



September 14, 2023

CALL AND NOTICE OF A REGULAR MEETING OF THE  
OPERATIONS AND DEVELOPMENT COMMITTEE  
OF THE  
BURBANK-GLENDALE-PASADENA AIRPORT AUTHORITY

NOTICE is hereby given that a regular meeting of the Operations and Development Committee will be held on Monday, September 18, 2023, at 8:30 a.m., in the Airport Skyroom of Hollywood Burbank Airport, 2627 N. Hollywood Way, Burbank, California 91505.

In addition to attending the meeting in person, members of the public may observe the meeting telephonically and may offer comment in real time through the following number:

*Dial In: (818) 862-3332*

Terri Williams, Board Secretary  
Burbank-Glendale-Pasadena Airport Authority

REGULAR MEETING  
OF THE  
OPERATIONS AND DEVELOPMENT COMMITTEE  
Airport Skyroom  
Monday, September 18, 2023  
8:30 a.m.

*The public comment period is the opportunity for members of the public to address the Committee on agenda items and on airport-related non-agenda matters that are within the Committee's subject matter jurisdiction. At the discretion of the presiding officer, public comment on an agenda item may be presented when that item is reached*

*Members of the public are requested to observe the following decorum when attending or participating in meetings of the Committee:*

- *Turn off cellular telephones and pagers.*
- *Refrain from disorderly or boisterous conduct, including loud, threatening, profane, or abusive language, clapping, whistling, stamping, or other acts that disrupt or otherwise render unfeasible the orderly conduct of the meeting.*
- *If you desire to address the Committee during the public comment period, fill out a speaker request card and present it to the Board Secretary.*
- *Confine remarks to agenda items or to airport-related non-agenda matters that are within the Committee's subject matter jurisdiction.*
- *Limit comments to three minutes or to such other period of time as may be specified by the presiding officer.*



*The following activities are prohibited:*

- *Allocation of speaker time to another person.*
- *Video presentations requiring use of Authority equipment.*



*Any disclosable public records related to an open session item on a regular meeting agenda and distributed by the Authority to the Committee less than 72 hours prior to that meeting are available for public inspection at Hollywood Burbank Airport (2627 N. Hollywood Way, Burbank) in the administrative office during normal business hours.*



*In accordance with the Americans with Disabilities Act of 1990, if you require a disability-related modification or accommodation to attend or participate in this meeting, including auxiliary aids or services, please call the Board Secretary at (818) 840-8840 at least 48 hours prior to the meeting.*

## A G E N D A

Monday, September 18, 2023

1. Roll Call
2. Approval of Agenda
3. Public Comment
4. Approval of Minutes

- a. August 28, 2023

*[See page 1]*

5. Items for Approval

- a. Award of Purchase Order  
FAAC Incorporated

*[See page 5]*

***Staff seeks a recommendation from the Operations and Development Committee to the Commission to authorize the issuance of a Purchase Order to FAAC Incorporated in the amount of \$462,894.47 to acquire one MILO Live Tactical Qualification Firearms Trainer Firing Range. The proposed acquisition is a multi-year project, and the purchase price includes delivery, installation, setup, and calibration.***

- b. Airport Solution Line Service  
Agreement Extension

*[See page 7]*

***Staff seeks a recommendation from the Operations and Development Committee ("Committee") to the Commission to approve a one-year extension of the Airport Solution Line Service Agreement with SITA Information Network Computing USA, Inc. for the Common Use Passenger Processing System installed at the Airport. This extension will run from October 1, 2023, to September 30, 2024, at a monthly cost of \$66,065. The cost of the services provided under this contract are fully reimbursed monthly by the airlines serving the Airport.***

***Subject to the Committee's recommendation, this item has also been placed on the agenda for the Commission meeting immediately following the Committee's meeting.***

- c. Amendment to Airport Conveyance Equipment Services Agreement  
Elevators Etc., LP

*[See page 10]*

***Staff seeks a recommendation from the Operations and Development Committee to the Commission to approve Amendment No. 1 to the Airport***

***Conveyance Equipment Service Agreement (“Agreement”) with Elevators Etc., LP to extend the term on a month-to-month basis. By extending the Agreement, Staff will be able to conduct a competitive procurement process for an airport conveyance equipment services provider.***

