure travellers who are less familiar with the environment and therefore tend to place a higher reliance on the PGS.

Summary

This groundbreaking PGS benchmarking study by Park Assist, undertaken in collaboration with the Brisbane Airport Corporation, has quantified a number of key benefits of a PGS. The most significant benefit is a substantial reduction in Time to Park, observed consistently across different times, locations and types of visitors/parkers. We venture that these benefits are due to the ability of the Park Assist M4 PGS to enhance driver decision-making by providing informed real-time recommendations on where to park.

The Park Assist Science Team is continuing work to augment and further the findings of this study through additional exploration and analysis. The insights gained through this data-driven exploration will continue to inform the future of our product design – enabling us to bring more cutting-edge innovations and proven solutions to the marketplace

Our overarching mission as always, is to make the parking experience as streamlined, consistent and user-friendly as possible. This in turn helps owners and operators to maximize the efficiency of car park operations, in ways that heighten parker satisfaction, build customer loyalty, and boost overall revenue.

Poorvi Kaushik is Lead Data Scientist and Jeremy Lewis is General Manager (APAC) for Park Assist. Pioneers of camera-based parking guidance and systems with embedded business intelligence, Park Assist continues to enhance its award-winning and patented technology through leading-edge product innovations and robust API-driven solutions. With field-proven installations in 35 countries and counting, across a diverse set of industry verticals, the company serves major domestic and international airports – along with many of the world's premier property developers and operators.

www.parkassist.com

Attachment 5

Fresno Yosemite International Airport - Terminal Parking Structure
New Technology Upgrades - Estimate
Date: 8/01/2020

Item	Automated Parking Guidance System	Cost
1-a	Parking Sensors and Indicators - Equipment (900 Stalls)	$ 698,038
1-b	Digital Displays - Equipment (24 Locations)	$ 419,382
1-c	Sensors, Indicators and Digital Displays - Electrical Infrastructure	$ 350,729
1-d	Design, Project Management, Construction Administration	$ 293,629
	Sub-total	**$ 1,761,778**
Item	**Pay on Foot Kiosks**	**Cost**
2-a	Pay on Foot - Equipment (2 Units)	$ 139,794
2-b	Pay on Foot - Electrical Infrastructure	$ 34,949
2-c	Automatic Gate - Equipment (2 Locations)	$ 26,794
2-d	Automatic Gate - Electrical Infrastructure	$ 28,788
2-e	Design, Project Management, Construction Administration	$ 46,065
	Sub-total	**$ 276,390**
Item	**EV Charging Stations**	**Cost**
3-a	EV Charging Stations - Equipment (14 Stations)	$ 83,706
3-b	EV Charging - Electrical Infrastructure (as required for 14 + 44 future)	$ 217,842
3-c	Design, Project Management, Construction Administration	$ 60,310
	Sub-total	**$ 361,858**
Item	**Solar/PV System**	**Cost**
4-a	Solar Panels (410,000 Watt System)	$ 1,008,076
4-b	Canopy Structure (23,500 square feet)	$ 131,465
4-c	Equipment & Infrastructure	$ 277,104
4-d	Design, Project Management, Construction Administration	$ 283,329
	Sub-total	**$ 1,699,974**
	Grand Total	**$4,100,000**