



Agency Recommendation Summary

The Washington State Patrol (WSP) requests funding for Certificates of Participation (COPs) to replace two aging Cessna 182 aircraft with two Cessna 206 aircraft equipped with Forward Looking Infrared (FLIR) cameras, and to replace three more aging Cessna aircraft over the next two biennia. The aircraft and equipment are significant tools for aerial enforcement missions such as traffic safety, natural disaster response, traffic congestion, and apprehension of violent criminal suspects.

Program Recommendation Summary

OPR - Operating

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Fiscal Summary

Fiscal Summary <i>Dollars in Thousands</i>	Fiscal Years		Biennial	Fiscal Years		Biennial
	2022	2023	2021-23	2024	2025	2023-25
Operating Expenditures						
Fund 001 - 1	\$0	\$1	\$1	\$11	\$20	\$31
Fund 081 - 1	\$0	\$68	\$68	\$544	\$990	\$1,534
Total Expenditures	\$0	\$69	\$69	\$555	\$1,010	\$1,565

Decision Package Description

What is the problem, opportunity or priority you are addressing with the request?

We need to replace two Cessna 182 (C182) aircraft immediately, and three more within four years. These aging aircraft have hit a critical point due to increasing maintenance costs, limited parts, and prolonged downtime for extensive maintenance. Also, the expected maintenance costs are likely to exceed the sale value of the aircraft.

The WSP Aviation Section currently owns and operates five Cessna aircraft, which are utilized nearly every day to support the safety and security of the state of Washington. These aircraft are deployed for a variety of missions, and have logged significant flight hours in support of public safety.

Our aircraft experience unique airframe and component stresses due to the repetitive nature of our flight operations. The age of our aircrafts range from 19-22 years old, with high airframe flight hours ranging from 7,800 to 10,500 hours. Industry standards warrant replacement of high use aircraft at approximately 10 years or 10,000 hours; whichever occurs later.

Aircraft maintenance is based on the number of flight hours. Once an aircraft hits a specific number of flight hours, it must be grounded for maintenance and cannot be utilized until that timed maintenance has occurred, requiring approximately 8-32 mechanic hours per inspection. This is a Federal Aviation Administration (FAA) regulation and is a safety measure to which we strictly adhere. To keep aircraft available for missions, we constantly track each aircraft's flight hours to stagger required maintenance. Rarely are all five planes available for flight or grounded at the same time.

Maintenance and operation costs increase as aircraft age. Industry standards indicate that aircraft older than five years (out of warranty) have significantly higher costs than new aircraft. A 10-year-old high-use aircraft has approximately 50-60 percent higher maintenance costs than a new aircraft just out of warranty. The increased cost is primarily due to unscheduled maintenance, airframe fatigue, and limited or discontinued parts. Our aircraft are developing structural deficiencies, which require expensive replacement of major component parts not normally associated with lower use aircraft.

The age of our aircraft and increased maintenance phase time have resulted in a decrease in dispatch reliability and availability. The WSP Aviation Section is the largest nonmilitary law enforcement air asset in the state and is tasked with all-hazards emergency availability. Industry data indicates that aircraft availability becomes a serious problem for aircraft older than 20 years of age. Availability drops off from a high of 95% for newer aircraft (0-5 years) to an average of 70% at age 25, and 55% at age 30.

What is your proposal?

We request funding to participate in COPs through the Office of the State Treasurer (OST) to replace our aging aircraft. Two C182s need immediate replacement. Two more aircraft need to be replaced within two years, and one in four years. This staggered approach will ensure fleet availability for current needs as well as replace aircraft with the highest airframe time first.

The new aircraft will decrease the high maintenance costs that are a result of the aging aircraft. Transitioning to the C206 platform with FLIR capabilities will maximize the number of flight missions that can occur every week by reducing downtime and grounding of aircraft for maintenance due to age. The new aircraft will also standardize the Cessna fleet, resulting in a more streamlined maintenance hangar and parts inventory supply.

The WSP Aviation Section provides statewide aerial enforcement, rapid response, and airborne assessments of incidents in support of the WSP's public safety mission. Aviation supports ground enforcement efforts to identify and target the violations known to cause and/or contribute to serious injury or fatality collisions. Speed, impaired driving, lane departure, and aggressive driving is enforced throughout the state, resulting in thousands of contacts per year.

Additional aircraft with FLIR capabilities will increase enforcement and mission availability.