6. Items for Information

- a. Landside Paving Update
- b. Airport Vehicle Acquisition Update

- c. Airfield Mower Purchase Considerations

***[See page 14]***

***This item is a follow-up to the discussion at the June 5, 2023, Operations and Development Committee meeting. Staff is currently assessing purchase options for commercial grade mowers for airfield operation at Hollywood Burbank Airport to replace the existing mower that has passed its useful life (refer to Photo 1 at the end of this report). The current specification is for diesel-powered equipment. This report provides an additional briefing on Staff’s evaluation of the availability of comparable zero emissions battery-electric powered airfield mower equipment that meets the Airport’s performance requirements.***

- d. Committee Pending Items

***[See page 19]***

7. Adjournment

**MINUTES OF THE SPECIAL MEETING OF THE  
OPERATIONS AND DEVELOPMENT COMMITTEE  
BURBANK-GLENDALE-PASADENA AIRPORT AUTHORITY**

**AUGUST 28, 2023**

A special meeting of the Operations and Development Committee was called to order this date in the Airport Skyroom, 2627 N. Hollywood Way, Burbank, California, at 8:00 a.m., by Commissioner Devine.

**1. ROLL CALL**

**Present:** Commissioners Devine and Gabel-Luddy

**Absent:** Commissioner Hampton

**Also Present:** Staff: Frank Miller, Executive Director;  
John Hatanaka, Senior Deputy Executive Director;  
Patrick Lammerding, Deputy Executive Director,  
Planning and Development; Nerissa Sugars,  
Director, Communications and Air Service;  
Thomas Henderson, Director, Operations;  
Scott Kimball, Deputy Executive Director,  
Operations, Business and SMS

**2. Approval of Agenda**

Agenda was approved as presented.

**3. Public Comment**

There were no public comments.

**4. Approval of Minutes**

**a. July 10, 2023**

A draft copy of July 10, 2023, Special Committee meeting minutes was included in the agenda packet for review and approval.

**Motion**

Commissioner Gabel-Luddy moved approval of the minutes; seconded by Commissioner Devine.

**Motion Approved**

There being no objection, the motion was approved (2–0, 1 absent).

## 5. Items for Approval

### a. Janitorial Services Transition Diverse Facility Solutions Contract Amendment and C&W Facility Services Contract Award

Staff sought a recommendation from the Operations and Development Committee to the Commission to: (i) approve an amendment to the Janitorial Services Agreement with Diverse Facility Solutions, Inc. to extend the term until October 31, 2023 and increase the monthly fee; and (ii) award a 12-month Janitorial Services Agreement to C&W Facility Services Inc., which will commence on November 1, 2023. During the next 12 months, staff will issue a Request for Proposals for a long-term janitorial services provider.

Subject to the recommendation of the Committee, this item was placed on the Commission agenda for its consideration immediately following the Committee's meeting.

#### Motion

Commissioner Gabel-Luddy moved approval; seconded by Commissioner Devine.

#### Motion Approved

There being no objection, the motion was approved (2-0, 1 absent).

### b. Waste Hauling and Recycling Services Agreement Extension American Reclamation, Inc.

Staff sought a recommendation from the Operations and Development Committee to the Commission to authorize the exercise of the second of the two one-year extension options for the Waste Hauling and Recycling Service Agreement with American Reclamation, Inc.

#### Motion

Commissioner Gabel-Luddy moved approval; seconded by Commissioner Devine.

#### Motion Approved

There being no objection, the motion was approved (2-0, 1 absent).

### c. Award of Professional Services Agreement - Air Service Consulting Services

Staff sought a recommendation from the Operations and Development Committee to the Commission for the award of a Professional Services Agreement to Arthur D. Little, LLC., for air service consulting services. The total proposed expenditure for these services is for an amount not-to-exceed \$70,000 to be completed within FY 2024.

Subject to the recommendation of the Committee, this item was placed on the Commission agenda for its consideration immediately following the Committee's meeting.

**Motion**

Commissioner Gabel-Luddy moved approval;  
seconded by Commissioner Devine.

