ATTACHMENT 2

SUMMARY OF OPTIONAL MISSION EQUIPMENT

UH-60A+/L AIRCRAFT

We have an unparalleled capability to expeditiously provide Black Hawk aircraft per customer specific mission requirements. We have more than 20 UH-60A+/L, currently located in our facilities, that have already begun maintenance and overhaul induction. Our partners recently were awarded the new US Army Black Hawk Exchange and Sales Transaction Program (BEST) contract. All UH-60 platforms being divested from the US Army will be stored and managed by our partners prior to auction and sale.

Figure 2: Optional Armed Aircraft Configuration

Optional Mission Equipment

We offer a full array of optional mission equipment for the UH-60 platform. The options range from Search and Rescue configuration, Firefighting configuration, MEDEVAC configuration, Utility configuration, and Weapons configuration. The following Optional Mission Equipment is provided for review and consideration.

Avionics

IFD components incorporate modern technologies that meet future Communications, Navigation, and Surveillance / **Air Traffic Management** (CNS/ATM) requirements world-wide. It also provides for advanced situational awareness (SA) such as synthetic vision and terrain awareness and allows for growth development supporting spiral insertions such as a fully coupled autopilot, manned-unmanned teaming, Link 16, or integrated weapons packages. The IFD is highly configurable, upgradeable, and can support advancing technology as it becomes available. The IFD offering to our clients will include the following capabilities:

- **Comprehensive Flight Management System (FMS) capabilities:** The IFD FMS functions much like an application-based smart phone. The touchscreen controllers provide intuitive apps and layers to navigate the various functions available. Access to maps, plates, aircraft system status, keyboards and many other features occurs by simply touching the screen and engaging the application. The touch engagement is not activated with pressure, but rather through an infrared grid. This allows for easy touch access to functions, even with gloved hands, a stylus or a pencil eraser. The features are very intuitive and build upon the ease of use of other Garmin touchscreen avionics. The FMS delivers performance and cost saving features such as satellite and ground-based augmentation systems (SBAS/GBAS) navigation and approaches, Barometric Vertical Navigation (Baro-VNAV), Required Navigation Performance (RNP) Authorization Required (AR) approaches (down to RNP 0.1), and more. Pilots may also create individual crew profiles that are selectable by name at startup. These profiles are pre-defined configurations that may include map settings, avionic setting, PFD setting, user waypoints, and weight and balance information. It is portable between aircraft via a Secure Digital (SD) card, so pilots do not have to re-enter preferences each time they enter the cockpit or to promote standardization across a fleet.

Integrated Flight Deck (IFD)

Figure 3: Cockpit View

Figure 4: App-Based Garmin GTC 575H Touchscreen Controllers

- **Integrated Aircraft Maintenance Management Tools:** The IFD includes features that provide an integrated multi-level approach to diagnostics for improved crew assessment and troubleshooting efficiency. Embedded Built-In Testing (BIT) is available for numerous electronic and mechanical systems. Audible warnings have been incorporated into selected system failures as an added safety feature. For example, in the IFD, the crew will be alerted to a number two engine failure with an audible message stating "right engine failed," which is triggered when the number two gas generator speed falls below 55 percent. Many simple, safety enhancing nuances such as this have been incorporated to reduce the stress and uncertainty experienced by a crew during system failures. Finally, the aircraft synoptics page (Figure 19) provides the crew a dynamic graphical overview of system health, reducing the potential for incorrect assessment and actions while improving fault isolation and diagnosis. It is also an exceptionally useful tool during startup and shutdown.

