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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity:
1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships

P-1 Line Item Number / Title:
2128 / FFG-Frigate

ID Code (A=Service Ready, B=Not Service Ready): A **Program Elements for Code B Items:** N/A **Other Related Program Elements:** N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity (<i>Units in Each</i>)	-	-	-	1	-	1	2	2	2	2	11	20
Gross/Weapon System Cost (<i>\$ in Millions</i>)	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Less PY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (<i>\$ in Millions</i>)	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Plus CY Advance Procurement (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority (<i>\$ in Millions</i>)	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135

(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)

Plus Outfitting and Post Delivery (<i>\$ in Millions</i>)	-	-	-	-	-	-	-	-	-	-	-	0.000
Total (<i>\$ in Millions</i>)	-	-	-	1,281.177	-	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Gross/Weapon System Unit Cost (<i>\$ in Millions</i>)	-	-	-	1,281.177	-	1,281.177	1,028.514	875.217	896.048	913.969	1,069.224	1,023.507

Description:

The Guided Missile Frigate (FFG(X)) is a more lethal and survivable multi-mission small surface combatant. In FY14, the Navy established the requirements for a lethal and survivable small surface combatant ship (designated as Frigate (FF)), above that of Littoral Combat Ship (LCS), to meet future missions. Based upon the Navy's 2016 Force Structure Assessment resulting in validation of the need for 52 small surface combatants and the need to address increasingly complex threats in the global maritime environment, the Navy reassessed the capabilities required to ensure the Frigate paces future threats. The updated assessment was completed to support establishment of top-level FFG(X) requirements in Summer 2017 and resulted in a Navy approved Capability Development Document (CDD). The CDD is scheduled for JROC-Validation in 2nd Qtr 2019. With FFG(X), the Navy desires to maximize the small surface combatant capabilities in the anti-surface warfare (SUW), anti-submarine warfare (ASW), electromagnetic maneuver warfare (EMW), air warfare (AW) mission areas, and survivability while keeping the ship affordable and as a part of a "high-low" mix of surface ships. The FFG(X) program will continue to refine the cost estimates to support a FY 2020 Detail Design and Construction (DD&C) contract award.

Funds were realigned from Littoral Combat Ship (SCN Line Item 2127) to Frigate (SCN Line Item 2128) beginning in FY 2020.

Characteristics: **TBD**

Length Overall -
Beam -
Displacement -
Draft -

Production Status: **FFG 1**

Contract Award Date Jul 2020
Months to Completion
a) Award to Delivery 72 months
b) Construction Start to Delivery 48 months
Delivery Date Jul 2026
Completion Of Fitting Out Oct 2026
Obligation Work Limit Date Sep 2027

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships		P-1 Line Item Number / Title: 2128 / FFG-Frigate
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

<u>Design Schedule</u>	<u>Start / Issue</u>	<u>Complete / Response</u>	<u>Reissue</u>	<u>Reissue Complete / Response</u>
Issue Date for TLR	Feb 2017	Oct 2017		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	Feb 2018	May 2019		
Detail Design	Jul 2020	N/A		
Request for Proposals	Jul 2019	N/A		
Design Agent				
Classification of Cost Estimate:				

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Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate
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Cost Categories <small>(†) indicates the presence of a P-8a</small>	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Plan Costs	1	143.476
Basic Construction/Conversion		714.705
Change Orders		30.465
Electronics ^(†)		279.725
Hull, Mechanical, and Electrical (HM&E) ^(†)		20.965
Ordnance ^(†)		43.384
Other Cost		48.457
Total Ship Estimate		1,281.177
Net P-1 Funding		1,281.177

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Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate
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Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
FFG 1	TBD	2020	Jul 2020	Jul 2022	Jul 2026
FFG 2	TBD	2021	Apr 2021	Jan 2023	Jan 2027
FFG 3	TBD	2021	Apr 2021	Jun 2023	Jun 2027
FFG 4	TBD	2022	Apr 2022	Nov 2023	Oct 2027
FFG 5	TBD	2022	Apr 2022	Apr 2024	Mar 2028
FFG 6	TBD	2023	Apr 2023	Oct 2024	Aug 2028
FFG 7	TBD	2023	Apr 2023	Apr 2025	Feb 2029
FFG 8	TBD	2024	Apr 2024	Oct 2025	Jul 2029
FFG 9	TBD	2024	Apr 2024	Apr 2026	Jan 2030