**Motion Approved**

There being no objection, the motion was  
approved (2-0, 1 absent).

**d. Award of Contract – Wildlife Hazard  
Assessment and Wildlife Hazard  
Management Plan**

Staff sought a recommendation from the  
Operations and Development Committee to the  
Commission to award a contract to SES Energy  
Services, LLC for revisions to the Authority's  
Wildlife Hazard Assessment ("WHA") and an  
update of the current Wildlife Hazard Management  
Plan ("WHMP") in the amount of \$127,600. The  
current WHA and WHMP were completed in 2012  
and 2014, respectively. Due to the level of wildlife  
activity and changes to the airport property and  
surrounding environment, the Federal Aviation  
Administration recommended that revisions to the  
current WHA and WHMP be developed.

**Motion**

Commissioner Gabel-Luddy moved approval;  
seconded by Commissioner Devine.

**Motion Approved**

There being no objection, the motion was  
approved (2-0, 1 absent).

**e. Replacement Aircraft Rescue  
Firefighting Vehicle Acquisition**

Staff sought a recommendation from the  
Operations and Development Committee to the  
Commission for approval of a replacement Aircraft  
Rescue and Firefighting ("ARFF") vehicle  
acquisition from Oshkosh Airport Products, a  
division of Pierce Manufacturing Inc. The  
acquisition will be made through an award of (1) an  
ARFF Vehicle Purchase Contract in the amount of  
\$1,056,707.66 for the base vehicle and (2) a  
Purchase Order in the amount of \$71,015.00 for  
ancillary equipment. The total cost of the  
replacement ARFF vehicle will be \$1,127,722.66.

**Motion**

Commissioner Gabel-Luddy moved approval;  
seconded by Commissioner Devine.

**Motion Approved**

There being no objection, the motion was  
approved (2-0, 1 absent).

**6. Items for Discussion**

**a. Committee Pending Items**

Staff updated the Committee on future pending  
items.

## **7. Adjournment**

There being no further business to discuss, the meeting was adjourned at 8:45 a.m.



**STAFF REPORT PRESENTED TO THE  
BURBANK-GLENDALE-PASADENA AIRPORT AUTHORITY  
OPERATIONS AND DEVELOPMENT COMMITTEE  
SEPTEMBER 18, 2023**

**AWARD OF PURCHASE ORDER  
FAAC INCORPORATED**

Presented by Edward B. Skvarna  
Chief of Police, Director of Public Safety

**SUMMARY**

Staff seeks a recommendation from the Operations and Development Committee ("Committee") to the Commission to authorize the issuance of a Purchase Order to FAAC Incorporated in the amount of \$462,894.47 to acquire one MILO Live Tactical Qualification Firearms Trainer Firing Range. The proposed acquisition is a multi-year project, and the purchase price includes delivery, installation, setup, and calibration.

**BACKGROUND**

Airport Police Department ("APD") Officers are required to qualify quarterly with their duty firearms. Currently the department is able to conduct firearms training at either the Burbank Police Department ("BPD") or Glendale Police Department ("GPD") firing range, subject to availability. This arrangement, while appreciated, has had a level of challenges due to scheduling and logistics as both BPD and GPD have requirements and demands for their own personnel to utilize their respective range facilities. This leaves only a small window of time available for APD to schedule range time and qualify its Officers. Additionally, there is significant drive time to and from both ranges. If the only time available at either range is while APD Officers are on-duty, then law enforcement personnel are pulled away from their duties at the Airport for an extended period.

Quarterly live range qualification is not the only quarterly firearms qualification APD Officers undergo. APD Officers must also qualify quarterly with the Department's on-airport MILO System which trains the Officers in the shoot/don't shoot decision-making process. MILO stands for "Multiple Interactive Learning Objectives". This system was acquired in 2018 and utilizes a specially modified tool that looks and feels like the firearms issued to APD Officers. This tool emits beams of light when fired onto a screen that projects lifelike computer-generated scenarios which challenge officers with real-world life and death shoot/don't shoot decisions. This system is located in Terminal A in a dedicated police training room.