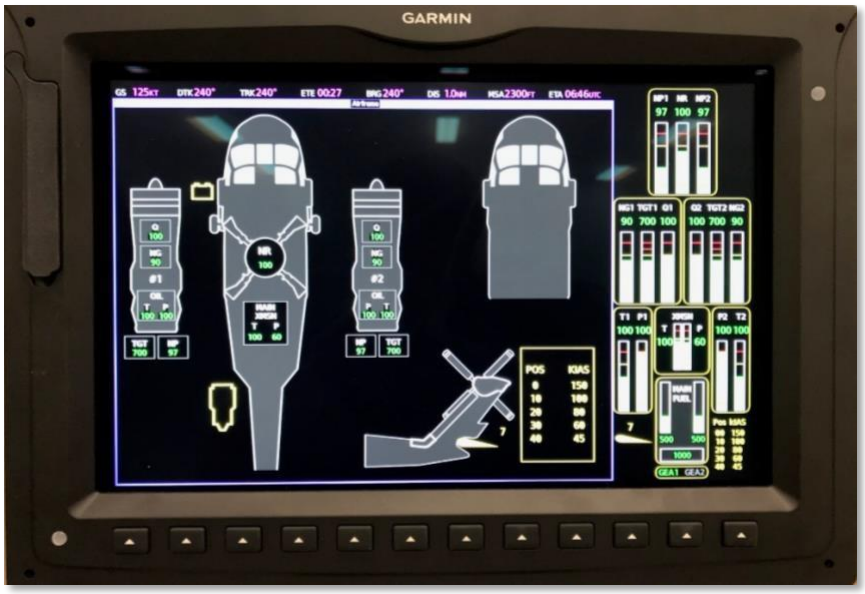

Figure 5: Graphical Synoptics Page

- **Over-the-Horizon Connectivity and Flight Data Services:** The IFD will include datalink weather solutions through rich datalink weather (GSR-56 Iridium Satellite Link), giving operators the weather information necessary to make safe decisions in real time. The link provides worldwide voice and data services, allowing for telephone or text communications from the cockpit.

Figure 6: Active Weather, Satellite Phone, and Text

- **SafeTaxi:** The IFD's integrated runway surface guidance and awareness system displays detailed airport diagrams on the moving map, along with advisory aural and visual aids and annunciations on the Primary Flight Displays (PFD) and Multi-functional Displays (MFD). This feature reduces the potential for runway incursions and excursions during ground and air operations in both movement and non-movement areas of the airport environment.

Figure 7: MFD Display of Airport Features Using SafeTaxi

- **Vivid, High Resolution, Widescreen Displays:** The IFD offers high resolution displays with customizable multi-pane capabilities, clean bezels, enhanced LED backlighting, advanced video capability, and extraordinary clarity.

Figure 8: Garmin 12-inch 4k UHD Displays with SVT and Moving Map

- **Synthetic Vision Technology™ (SVT™):** The IFD offers this state-of-the-art feature that revolutionizes crew situational awareness. The SVT displays a panoramic depiction of the terrain and obstacles in front of the aircraft and is available on the Primary Flight Displays (PFDs) as a background to the displayed aircraft state data. Using the system's Helicopter Terrain Awareness and Warning System (HTAWS) database, SVT enhances situational awareness by creating a "virtual reality" depiction of ground and water features, obstacles, and traffic in proximity to the aircraft. It provides a

realistic picture of what lies beyond the nose of the helicopter – even in solid instrument or night conditions (Figure 23).

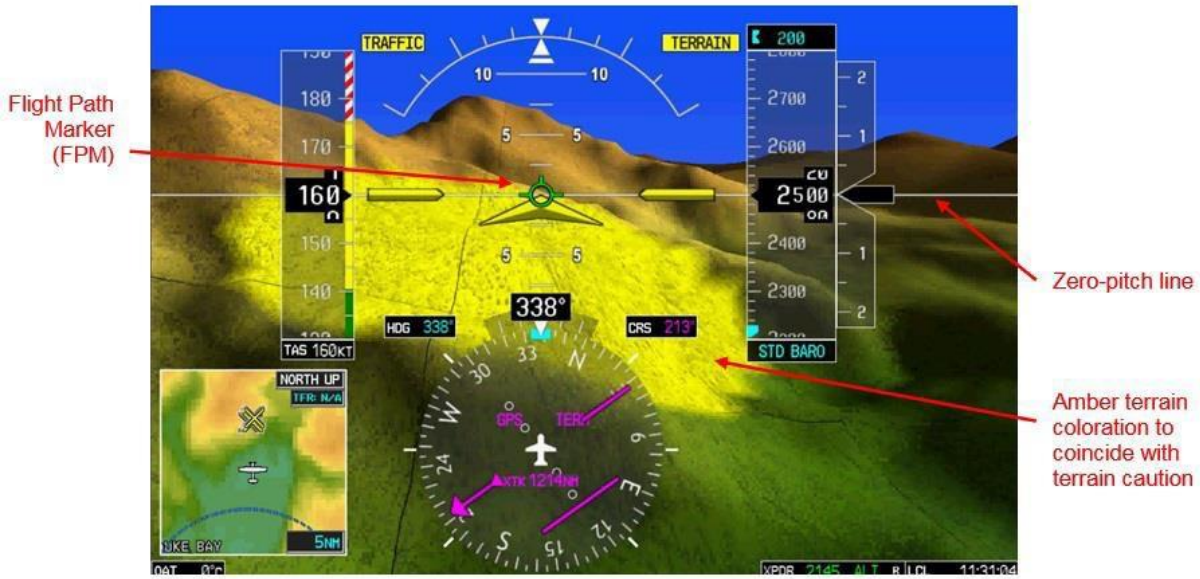

Figure 9: Garmin Synthetic Vision Technology (SVT)

