



# Third Aircraft Proposal

NIROPS Closeout  
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# Purpose / Program Structure

- **Purpose:** The purpose of this proposal is to provide necessary capacity to help address various airborne remote sensing requirements through the availability of adaptable, multi-mission platform. This would be accomplished through technical upgrades to N182Z. Costs for the N182Z upgrades would be shared by Forest Service staff areas with a committed interest to routinely utilize the platform for operational needs.



# Desired Upgrades

- Planned upgrades would include the following:
  - **Sensor pod**: For sensor systems that cannot readily fit sensor port in cabin – OR -
  - **Sensor port reconfiguration w/pressure vessel**: In lieu of the addition of a sensor pod, conduct necessary engineering modifications to cabin and port to accommodate flexible integration of current and future sensor systems.
  - **AirCell system**: For near real-time data telemetry to the ground and to support ground-based command/control of sensor systems.
  - **Electronics system and equipment rack**: Power and electronics rack to house sensor equipment/components (computer, etc.).
  - **Computing system(s)**: For near real-time image pre-processing and product generation.
  - **Position and orientation system (POS AV)**: For efficiently georeferencing acquired imagery in near real-time or post mission.



# Risks

- **Safety:** A formal Risk Assessment would be performed to ensure there is no added or transferred risk associated with the consolidation and performance of these multiple missions by one aircraft.
- **Financial:** This will require investment of funds to make the aircraft viable to perform the new mission mix. This exposes the agency to lower financial risk due to one aircraft performing the consolidated missions of multiple aircraft. N182Z has been underused in the past several years. Costs for flight hours to support individual missions will be paid for by the appropriate agency staff or program.
- **Political:** There are no known political risks, however significant political benefit is likely.



# Challenges / Goals

- **Challenges:** Consolidating multi-mission needs into one shared platform will have management challenges. Effectively executing the operations and management plan by the 182Z Working Group with strong stakeholder support is critical to the successful utilization of the multi-mission platform. Protocols for stakeholders to request and schedule the N182Z for missions are clearly documented in the N182Z MOA between Region 8/Washington Office-Aviation Division and should not be bypassed.
- **Goals:** Complete recommended upgrades by mid-summer 2016.



# Budget / Costs

The following are estimates for recommended upgrades to facilitate multi-mission remote sensing capabilities on N182Z:

- **Option 1:**
  - Upgrade and modify N182Z with an external sensor pod:
    - Sensor pod: \$300K
    - AirCell system: \$122K
    - Electronics system and equipment rack: TBD
    - Computing system(s): TBD
    - POS AV system: \$35K to \$100K
      - *May be able to use existing Forest Service IMU from FHTET*



# Budget / Costs

The following are estimates for recommended upgrades to facilitate multi-mission remote sensing capabilities on N182Z:

- **Option 2:**
  - Upgrade and modify N182Z with an internal sensor bay:
    - Sensor port reconfiguration: \$620K
    - AirCell system: \$122K
    - Electronics system and equipment rack: TBD
    - Computing system(s): TBD
    - POS AV system: \$35K to \$100K
      - *May be able to use existing Forest Service IMU from FHTET*



# Cost Estimate Table for Port and Pod Options

<b>New Port Installation:</b>			
Item	Cost (FS Install)	Cost (Vendor Install)	
Nominal Cost for Port Installation	\$451,650	\$488,820	
Additional / If needed	\$161,650	\$166,860	
FOD Door	?	?	
Estimated Total	\$613,300	\$655,680	
<b>POD Installation</b>			
Item	Cost (FS Install)	Cost (Vendor Install)	
POD Cost	\$135,000		
POD Cost with installation	??	\$171,500	
Customization of Pod to accommodate particular sensors	\$40,000	\$40,000	
Estimated Total	\$175,000	\$211,500	
<b>GoGo Aircell System</b>			
Item	Cost (FS Install)	Cost (Vendor Install)	
Aircell & Components	\$125,064	\$93,064	
Installation	?	?	
Estimated Total	\$125,064	\$93,064	
<b>Applanix IMU (if needed)</b>			
Item	Cost (FS Install)	Cost (Vendor Install)	
Applanix	\$35,000	\$35,000	From \$35k to \$122K
Installation	?	?	
Estimated Total	\$35,000	\$35,000	
<b>Port / GoGo / Applanix</b>			
Item	Cost (FS Install)	Cost (Vendor Install)	
Port / GoGo / Applanix	\$773,364	\$783,744	
Port / Gogo	\$738,364	\$748,744	Using existing FS Applanix
<b>POD / GoGo / Applanix</b>			
Item	Cost (FS Install)	Cost (Vendor Install)	
POD / GoGo / Applanix	\$335,064	\$339,564	
POD / GoGo	\$300,064	\$304,564	Using existing FS Applanix





# Cost Estimate Table for Port and Pod Options

	Cost (FS Install)	Cost (Vendor Install)	
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Port / Gogo	\$738,364	\$748,744	Using existing FS Applanix
POD / GoGo / Applanix	\$335,064	\$339,564	
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# Pod Configuration



# Questions?