The proposed acquisition of the MILO Tactical Firearms Trainer will allow APD Officers to complete their quarterly firearms training and the shoot/don't shoot training into one training event. This training allows for the most realistic training scenarios possible in a contained environment while providing officers the ability to fire live ammunition from their duty weapons at MILO generated lifelike scenario driven incidents. The equipment would be installed at a designated location on the west side of the Airport with the training supervised by APD Firearms Instructors. This equipment will improve the utilization of APD Officers, eliminate the need to be

away from the Airport for extended periods of time, and provide the most realistic firearms training currently available. This system also provides the Airport Police Command Staff a level of flexibility to ensure duty coverage and training schedules are met and not driven by the availability of firing range slots at either BPD or GPD firing ranges.

The proposed Tactical Firearms Training unit is a highly modified/fortified shipping container that is configured into a two-lane firing range. This range can accommodate all commonly used police pistol caliber ammunition (9mm, 45, etc.), all rifle calibers commonly used by police (.223 & .308), as well as 12-gauge shotgun ammunition. The proposed unit is Environmental Protection Agency-certified with a robust air filtration system, bullet capture system, and soundproofing, and it comes with a dedicated MILO system integrated within the range. The designated location for the firearms trainer will require the installation of concrete pads and electricity. This work will need to be undertaken separately prior to delivery of the trainer.

### FUNDING

Appropriations in the amount of \$425,000 were included in the adopted FY 2024 budget for this project. However, the complete acquisition and installation of the proposed system will be a multi-year project. The payment requirement is for 60% of the project cost to be incurred during FY 2024 in the amount of \$277,736.68. The 40% balance will be included in FY 2025 budget in the amount of \$185,157.79 for the training system with a separate amount to be estimated at that time for the installation of concrete pads and electrical power.

### STAFF RECOMMENDATION

Staff seeks the Committee's recommendation to the Commission to authorize Staff to issue a purchase order to FAAC Incorporated in the amount of \$462,894.47 for the acquisition of a MILO Live Tactical Qualification Firearms Trainer Firing Range.

**STAFF REPORT PRESENTED TO THE  
BURBANK-GLENDALE-PASADENA AIRPORT AUTHORITY  
OPERATIONS AND DEVELOPMENT COMMITTEE  
SEPTEMBER 18, 2023**

**AIRPORT SOLUTION LINE SERVICE  
AGREEMENT EXTENSION**

Presented by Thomas Henderson  
Director, Operations

**SUMMARY**

Staff seeks a recommendation from the Operations and Development Committee ("Committee") to the Commission to approve a one-year extension of the Airport Solution Line Service Agreement ("Service Agreement"), copy attached, with SITA Information Network Computing USA, Inc. ("SITA") for the Common Use Passenger Processing System ("CUPPS") installed at the Airport. This extension will run from October 1, 2023, to September 30, 2024, at a monthly cost of \$66,065. The cost of the services provided under this contract are fully reimbursed monthly by the airlines serving the Airport.

Subject to the Committee's recommendation, this item has also been placed on the agenda for the Commission meeting immediately following the Committee's meeting.

**BACKGROUND**

SITA, a provider of International Air Transport Association ("IATA") certified common use systems at airports worldwide, was selected through a competitive proposal process among other IATA certified CUPPS providers in January 2012. Installation of the system was completed and certified for use on March 31, 2014. The CUPPS includes the following components: (i) common use passenger check-in system at all gates and ticket counter check-in positions; (ii) common use passenger self-service check-in units; (iii) flight and baggage information displays throughout the terminal and baggage claim areas; (iv) an audio and visual paging system in the terminal; (v) ticket counter common use bag scales; and (vi) a common use phone system that is restricted to airline use only. The cost of the project was \$9,000,000 which was paid for through a Federal Aviation Administration approved Passenger Facility Charge application.

In September 2015, the Commission approved a four-year Service Agreement with SITA at a monthly cost of \$54,389, the cost of which is charged back to airlines using the system. At the request of the airlines, in September 2019, the Commission approved Amendment No. 1, a three-year renewal of the Service Agreement, which included two optional one-year extensions. Additional amendments to the Service Agreement include the following:

- Amendment No. 2 - Approved in February 2020 for the procurement of SITA's Gate Management System. This procurement was subsequently delayed due to the onset of the COVID-19 pandemic, but it resumed in May 2021 and was completed in November 2021.