- **Advanced Automatic Dependent Surveillance – Broadcast (ADS–B) Technology:** The IFD offers a seamless path to meet the demands of air traffic modernization initiatives around the world. Highly accurate WAAS/SBAS position information is utilized while broadcasting aircraft identity, state, and intent data (DO-260B compliant) to air traffic control. ADS-B In is integrated, allowing for enhanced situational awareness with features such as 3D traffic with SVT. These technologies provide pilots with the most comprehensive picture of ADS-B-equipped aircraft and vehicles on the ground and in the sky.

Key Components

G5000H GDU-1250WH Displays

The IFD includes four (4) Garmin GDU-1250WH 4k ultra-high-definition (UHD) displays. The large UHD color displays provide primary flight instrument/aircraft state information, engine data, an intelligent crew alerting system (CAS) with message prioritization, raw and processed navigation data, an aircraft systems synoptic overview, multiple map and chart presentations (dynamic geo-referenced, scalable), and numerous other useful, intuitive features. The IFD multi-functional displays (MFDs) dedicate 20% of the screen to the engine instrumentation system (EIS). The remaining 80% of the MFDs are customizable and allow for various video display inputs such as EO/IR, radar, and other imagery that may be displayed in full-screen mode (80% of the screen) or split-screen modes (40% and 40% of the screen) so a moving map or chart may be viewed simultaneously (Figure 24). Civil maps are created and released by Garmin on a regular scheduled cycle. These maps are world-wide. On-aircraft updates are accomplished online via flygarmin.com and transferred via SD card to the helicopter.

Figure 10: MFD Display of Instruments, Moving Map, and Approach Plate

Garmin GTC-575H Touch Screen Controller

The two cockpit Touchscreen Controllers, designated as GTC1 and GTC2, are pedestal-mounted user interfaces for ease of data entry, display operation, and NAV/COM tuning. The touchscreen uses a grid of infrared beams to determine the location of the touch, even when the operator is wearing gloves or using a stylus. The Touchscreen Controller's functions are arranged by screen and functions much like a smart phone. The contents of each screen change dynamically in response to pilot or system input. All the Touchscreen Controller's available functions are accessible from the 'Home' Screen. The 'Home' Screen may be accessed any time it is not currently displayed by touching the Home Button. Access to maps, plates, aircraft system status, keyboards and many other features occurs by simply touching the screen and engaging the application. The features are very intuitive and build upon the ease of use of other Garmin touchscreen avionics.

Figure 11: Garmin GTC 575H Touchscreen Controllers

Garmin GMC-7300 Mode Controller

The Garmin GMC-7300 Mode Controller is mounted at the forward portion of the lower console. It is a multi-mode controller with the top half divided into left and right sides for each respective crewmember to have as a PFD controller. The right-side PFD Controller controls PFD2 and the left-side PFD Controller controls PFD1 in normal operations. The PFD Controller serves as a user interface allowing for ease of data

entry, PFD operation, display pane range/panning, and NAV/COM tuning. Numerous procedures may be performed using the PFD Controller. The bottom half of the GMC-7300 serves as a Flight Director. Both PFDs display the selected Flight Director, indicated by an arrow pointing toward either the pilot or copilot side, in the center of the Status Box. The **XFR** Key selects the PFD source for the Flight Director and commands for the selected Flight Director source are displayed on both PFDs. The Flight Director provides:

- Vertical/lateral mode selection and processing
- Command Bars showing pitch/roll guidance
- Collective Cue

The Flight Director function provides pitch, and roll commands and displays them on the PFDs. With the Flight Director active, the aircraft can be hand-flown to follow the path shown by the Command Bars on the PFDs as single cue or dual cue guidance. Both PFDs show the same Command Bar format. The Flight Director is automatically disabled if the attitude information required to compute the Flight Director modes becomes invalid or unavailable.