What are you purchasing and how does it solve the problem?

We will purchase Cessna 206 (C206) aircraft equipped with Forward Looking Infrared (FLIR) systems. The new aircraft will provide enhanced cargo capabilities, increased flight times, enhanced night-time operations, extended day operations, and reduced maintenance costs. We will be able to participate in additional public safety missions to support the security of the state. Replacement of two aircraft now and the remaining three over the next four years will create staggered life cycle replacement needs and reduce the risk of having too many aircraft grounded for extended maintenance.

The C206 has a high-wing design which makes it easier for both the Trooper Pilot and the Tactical Flight Officer (TFO) to observe what is occurring on the ground, operate FLIR equipment, and to communicate with ground personnel.

The FLIR camera and equipment enhances our aerial capabilities to support traffic and safety missions. It is comprised of multiple components that work together.

FLIR camera – The camera provides the ability to capture aerial video during both day and night operations.

Augmented Reality System (ARS) – This is a mapping system that provides video overlay for identifying precise road locations and coordinates. ARS also provides enhanced satellite imagery and speed measuring software to target dangerous drivers on any roadway both day or night.

Digital Recorder – A digital recorder captures and saves evidence, documenting dangerous drivers, wildfire hotspots, or natural disaster footage.

Multi-Tracker – This component assists with identifying targets in dense terrain during day and night operations.

Digital Downlink – The digital downlink provides the ability to send live, real-time video for enhanced situational awareness and updates. In addition, there is an existing application at the State Emergency Operations Center that can route the video and make the video available on connected computers or smart phone devices. This is especially useful when multiple people need to view the video of an emerging incident. Video can also be sent to law enforcement and emergency response agencies with existing portable video receivers, which allows real-time FLIR video to be shared with on-site personnel.

Premier Mobile Data Computer – This provides the link to dispatch centers for real time communication of incidents.

Touch Screen Video Display – A high definition monitor for FLIR video display to assist with speed detection and targeting.

The current C182 aircraft in need of immediate replacement do not have FLIR capabilities. Due to weight restrictions, FLIR cannot be added without significantly reducing fuel capacity. These aircraft are primarily used for daytime traffic missions, photo reconnaissance, flight instruction, and transportation.

We currently operate two Cessna 206 aircraft with FLIR capabilities. Due to the enhanced capabilities the FLIR offers, demand for these outfitted aircraft continues to increase. Mission requests have grown beyond our ability to support with our current fleet.

The manufacturer has estimated an approximate 12-month lead time to build the aircraft and for us to take possession of it. This has been built into our replacement plan, but reinforces the urgency of replacing the aging aircraft as soon as possible.

What alternatives did you explore and why was this option chosen?

We explored the following options:

Continue maintaining current aircraft / Not funding this request

This status quo option may require no immediate funding, but increases the risk of significant degradation of existing systems and high replacement costs. It may require significant long-term maintenance costs since replacement parts are not readily available or supported by the manufacturer due to the age of the aircraft. There is also a risk of the aircraft being deemed unsafe, which would require a permanent grounding of the involved aircraft and significantly reduce our ability to perform critical public safety missions. This would result in a decrease in service to the WSP as well as impact our ability to support our partners who rely on our Cessna fleet services.

Other consequences of not funding this request include:

- Decreased dispatch rate:
 - Reduced ability to participate in traffic safety missions,
 - Reduced ability to support the agency and our partners,
 - Reduced ability to support all-hazards type missions
- Decreased ability to support law enforcement in a changing environment – such as pursuits and suspect apprehension
- Increased chance that the entire fleet will be grounded due to planned or unforeseen maintenance
- Loss of partnerships with other agencies
- Loss of opportunities to increase traffic congestion management safely and efficiently
- Decreased ability to support ground units and agency partners
- Reduced ability to support the statewide goal of supporting healthy and safe communities

Request for One-Time Appropriations for Replacement

We would request one-time funding to replace our current five Cessnas over the next four years, with two needing immediate replacement. This would be less than the COP option upfront, but there is a risk of increased funding needs as the price of the Cessnas and FLIR equipment increases with consumer market prices. This option may also reduce the benefits of a staggered replacement strategy when considering future maintenance and replacement needs.