- Amendment No. 3 – Approved in October 2021 for the CUPPS Refresh Project. This was based on a comprehensive analysis of the condition of the CUPPS hardware and software. SITA recommended a refresh due to the increased risk of major failure due to the age of the core hardware equipment, end of service for servers and databases, and a needed system upgrade from Windows 7 to Windows 10. At the request of the airlines, this project commenced in January 2022 and was completed in July 2023.

The proposed one-year extension represents the second and final one-year extension option for the existing Service Agreement.

#### FUNDING

The cost of the Service Agreement during the proposed extension period will be reimbursed by the Airlines serving the Airport.

#### STAFF RECOMMENDATION

Staff seeks the Committee's recommendation to the Commission to approve the proposed one-year extension of the Service Agreement with SITA for operations and maintenance of the CUPPS and authorize the President to execute the same.



September 18, 2023

**Via e-mail**

Mr. Wayne Johson  
SITA Information Network Computing USA, Inc.  
3100 Cumberland Blvd., Suite 900  
Atlanta, GA 30339

Re: Airport Solution Line Service Agreement dated September 23, 2019,  
Extension Option Number 2

Dear Mr. Johnson:

I write on behalf of the Burbank-Glendale-Pasadena Airport Authority ("Authority") with reference to the September 23, 2019, Airport Solution Line Service Agreement ("Service Agreement") executed by the Authority and SITA Information Network Computing USA, Inc. ("SITA"). Pursuant to Section 2.1 of the Service Agreement, the Authority has the option to exercise two contract extensions which would extend the term for one year at a time.

This letter serves as notice at the Authority's September 18, 2023, Commission meeting, airport staff submitted a request for approval of Extension Option 2, extending the term through September 30, 2024. The Commission has authorized the second extension option at the rate of \$66,065 per month for maintenance and support services as defined in the Service Agreement.

A Change Order to the Service Agreement will follow to incorporate the rate of the contract extension. If you have any questions, please contact me at your convenience.

Sincerely,

Thomas Henderson  
Director of Operations

**STAFF REPORT PRESENTED TO THE  
BURBANK-GLENDALE-PASADENA AIRPORT AUTHORITY  
OPERATIONS AND DEVELOPMENT COMMITTEE  
SEPTEMBER 18, 2023**

**AMENDMENT TO  
AIRPORT CONVEYANCE EQUIPMENT SERVICES AGREEMENT  
ELEVATORS ETC., LP**

Presented by Patrick Lammerding  
Deputy Executive Director, Planning and Development

**SUMMARY**

Staff seeks a recommendation from the Operations and Development Committee ("Committee") to the Commission to approve Amendment No. 1 ("Amendment") to the Airport Conveyance Equipment Service Agreement ("Agreement") with Elevators Etc., LP ("Elevators Etc.") to extend the term on a month-to-month basis. By extending the Agreement, Staff will be able to conduct a competitive procurement process for an airport conveyance equipment services provider.

**BACKGROUND**

On December 10, 2018, the Commission awarded the Agreement to Elevators Etc. for a three-year base period with two one-year extension options at predetermined rates for monthly preventative maintenance services on all conveyance equipment located within the Airport. The Agreement covers six elevators, two escalators, and six moving walkways, and it defines the hourly rates for on-call repair services on an as needed task-order basis. In October 2022 the Commission authorized the exercise of the second and final one-year extension option. The current extension is set to expire on November 30, 2023. During the proposed month-to-month extension of the Agreement, Elevators Etc. has agreed to maintain the current prices during this period of procurement.

If the proposed Amendment is approved, staff anticipates that the competitive process for these services will be initiated on December 1, 2023 and will be completed in five months. The current annual cost for preventative maintenance with Elevators Etc. is \$85,825 with hourly rates for on-call repair services remaining unchanged during the month-to-month extension.

Elevators Etc. is in good standing with its obligations to the Authority and has maintained a satisfactory level of service throughout the base term and extension periods of the Agreement. The firm understands it will be asked to participate in the competitive procurement process.

