



City of Sunnyvale

Agenda Item-No Attachments (PDF)

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REPORT TO COUNCIL

SUBJECT

Approve Budget Modification No. 4 in the amount of \$5,040 from the Council Service Level Set-Aside for the Addition of an Automatic Dependent Surveillance Broadcast or ADSB Exchange Subscription to the Airplane Noise Monitoring System to Provide Complete Information of All Aircraft Equipped with the Proper Transponder not Already Captured by the Currently Available Systems

BACKGROUND

At the July 26, 2022 Council meeting, Council directed staff to draft a budget modification from the Council Service Level Set-Aside for the addition of an ADS-B receiver to the Casper Airplane Noise Monitoring System.

In October 2020, Casper Airport Solutions Inc installed permanent noise monitors in four locations throughout the City. All four sites are solar powered and capture a wide range of airplane activity from San Jose, Moffett Field, Palo Alto and San Carlos airports. The monitors are located at: City-owned land on Dona Avenue, the Community Center, and Ortega and Washington parks.

On February 1, 2021, the City launched the Noise Lab website (Attachment 2). The site allows the public to see trends in airplane flight paths and tracks noise events in a specific neighborhood. The public can run reports and view statistics about flight activity and noise levels. This site also includes a flight tracking page. On it, the public can view near real-time and historical flight paths and noise data, covering the past six months. Additionally, Casper provides the City with quarterly information only reports (Attachment 3) based on flight activity and the aircraft noise associated with overflights that affect residents living within the city limits.

While SJC Airport is the closest major airport to the City of Sunnyvale, arriving and departing from many different airports in the region fly over Sunnyvale. These airports of interest are: Hayward Executive Airport (KHWD), Moffett Federal Airfield (KNUQ), Metro Oakland Int'l Airport (KOAK), Palo Alto Airport (KPAO), Reid-Hillview Airport of Santa Clara County (KRHV), San Francisco Int'l Airport (KSFO), Norman Y Mineta San Jose Int'l Airport (KSJC) and San Carlos Airport (KSQL).

EXISTING POLICY

Pursuant to Sunnyvale Charter Section 1305, at any meeting after the adoption of the budget, the City Council may amend or supplement the budget by a motion adopted by affirmative votes of at least four members to authorize the transfer of unused balances appropriated for one purpose or another, or to appropriate available revenue included in the budget.

General Plan, Chapter 6 Safety and Noise, Policy SN-10.2 Support efforts to reduce or mitigate airport noise, including noise impacts of Moffett Federal Airfield, San Jose International Airport and helicopters.

ENVIRONMENTAL REVIEW

The action being considered does not constitute a “project” within the meaning of the California Environmental Quality Act (“CEQA”) pursuant to CEQA Guidelines section 15378(a) as there is no potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

DISCUSSION

In order to increase the City’s insight into the actual air traffic situation (including departure and arrival times), the City requested that Casper Airport Solutions Inc. provide the City with a quote for the installation of an ADS-B receiver. Instead of the installation of a receiver, Casper recommends that the City subscribe to the ADSB Exchange (Attachment 1). According to the proposal, the ADSB Exchange is a software solution in lieu of an antenna and ADS-B receiver. The ADSB Exchange utilizes all installed receivers in and around the City, thus providing more accurate coverage and data to the Casper Noise system.

According to the FAA, ADS-B stands for Automatic Dependent Surveillance - Broadcast:

- Automatic because it periodically transmits information with no pilot or operator involvement required.
- Dependent because the position and velocity vectors are derived from the Global Positioning System (GPS) or other suitable Navigation Systems.
- Surveillance because it provides a method of determining three-dimensional position and identification of aircraft, vehicles, or other assets.
- Broadcast because it transmits the information available to anyone with the appropriate receiving equipment.