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate
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Electronics	FY 2020	
	Qty (Each)	Total Cost (\$ M)
P-35 Items		
Enterprise Air Surveillance Radar (EASR)	1	60.876
Frigate Weapon System (FWS)	1	51.530
Anti-Submarine Warfare (ASW) Combat Suite	1	48.834
Surface Electronic Warfare Improvement Program (SEWIP) BLK II (SLQ-32(V)6)	1	13.589
Tactical COMINT System- Spectral	1	11.872
Cooperative Engagement Capability (CEC)	1	11.095
External Communication Suite	1	7.396
Identification Friend or Foe (IFF) UPX-29	1	6.499
Network Tactical Common Data Link (NTCDL) Variant B	1	5.770
Consolidated Afloat Network Enterprise System (CANES)	1	5.282
NIXIE AN/SLQ-25E	1	4.523
Navy Advanced Extremely High Frequency (AEHF) Multiband Terminal (NMT)(AN/WSC-9(V)1)	1	4.522
Situation Awareness EO/IR	1	4.487
Inertial Navigation System (INS) AN/WSN-7(V)1	1	3.841
P-35 Items Subtotal		240.116
Major Items		
Next Generation Surface Search Radar (NGSSR)	2	3.134
Commercial Broadband Satellite Program	1	2.112
OA-9277A	1	2.104
Moriah Wind System (MWS) (AN/SMQ-13)	1	1.864
Major Items Subtotal		9.214
Other Cost Elements		
Other Electronics	1	30.395
Other Cost Elements Subtotal		30.395
Total Electronics		279.725

Remarks:

Other Electronics include C4I System Innovation Facility (C-SIF) / Technical Integration Facility (TIF), Advanced Training Domain (ATD), Navy Electronic Chart Display Information System (ECDIS), Tactical Variant Switch (TVS) (AN/USQ-155(V)), Antennas, and various other systems.

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate
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Hull, Mechanical, and Electrical (HM&E)	FY 2020	
	Qty (Each)	Total Cost (\$ M)
P-35 Items		
Aircraft Ship Integrated Securing and Traversing System (ASIST)	1	8.361
Internal Communication (IC) Voice	1	3.275
P-35 Items Subtotal		11.636
Major Items		
Advanced Flight Deck Lighting System (AFDLS)	1	2.301
Shipwide Interior Wireless Communication System (SIWCS)	1	1.881
Unclassified Video System (UVS)	1	1.623
Major Items Subtotal		5.805
Other Cost Elements		
Other HM&E	1	3.524
Other Cost Elements Subtotal		3.524
Total Hull, Mechanical, and Electrical (HM&E)		20.965

Remarks:
Other HM&E includes 7M Rigid Hull Inflatable Boat (RHIB), Horizon Reference Set (HRS), Enhanced Maritime Biological Detection (EMBD), Plastic Shredder, and other systems.

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Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
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Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate
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Ordnance	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
P-35 Items		
MK 48 Gun Weapon System (GWS)	1	14.838
Rolling Airframe Missile (RAM) Guided Missile Launching System- 21 Cell	1	12.004
MK 41 Vertical Launch System (VLS)- 32 Cell	1	11.519
P-35 Items Subtotal		38.361
Major Items		
Over-The-Horizon Missile Launcher (OTH)- 8 Canister	1	2.950
MK 53 Decoy Launching System (DLS) (Nulka)- 4 Launcher	1	1.523
Major Items Subtotal		4.473
Other Cost Elements		
Other Ordnance	1	0.550
Other Cost Elements Subtotal		0.550
Total Ordnance		43.384

Remarks:

Other Ordnance includes Portable Ordnance Handling Equipment (POHE) and Machine Gun Mounts

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Enterprise Air Surveillance Radar (EASR) **PARM Code:** PEO IWS 2A

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	45.786
System Engineering		2.121
Technical Engineering Services		2.180
Other Costs		10.789
Total	1	60.876

Description:

Enterprise Air Surveillance Radar (EASR) is the next generation S-band air search radar with 3-D search capability supporting Air Warfare (AW) for self- and local area defense; Surface Warfare (SUW) for Fast Attack Craft (FAC), Fast Inshore Attack Craft (FIAC); Asymmetric / Force Protection; Electromagnetic Maneuver Warfare.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Raytheon	C/FPIS	TBD		1	45.786

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	28	Nov 2020

Competition/Second Source Initiatives:

N/A

Remarks:

Both FFG(X) and CVN (starting at CVN 79) will have fixed faced 9-RMA EASRs, however the software integration to the Frigate Weapon System (FWS) will be different.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Frigate Weapon System (FWS) **PARM Code:** PEO IWS 8.0