During the last competitive process, Staff determined that a limited number of qualified firms were able to respond to a Request for Proposals for the maintenance of the type of conveyance equipment at the Airport. Staff will advise the Committee of the progress of the competitive outreach process for these services.

### BUDGET

Appropriations for these services are included in the adopted FY 2024 budget.

### STAFF RECOMMENDATION

Staff seeks the Committee's recommendation to the Commission to approve the proposed Amendment with Elevators Etc. and authorize the President to execute the same.

**AMENDMENT NO. 1 TO  
AIRPORT CONVEYANCE EQUIPMENT SERVICES AGREEMENT  
(Burbank-Glendale-Pasadena Airport Authority / Elevators Etc. LP)**

This Amendment No. 1 (“First Amendment”) to the December 10, 2018 Airport Conveyance Equipment Services Agreement (“Agreement”) executed by the Burbank-Glendale-Pasadena Airport Authority (“Authority”), a California joint powers agency, and Elevators Etc. LP (“Contractor”), a Delaware limited partnership, is dated October 2, 2023 for reference purposes.

**R E C I T A L S**

- A. The parties executed the Agreement to provide for the Authority’s retention of Contractor as an independent contractor to provide the following professional services: preventative maintenance services, on-call repair services, and emergency repair services for the elevators, escalators, and moving walkways at Bob Hope Airport (commonly known as Hollywood Burbank Airport).
- B. The Authority has exercised both of its one-year extension options and the Agreement is scheduled to expire on November 30, 2023.
- C. The parties desire to amend the Agreement to extend the term on a month-to-month basis at the current rates.

**NOW, THEREFORE**, the parties agree as follows:

- 1. Amendment of Section 3.** Section 3 (Term) of the Agreement is amended by adding a new paragraph (D) to read as follows:

“D. Commencing December 1, 2023, this Agreement shall continue on a month-to-month basis at the then-current rates. Notwithstanding the second sentence of paragraph (C), either party may terminate this Agreement for convenience upon 30 days prior written notice to the other party.”

- 2. Counterparts.** This First Amendment may be executed in any number of counterparts, each of which shall be deemed an original and all of which taken together shall constitute one and the same document.

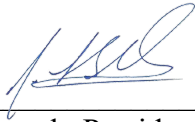
- 3. Preservation of Agreement.** Except as expressly modified by this First Amendment, all of the provisions of the Agreement shall remain unaltered and in full force and effect. In the event of a conflict between the provisions of this First Amendment and the provisions of the Agreement, the provisions of this First Amendment shall control.

**[SIGNATURES ON FOLLOWING PAGE]**



**TO EXECUTE THIS FIRST AMENDMENT**, the parties have caused their duly authorized representatives to sign below.

**Elevators Etc. LP**



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Jason Babcock, President

[Pursuant to Corporations Code Section 15904.02, signature line must be executed by a general partner.]

**Burbank-Glendale-Pasadena Airport Authority**

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Felicia Williams, President

Approved as to form:

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Richards, Watson & Gershon  
A Professional Corporation

**STAFF REPORT PRESENTED TO THE  
BURBANK-GLENDALE-PASADENA AIRPORT AUTHORITY  
OPERATIONS AND DEVELOPMENT COMMITTEE  
SEPTEMBER 18, 2023**

**AIRFIELD MOWER PURCHASE CONSIDERATIONS**

Presented by Patrick Lammerding  
Deputy Executive Director, Planning and Development

**BACKGROUND**

This item is a follow-up to the discussion at the June 5, 2023, Operations and Development Committee meeting. Staff is currently assessing purchase options for commercial grade mowers for airfield operation at Hollywood Burbank Airport to replace the existing mower that has passed its useful life (refer to Photo 1 at the end of this report). The current specification is for diesel-powered equipment. This report provides an additional briefing on Staff's evaluation of the availability of comparable zero emissions battery-electric powered airfield mower equipment that meets the Airport's performance requirements.