Contract with another agency for aerial missions

We would seek a contract for use of another agency's aircraft, such as the Department of Natural Resources (DNR). This would require different/additional equipment to be added into another agency's airframe. DNR does not own or operate an equivalent aircraft like WSP with the specialized equipment for law enforcement targeting and capabilities. Additionally, mission profiles for WSP Aviation are law enforcement related requiring the aircrew to transfer probable cause to ground units, which needs a crew to be fully commissioned law enforcement officers. Trooper pilots are routinely provided sensitive information specifically for law enforcement officers only, to carry out day-to-day investigative missions. This option may require less immediate funding, but relies on a contract for services and the availability of DNR aircraft and pilots. DNR has a very different mission and different stakeholders compared to the WSP. It was determined that these two efforts may compete for aviation assets when needed most by both agencies. Another risk is that contract costs may be higher in the long-term than current operating costs for the aircraft.

Purchase Cessna 182s

We would purchase C182s instead of C206s. This option will provide new airframes to replace the current aging C182s, but would not be FLIR compatible.

Purchase a Different Type of Aircraft (not Cessna)

We would purchase a different type of aircraft that was not a Cessna airframe. This option would require additional training for our aircraft maintenance technicians and a complete shift of our maintenance hangars for appropriate supply inventory. Additional pilot training would also be required for the non-Cessna aircraft.

Purchase C206 and FLIR Camera/Equipment with COPs

We determined that the best option is to purchase the C206 and equip with FLIR cameras. Current pilots and technicians are familiar with this airframe, therefore the transition to the C206 will have minimal operational impact. The FLIR camera and equipment is needed for enhanced aerial enforcement capabilities.

The C206 platform is approximately \$200,000 more than the C182 platform. The C206 is a larger aircraft with two additional seats, which we convert to accommodate the FLIR camera components, a larger fuel tank, and additional space for the TFO to operate. The avionics in both aircraft remain similar, but the C206 is a much more versatile platform that can be used for a wider variety of missions when compared to the C182, which has a limited fuel capacity and weight restrictions.

The cost to replace the Cessna fleet will be spread over the 2021-23 and subsequent biennia over the life of the aircraft.

Assumptions and Calculations

Expansion, Reduction, Elimination or Alteration of a current program or service:

This request upgrades our current aging Cessna fleet to enhanced Cessna aircraft and specialized camera equipment. The historical expenditures of the current program are as follows:

Aviation – Cessna Operating Expenditures	FY 2018	FY 2019	FY 2020	FY 2021
A – Salaries	\$1,027,123	\$1,117,576	\$1,187,541	\$1,139,666
B – Benefits	\$284,425	\$311,643	\$373,213	\$360,136
C – Professional Service Contracts		\$25		
E – Goods & Services	\$524,666	\$541,435	\$462,947	\$550,872
G – Travel	\$25,756	\$7,811	\$11,013	\$3,192
J – Capital Outlays	\$54,942	\$209,806	\$128,911	\$171,906
N – Grants, Benefits, & Client Services			\$100	
S – Interagency Reimbursements	(\$3,320)	(\$9,117)	(\$1,708)	
T – Intra-Agency Reimbursements	\$878	\$2,036	\$382	
Fiscal Year Total	\$1,914,470	\$2,181,215	\$2,162,399	\$2,225,771
Biennium Total		\$4,095,685		\$4,388,170

Detailed Assumptions and Calculations:

We requested from the OST an estimate of a debt service schedule for one Cessna 206 and one FLIR camera and equipment with a ten-year life and a “pessimistic” interest rate of 2.11%.

One C206 aircraft is an estimated cost of \$1,105,000. This includes the aircraft, broker and escrow fees, estimated costs for changing over compatible hardware from the old aircraft to the new aircraft, and tax.

One FLIR camera and equipment components is an estimated cost of \$1,117,000.

We assume two new aircraft with FLIR capabilities to be acquired in fiscal year 2023 to replace the two aircraft with the highest mileage.

Two more aircraft will need to be replaced in fiscal year 2024.

The last aircraft is expected to be replaced in fiscal year 2025.

The trade-in value of the C182s is an estimated \$45,000 based on current market value and the unusually high flight hours. This amount will be deposited into the SPHA.

The funding allocation of this proposal is based on the results of the Joint Legislative Audit and Review Committee (JLARC) Cost Allocation model approved in the 2022 Supplemental Budget. Both the Transportation Committee and the Omnibus Budget Committee must agree upon this proposal in order to ensure consistent and fair treatment of resources.

Refer to attachment *WSP 2022 Supplemental – Aircraft Replacement Cost Estimate* for details.