Figure 12: Garmin GMC-7300 Mode Controller

Garmin GIA-6300 Integrated Avionics

The GIA-6300 is a microprocessor-based input/output Line Replaceable Unit (LRU). The GIA-6300 communicates with the display units via ethernet high-speed data bus (HSDB) and with other LRUs using RS-232, RS-485/422, and ARINC 429 bus formats. The GIA-6300 contains the following sub-assemblies:

- A main processor that interfaces with LRUs in the sub-system
- A 15-channel WAAS GPS receiver that simultaneously tracks and uses up to 15 satellites
- A VHF COM transceiver that provides tuning from 118.00 to 136.992 MHz in 25 kHz or 8.33 kHz spacing for 760 or 3040 channel configurations respectively
- A VOR/ILS localizer receiver that provides tuning from 108.00 to 117.95 MHz in 50 kHz increments
- An ILS glideslope receiver that provides tuning from 328.6 to 335.4 MHz as paired with the frequency tuned on the VOR/ILS localizer receiver

In addition to the internal VOR/LOC/GS equipment, the GIA-6300 also interfaces with the Stormscope, HTAWS, Iridium Datalink, DME, and other sub-systems. The GPS receiver is certified for IFR enroute, terminal, and non-precision approaches and LNAV/VNAV, LP, and LPV approaches. The GIA-6300 was qualified to RTCA/DO-160 Section 20 RF susceptibility and Section 22 lighting requirements.

The COM radios can tune either 25-kHz spacing (118.000 to 136.975 MHz) or 8.33-kHz spacing (118.000 to 136.990 MHz) for 760-channel or 3040-channel configuration. When 8.33-kHz channel spacing is selected, the 25-kHz channel spacing frequencies are also available in the complete 3040-channel list. The COM radios and ICS are controlled via the GTC-575H Touch Screen Controller.

Active and Standby NAV frequencies are shown and manipulated on the Touchscreen Controller in IFD. In the IFD, the four navigation modes available will be:

- VOR1 (or LOC1) - If NAV1 is selected, a green single line arrow labeled either VOR1 or LOC1 is displayed on the HIS

- VOR2 (or LOC2) - If NAV2 is selected, a green double line arrow labeled either VOR2 or LOC2 is displayed on the HIS

- FMS - If FMS (GPS) Mode is selected, a magenta single line arrow appears on the HIS

Figure 13: NAV Frequency Tuning Window

Garmin Digital Intercommunication System (ICS)

The IFD will include an integrated digital ICS system with six (6) independent controllers. Internal ICS communications will be via voice operated transmissions (VOX) and external transmissions will be independently controlled at each station. External aircraft (radio) transmissions will be independently selectable by each pilot, each non-rated crewmember, and each medic or passenger sitting at a controller. The rear/cabin controls will include radio selection and volume levels only.

L3 WX-500 Stormscope

The IFD incorporates the L3 WX-500 Stormscope lightning detection system. The Stormscope displays lightning cell and strike information on the Stormscope Pane and navigation maps using the symbology shown in Figure 28 below. The Stormscope operates in either Cell Mode or Strike Mode. When operating in Cell Mode, the system displays clusters or cells of electrical activity. When operating in Strike Mode, the system displays the approximate location of individual lightning strikes in relation to aircraft position.

Lightning Age	Symbol
Strike is less than 6 seconds old	
Strike is between 6 and 60 seconds old	
Strike is between 1 and 2 minutes old	
Strike is between 2 and 3 minutes old	

Figure 14: Stormscope Symbols Depicting Lightning Age

The Stormscope Pane (Figure 29) shows lightning information in relation to the aircraft's current location, with simplified map details to reduce clutter and to allow for easier identification of lightning cells and strikes. It is the principal map pane for viewing Stormscope lightning information. The Stormscope Pane displays the selected Stormscope operating mode and lightning strike rate in the upper right corner of the pane. The selected map range appears in cyan a box on the range arc. The Stormscope Pane also displays the active flight plan, when one exists.