**REQUIREMENTS**

The performance requirements for the new mower are driven by the condition and the restrictions of working in the airfield. To start, the airfield's vegetated portions (infields) cover over 70 acres with uneven terrains that consist of a mixture of grass, weeds, rocks, loose soil, and other features, such as manhole covers, utility boxes, and airfield signs. Example conditions are shown in Photos 2 and 3 at the end of this report. As a comparison, a football field has much gentler terrain and is approximately 55 times smaller, covering approximately 1.32 acres. Due to the nature of working on the airfield, there is also much less margin for error with respect to mobility and reliability. The mower must be able to clear the aircraft movement areas at a moment's notice. Staff are also required to complete the task within the limited closure hours, and to balance the resources dedicated for mowing to ensure that other maintenance tasks can still be completed as required for the operation of the Airport. At this time, mowing of the infields can be accomplished in approximately one full week. As part of the wildlife mitigation program, mowing is required at least every two weeks during the spring season to ensure operational safety of the airfield.

These performance requirements necessitate that the new mower has a minimum of 65 horsepower and be equipped with a triple flail system. That system is designed for areas of overgrown brush and vines. Additionally, a triple flail system is designed to reduce the risk of injury from flying debris with the widest cutting width possible, at approximately 16 feet (192 inches). The cutting width influences the number of required mowing passes, which directly impacts the time required to mow a given area. A smaller deck/cutting width requires an increased number of mowing passes and thus a proportionally longer mowing duration, which is not practical for situations when an area must be cleared within a limited period of time.

## ASSESSMENT OF DIFFERENT TYPES OF MOWERS

Staff conducted an assessment of commercially available mowers across all available fuels, including diesel, gasoline, and zero-emission battery-electric.

1. Diesel Mowers – The Airport’s performance requirements can be met through the purchase of new diesel-fueled commercial mowers. Staff has assessed various diesel mower manufacturers, including Kubota, John Deere, Hustler®, Sawinery, Ferris, SCAG, Power, Toro, Exmark, Badboy, Grasshopper, and Bobcat®. Based on the assessment, most of the competing brands offer comparable diesel equipment in terms of mower deck size and cut width. In addition, all competing mowers utilize diesel engines certified as Tier 4 Final, which is the strictest EPA requirement that yields the lowest emissions for diesel off-road equipment, required by law for sale in California, per California Code of Regulations (CCR), Title 13, Division 3, Chapter 9, Article 4.8 In-Use Off-Road Diesel-Fueled Fleets. Through advancements in technology, modern diesel engines have been transformed into one of the cleanest equipment available today. The EPA’s introduction of Tier 4 Final requirement in 2014 and 2015 reduced the NOx and PM emissions from diesel exhaust by 99 percent compared to the 1996 levels when EPA first introduced the emissions regulations. Building from the emissions reduction from Tier 2 and Tier 3 engines, the Tier 4 Final further reduces emissions through exhaust aftertreatment technologies, including selective catalytic reduction that reduces NOx by up to 90% and diesel particulate filters to capture the soot particles.
2. Gasoline Mowers – No commercially available mowers that meet the Airport’s performance requirements were identified during the evaluation. Mowers that operate on gasoline were limited to a 66” mower deck size, approximately one-half the width as the benchmark units, requiring twice the number of mowing passes and approximately twice the labor hours for a given mowing job.
3. Zero-Emission Electric – At this time, none of the battery-electric commercial mowers meet the Airport’s performance requirements. There are no zero-emission commercial mowers that are capable of towing triple flail attachment that would allow for 192” cutting width due to the limited energy capacity of the battery pack. The most capable mowers available in the market are the Gravely Pro-Turn EV with a 60” deck, and the Mean Green® EVO, which is equipped with a 74” mowing deck. Even though the Gravely Pro-Turn EV specifications listed a coverage hour as 6.6 acres, this figure appears to be based on the maximum forward speed the mower can obtain if the engine is under little to no load. However, the actual cutting width would likely be significantly lower since the coverage largely depends on the mower’s speed and power under full working load. In addition, the limited energy capacity of the battery pack may present mobility and reliability challenges. As a lithium-ion battery ages it loses capacity irreversibly, and the typical service life of a lithium-ion battery is around 5 years, where its capacity falls to 80% of its rated capacity. It will take approximately 8-12 hours to charge the battery, and some mowers do not allow for battery swap. The degradation in battery capacity will extend the duration of the work and present a challenge in efficiency and reliability, especially when working within the runway and taxiway safety areas. Using a battery pack with limited energy capacity might result in an airfield safety issue if the batteries had to be changed mid-operation.