P-35 Category	FY 2020	
	Qty (Each)	Total Cost (\$ M)
Major Hardware	1	13.190
System Engineering		2.632
Technical Engineering Services		1.138
Other Costs		34.570
Total	1	51.530

Description:

The Frigate Weapon System (FWS) is an integrated combat management system that provides doctrine, management, control, and display functionality for FFG(X) Combat System (FCS) missions as well as command and control functionality for the entire combat system. The FWS comprises: Command and Decision (C&D) System, Combat System Computing Infrastructure (CSCI), Shipboard Gridlock System/Automatic Correlation (SGS/AC), Aegis Display System (ADS), Weapons Control System (WCS), Operational Readiness Training System (ORTS), Mission Planner (MP), Vehicle Control Domain (VCD), and resource management for the Enterprise Air Surveillance Radar.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	C/FFP	TBD		1	13.190

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	29	Oct 2020

Competition/Second Source Initiatives:

FWS will be procured under the competitive combat system contract run by IWS 1.0 with award in FY 2021.

Remarks:

Other costs represent the system integration and test for the entire combat system.

FWS is an AEGIS Common Source Library (CSL) derived command and control system for the Frigate Combat System (FCS). The change to FWS from CMS occurred in unison with the move from FF to FFG.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Anti-Submarine Warfare (ASW) Combat Suite **PARM Code:** PEO IWS 5.0

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	31.301
System Engineering		7.417
Technical Engineering Services		2.990
Other Costs		7.126
Total	1	48.834

Description:

The Anti-Submarine Warfare (ASW) Combat Suite provides surface warships with an integrated undersea/anti-submarine warfare detection, localization, classification, and targeting ability. It includes AN/SQQ-89, Undersea Warfare Decision Support System (USW-DSS), Multi Function Towed Array (MFTA), expendable bathythermograph (XBT) launcher LM-48, and the fathometer.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Various	Various	Various		1	31.301

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Remarks:

Variable Depth Sonar (VDS) was moved to CFE equipment & option provided to use low-band hull array. This results in a decrease in the ASW Combat Suite.

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Surface Electronic Warfare Improvement Program (SEWIP) BLK II (SLQ-32(V)6) **PARM Code:** PEO IWS 2E

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	10.309
System Engineering		0.966
Technical Engineering Services		0.108
Other Costs		2.206
Total	1	13.589

Description:

The AN/SLQ-32 SEWIP Block II is a scalable Electronic Warfare enterprise suite to provide Electromagnetic Interference (EMI) mitigation and combat system interface capabilities. It provides enhanced shipboard Electronic Warfare (EW) for early detection, analysis, threat warning and protection from anti-ship missiles.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Various	Various	Mar 2021	Various	1	10.309

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Tactical COMINT System- Spectral **PARM Code:** PMW 120

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	9.885
System Engineering		0.477
Technical Engineering Services		0.678
Other Costs		0.832
Total	1	11.872

Description:

Spectral is the next generation information warfare weapons system, enhancing Ship Signals Exploitation System (SSES) capabilities that detects, classifies, and tracks SOI (Signals of Interest) used in the Tasking, Collection, Processing, Exploitation and Dissemination (TCPED) process. Spectral is scalable, mission configurable, modular, and remotable, rapidly responding to new threats and/or capabilities. A integrated capability enables data sharing with other systems to support electromagnetic maneuver warfare (EMW/Integrated fires (IF)).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	TBD	TBD	TBD		1	9.885

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Mar 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Cooperative Engagement Capability (CEC) **PARM Code:** PEO IWS 6.0

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	8.631
System Engineering		0.640
Technical Engineering Services		0.646
Other Costs		1.178
Total	1	11.095

Description:

The Cooperative Engagement Capability (CEC) AN/USG-2B system provides real time integration of fire control quality sensor data into a single composite data source, which can be used by multiple CEC ships and airborne units for direct and remote missile engagements. CEC significantly improves battle force Anti-Air Warfare (AAW) capability by coordinating all force AAW sensors into a single real time, fire control quality composite track picture.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	TBD	Various	Various		1	8.631

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: External Communication Suite **PARM Code:** PMW 760

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	6.345
System Engineering		0.178
Technical Engineering Services		0.517
Other Costs		0.356
Total	1	7.396

Description:

External Communication Suite (EXCOMM) is a software programmable tactical radio (with embedded INFOSEC [Information Security]) that provides interoperable Line of Sight/Beyond Line of Sight (LOS/BLOS) C4I capabilities to the fleet.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Various	C/FFP	TBD		1	6.345

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Identification Friend or Foe (IFF) UPX-29 **PARM Code:** PMA 213