Figure 15: Stormscope Pane Operating in Strike Mode

Garmin GDC-7400 Air Data Computer

The GDC-7400 Air Data Computer (ADC) is a remote mounted device that provides air data for flight instrumentation. The GDC-7400 was designed for high-altitude FAR Part 23 Class IV and Part 25 aircraft that operate in reduced vertical separation minimums (RVSM) airspace and in Part 29 helicopters. The ADC performs static source error correction to support aircraft required to meet Reduced Vertical Separation Minimums (RVSM). Two GDC units will be installed in the IFD. The system measures aircraft static and impact pressure information from pressure transducer and raw air temperature provided by the Garmin GTP-59 outside air temperature (OAT) probe. Using the raw data from the appropriate sensors, the unit computes pressure altitude, vertical speed, airspeed values, air temperature information and density altitude. Aircraft

specific configuration parameters are stored in an external configuration module to make the GDC-7400 an LRU. The GDC 7400 provides the following information in ARINC 429 format:

- Density altitude
- Pressure altitude
- Vertical speed
- Total air temperature
- Outside/static air temperature
- Computed airspeed
- True airspeed
- Mach number
- Static Pressure, Impact Pressure and Total Pressure

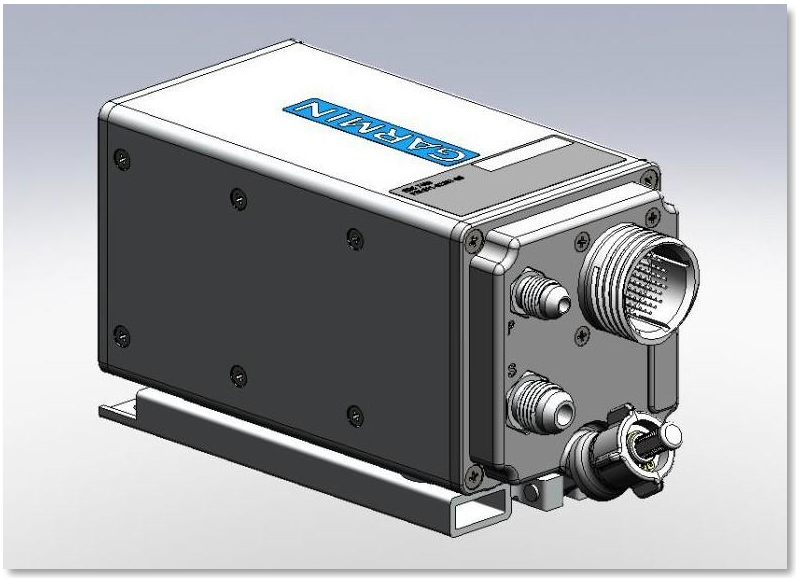

Figure 16: Garmin GDC-7400 Air Data Computer

Garmin GTX-3000 Mode Select (S) Transponder

The GTX-3000 is a remotely mounted Mode S transponder that provides Modes A, C, and S interrogation and reply capabilities. Selective addressing, or Mode S, capability includes the following features:

- Level 2 reply data link capability (used to exchange information between aircraft and ATC facilities)
- Surveillance identifier capability
- Flight Identification (Flight ID) reporting
- Altitude reporting
- Airborne status determination
- Transponder capability reporting
- Mode S Enhanced Surveillance (EHS) requirements
- Acquisition squitter
- Extended squitter

Figure 17: Garmin GTX-3000 Mode Select (S) Transponder

Garmin GRA-5500 Radar Altimeter

The GRA-5500 is a digitally based airborne low-range radar altimeter designed to calculate and provide precise Above Ground Level (AGL) altitude information for display on the PFD. The GRA-5500 features a standard two-antenna architecture utilizing digitally based low-power transmitter operation with advanced digital signal processing (DSP). The GRA-5500 operates from the ground to 2500 ft AGL with an accuracy of ±1.5 ft from 0 to 100 ft AGL and ±2% from >100 to 2500 ft AGL. It features a BIT capability and fault logging functionality. The GRA-5500 is capable of meeting Class A TAWS, TCAS II, and CAT II ILS requirements.

Figure 18: Garmin GRA-5500 Radar Altimeter

L3 GH-3900 Electronic Standby Instrument System (ESIS)

The L3 GH-3900 ESIS will provide an all-in-one backup instrument displaying aircraft state data (attitude, heading, airspeed, altitude) within a self-contained unit and with a separate back-up power supply for use during emergencies involving the total loss of electrical power and the eventual loss of all four (4) multi-functional displays.

Figure 19: L3 GH-4001 Electronic Standby Instrument System (ESIS)

UH60A+ Base Configuration plus IFD	Quantity	UH60L Base Configuration plus IFD	Quantity
GLASS PANEL DECK (IFD) Installed	1	GLASS PANEL DECK (IFD) Installed	1

Pricing for the GLASS PANEL DECK (IFD) upgrade is available upon request