## BUSINESS COSTS

Staff has evaluated factors and costs associated with procurement and operation of a zero-emission commercial mower. Staff has used the comparison between cutting width of 74-inch (largest size for zero-emission mower) and 192-inch (for diesel mower being considered).

Assuming both types of mowers can run effectively at the same speed, the electric mower only has about 39% of cutting width of the diesel mower and therefore will need approximately 2.6 times the resources to mow the airfield within the required time. In addition, the calculation also assumes 18 times of mowing required per year. This translates to:

For electric mowers:

- 3 mowers required to replace existing
  - Assume each @\$75,000 \$ 225,000
- 2.6 staff members required to perform the work \$ 270,000/year

For diesel mower, the cost for procurement and operation is below:

- 1 mower required to replace existing \$ 200,000
- 1 staff member required to perform the work \$ 103,000/year

Please note that the evaluation above does not include fuel and maintenance costs for the diesel mower, or the charger, charger infrastructure, and the battery replacement required for the electric mower. Based on staff's conversation with the dealer for the electric mower, the cost of battery replacement for the mower can reach the cost of the purchase of a new mower itself.

Comparisons for resale value between the two types of mowers cannot be easily made due to the relatively young age of the electric mowers. Using the information from the MeanGreen EVO website, the electric mower will retain 15% value after 5,000 hours of operation (about 4 years, @1,300 hours/year). Using Kubota M5-091 sale prices online, a 4-year-old 2019- and 8-year-old 2015 tractors are approximately 70% and 50%, respectively, of the purchase price of a new 2023 tractor.

## CARB REGULATIONS

The California Air Resources Board (CARB) does not have restrictions on diesel equipment purchases in 2023. Starting in the year 2024, CARB's Small Off-Road Engine Regulation will require mowers equipped with small displacement engines to be zero-emission. However, the commercial equipment required to support the airfield operation exceeds the size threshold under this regulation (CCR Title 13, Division 3, Chapter 9, Article 1 – Small Off-Road Engines). The mowers will also be subject to CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation, including proposed amendments that will require the use of R99 or R100 renewable diesel fuel. Staff has confirmed that the fuel vendor at the Airport can provide R100 diesel fuel for the mower. R100 has been demonstrated in similar off-road equipment applications at Los Angeles International Airport and Van Nuys Airport and has been proven to be fully compatible with no performance, reliability, or maintainability issues encountered. The use of R100 renewable diesel fuel will further reduce the greenhouse gas emissions of the mower by approximately 80%, on top of the emissions reduction achieved from Tier 4 Final engines.

## CONCLUSION

At this time, the performance requirements for mowing the airfield can only be met through the purchase of a diesel-powered commercial mower. While mowers are available in other power source types, such as gasoline and zero-emission battery-electric mowers, there are no commercially available gasoline or battery-electric mowers that meet the Airport's performance requirements. Staff anticipates returning to the Committee with a proposed acquisition of a replacement airfield mower as soon as possible.



Photo 1. Existing 1996 John Deere triple flail tractor mower that will be replaced.





Photo 2. Instrument Landing System (ILS) Localizer Area



Photo 3. Infield adjacent to Taxiway D shoulder

**BURBANK-GLENDALE-PASADENA AIRPORT AUTHORITY  
OPERATIONS AND DEVELOPMENT COMMITTEE  
SEPTEMBER 18, 2023**

**COMMITTEE PENDING ITEMS**

**Future**

1. Award of Contract Extension - Allied Universal Security
2. Award of Contract Extension - Parkwood Landscape
3. Proposed FY 2024 Vehicle Acquisition
4. Award of Contract - Runway, Taxiway, Shoulder Rehabilitation
5. Award of Contract - Emergency Alert Phone Replacement
6. Award of Contract - Replacement Airfield Mower
7. Award of Contract - DVSS Extension
8. Award of Contract Extension - Keolis Fleet Maintenance