Workforce Assumptions:

N/A

How is your proposal impacting equity in the state?

This proposal impacts all of Washington State. The aircraft are located at the WSP Aviation Section, in Olympia, to provide public safety missions to any location within the state of Washington. Aerial enforcement capabilities such as monitoring and targeting aggressive drivers and collision-causing violations, as well as natural disaster response will continue to benefit all communities in our state.

Strategic and Performance Outcomes

Strategic Framework:

Governor's Results Washington Goals

This request directly relates to the *Governor's Results Washington GOAL: Healthy and Safe Communities*. We will be able to continue and enhance our aerial efforts in enforcement and specialized investigations, which will impact all Washington communities.

WSP 2019-2022 Strategic Plan Goals

This request supports our agency strategic plan and is directly related to the following goals and outcomes.

GOAL: Make our highways safe

- a. Reduce number of fatality and serious injury collisions on state routes and interstates*
- b. Reduced number of "at-fault" commercial-vehicle-related collisions on state routes and interstates*

We use data and technology to ensure that the right resources are in the right place at the right time in order to create a safe motoring environment on WA highways. The updated aircraft will create enhanced capabilities to further our efforts at reducing fatality and injury collisions across the state.

GOAL: Provide specialized investigative, forensic, and support services

- c. Increase technology-enabled criminal investigative capability.*

We help our partners to reduce crime and crime victimization, and to detect, investigate, and deter criminal activity and terrorism by delivering information-sharing and investigative, emergency response, and forensic services. The updated aircraft and enhanced FLIR cameras will better our efforts in community safety.

GOAL: Secure Communities from Terrorism, Fire, and Disaster Risk

- a. Increase firefighting and public safety capabilities and competencies*
- b. Reduce number of fire-related fatalities statewide*
- c. Increase emergency engagement with stakeholders to reduce community risks*
- d. Increase preparedness and response activities that reduce the risk of natural or man-made disasters*

We work in partnership with stakeholders to reduce risk associated with terrorism, fire, and natural or man-made disasters, and protect life, property, and the environment. The updated aircraft will continue to be an asset for future manmade and natural disasters as they have been used in the past for large-scale events such as the Oso landslide, I-5 Bridge collapse, and Amtrak train derailment.

Performance Outcomes:

The new aircraft with FLIR capabilities will:

1. Increase our capability to support all-hazard aerial missions and public safety throughout the state;
2. Increase flight time;
3. Increase aircraft availability for day and night missions;
4. Increase aerial enforcement to problem locations to reduce serious injury or fatal collisions;
5. Increase pursuit management;
6. Increase tactical advantage and safety of ground units;
7. Decrease maintenance costs of aging aircraft;
8. Increase dispatch rates;
9. Lean inventory/supply processes for maintenance and operations with an all C206 fleet.

Other Collateral Connections

Puget Sound Recovery:

N/A

State Workforce Impacts:

N/A

Intergovernmental:

Numerous municipal and county public safety agencies utilize the WSP’s FLIR equipped aircraft to assist with serious traffic safety concerns such as street racing and impaired driving. Traffic safety partnerships are supported by a diverse group of stakeholders including the Washington State Traffic Safety Commission and the Washington Association of Sheriffs and Police Chiefs. Additional partners include the Washington State Department of Transportation, Washington State Emergency Management Division/State Emergency Operations Center, Washington State Department of Natural Resources, U.S. Navy, and other public safety partners. We anticipate support from all of these partners.

Legal or Administrative Mandates:

N/A

Stakeholder Response:

The traveling public within the state of Washington benefit from our enhanced aviation capabilities. Mothers Against Drunk Driving has traditionally supported our aviation efforts to remove impaired drivers from the roads.

Changes from Current Law:

N/A

State Facilities Impacts:

WSP currently has space available for five Cessna aircraft; there would be no need for additional space.

Reference Documents

[WSP 2022 Supplemental - Aircraft Replacement Cost Estimate.xlsx](#)

IT Addendum

Does this Decision Package include funding for any IT-related costs, including hardware, software, (including cloud-based services), contracts or IT staff?

No

Objects of Expenditure

Objects of Expenditure <i>Dollars in Thousands</i>	Fiscal Years		Biennial	Fiscal Years		Biennial
	2022	2023	2021-23	2024	2025	2023-25
Obj. P	\$0	\$1	\$1	\$11	\$20	\$31
Obj. P	\$0	\$68	\$68	\$544	\$990	\$1,534

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