ADS-B uses satellite signals to track aircraft movements. ADS-B transmits GPS-derived aircraft position information along with several other data fields including aircraft type, speed, flight number, and whether the aircraft is turning, climbing or descending, which are not transmitted by radar technology. This information is broadcast to air traffic control (ATC) as well as other aircraft. Aircraft equipped with ADS-B that transmit these data fields have what is called ADS-B Out. Pursuant to federal regulations (14 CFR Part 91 subsection C), a ADS-B Out transponder is a requirement for almost all airspace in and around Sunnyvale. U.S. federal, state and local government aircraft performing sensitive operations are permitted to fly with their installed ADS-B position reporting electronics turned off. Aircraft conducting operations related to homeland security, law enforcement, national defense and intelligence that could be compromised by transmitting real-time aircraft position information are permitted to disable ADS-B transmissions after obtaining proper authorization from the FAA.

An ADSB Exchange subscription would enable the effective presentation of complete flight tracks in the City and will provide a near real-time presentation of all movements of aircraft equipped with an ADS-B transmitter. Currently all coverage in the Casper Noise system used by the City is pulled from FAA SWIM data and FlightAware. Both are reliable sources of information, however, there are some flight tracks that are not in those systems which will be picked up from the ADSB Exchange.

By using this subscription service, the availability of the service to track these flights is significantly

less with no hardware installation. The subscription service in lieu of the physical receiver also negates the risk of any hardware damages that could require replacement in the future and would result in data downtime while under construction. The subscription service is also a cost-effective way of increasing the City's insight into air traffic without incurring additional power and internet costs that would be associated with the installation of a physical antenna and ADS-B receiver. By choosing the ADSB Exchange subscription, the City still has the option to install a receiver in the future should that be of interest. Should an ADS-B receiver be installed, it would include a small receiver box and about a 4ft tall antenna at a high location at/near Sunnyvale. It will provide the complete information of all aircraft equipped with the proper transponder not already captured by Casper's available systems.

The effectiveness of the ADS-B receiver is dependent on an aircraft having a transponder that is on for the entire duration of the flight and has not turned off their ADS-B Out transmissions to the FAA. The receiver is also effective for aircraft that are within its direct line of sight. According to Casper, ADS-B is a popular and effective supplementary radar receiver; however, Casper cannot guarantee that it will show data that the operation is blocking.

FISCAL IMPACT

Budget Modification No. 4 has been prepared to reduce General Fund Council Service Level Set Aside funds in Project 829630 - Council Set Aside by \$5,040 and appropriate \$5,040 to Project 834420 - Airplane Noise Monitoring System for a three-year subscription to the ADSB Exchange. If continued after the three-year period, ongoing costs will be included in the Program 15200 - Information Technology Services and Support operating budget. The remaining balance for the Council Service Level Set Aside will be \$94,960 with approval of this budget modification.

Budget Modification No. 4 FY 2022/23

	Current	Increase/ (Decrease)	Revised
General Fund			
<u>Expenditures</u>			
829630 - Council Set Aside	\$100,000	(\$5,040)	\$94,960
<u>Expenditures</u>			
Project 834420 - Airplane Noise Monitoring System	\$0	\$5,040	\$5,040

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Public Library, Senior Center, Community Center and in the Department of Public Safety Lobby. In addition, the agenda and report are available at the Sunnyvale Public Library, Office of the City Clerk, and on the City's website.

RECOMMENDATION

Approve Budget Modification No. 4 in the amount of \$5,040 from the Council Service Level Set-Aside for the Addition of an Automatic Dependent Surveillance Broadcast or ADSB Exchange Subscription to the Airplane Noise Monitoring System to Provide Complete Information of All Aircraft Equipped with

the Proper Transponder not Already Captured by the Currently Available Systems

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Reviewed by: Tim Kirby, Director of Finance

Reviewed by: Teri Silva, Assistant City Manager

Reviewed by: Jaqui Guzmán, Deputy City Manager

Approved by: Kent Steffens, City Manager

ATTACHMENTS

1. Casper Proposal for Addition of ADSB Exchange Subscription
2. Airplane Noise Weblink
3. Casper Quarterly Information Report