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	5.221
System Engineering		0.714
Technical Engineering Services		0.207
Other Costs		0.357
Total	1	6.499

Description:

The AN/UPX-29(V) provides a centralized identification system that operates independently to transmit interrogations, detect transponder replies, and process the resulting information for use by a ship's operators and combat weapons system computers. The system provides Modes 1, 2, 3A, C and provides secure, positive ID of Mode 4, Mode S and Mode 5 targets.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	TBD	Various	Various		1	5.221

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Network Tactical Common Data Link (NTCDL) Variant B **PARM Code:** PMW 170

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	4.281
System Engineering		0.577
Technical Engineering Services		0.255
Other Costs		0.657
Total	1	5.770

Description:

NTCDL provides the ability to transmit/receive real-time ISR data simultaneously from multiple sources (air, surface, subsurface, and man-portable) and exchange command and control information (voice, data, imagery, and full-motion video) across dissimilar joint, service, coalition, and civil networks. NTCDL provides warfighters the capability to support multiple, simultaneous, networked operations with in-service CDL equipped aircraft (e.g., F/A-18, P-3, and MH-60R) in addition to next-generation manned and unmanned platforms (e.g., Fire Scout).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	BAE Systems Inc.	TBD	TBD		1	4.281

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Consolidated Afloat Network Enterprise System (CANES) **PARM Code:** PMW 160

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	2.645
System Engineering		1.985
Technical Engineering Services		0.513
Other Costs		0.139
Total	1	5.282

Description:

CANES is a single, highly scalable network, computing, and services infrastructure supporting mission area application hosting and service delivery across a diverse set of Communities of Interest (COIs). It provides Navy tactical/nontactical information environment and infrastructure necessary to enable hosting, extended services reach back & reach forward and relay functions.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	TBD	TBD	TBD		1	2.645

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: NIXIE AN/SLQ-25E **PARM Code:** PMS 415

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	2.010
System Engineering		0.291
Technical Engineering Services		0.442
Other Costs		1.780
Total	1	4.523

Description:

The Torpedo Countermeasures Transmitting Set AN/SLQ-25E (NIXIE) is a passive, electro-acoustic decoy system used to provide deceptive countermeasures against acoustic homing torpedoes.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	TBD	TBD	TBD		1	2.010

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Navy Advanced Extremely High Frequency (AEHF) Multiband Terminal (NMT)(AN/WSC-9(V)1) **PARM Code:** PMW 170

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	3.952
System Engineering		0.041
Technical Engineering Services		0.190
Other Costs		0.339
Total	1	4.522

Description:

The Navy Multiband Terminal (NMT) is the Navy's next generation ground terminal for military protected and wideband satellite communications, providing voice, video and data communications. NMT supports protected strategic/tactical warfare communications down to housekeeping and humanitarian (quality of life) communications for the Sailor and maintains backwards compatibility with legacy waveforms and systems while ensuring access to new and future MILSATCOM capabilities (AEHF, WGS, EPS).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Various	Various	Dec 2020	Option	1	3.952

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Situation Awareness EO/IR **PARM Code:** PEO IWS 2E

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	2.905
System Engineering		0.554
Technical Engineering Services		0.090
Other Costs		0.938
Total	1	4.487

Description:

Situation Awareness Electro-Optical/Infrared (EO/IR) system provides the capability to classify, identify and assist in determining intent of conventional, asymmetrical and advanced contacts/threats. EO/IR improves Situational Awareness (SA) and supports AT/FP, ISR, NAV, INTEL, SUW, AAW and ASMD missions while providing Long Range HD Visible/Infra-Red and Laser Range Finding sensors and capability for controlling, displaying and recording sensor imagery

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Ball Aerospace & Technologies	TBD	TBD		1	2.905

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:

N/A

UNCLASSIFIED

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Inertial Navigation System (INS) AN/WSN-7(V)1 **PARM Code:** PEO IWS 6.0

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	2.500
System Engineering		0.180
Technical Engineering Services		0.396
Other Costs		0.765
Total	1	3.841

Description:

The AN/WSN-7 Ring Laser Gyro Navigation (RLGN) System calculates and disseminates own ship's position, velocity and attitude (heading, roll and pitch) data outputs. The AN/WSN-7 RLGN System provides real time navigation data to use by Navigation & combat systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Sperry Marine	TBD	Sep 2020		1	2.500

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	17	Oct 2021

Competition/Second Source Initiatives:

N/A

UNCLASSIFIED

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Aircraft Ship Integrated Securing and Traversing System (ASIST) **PARM Code:** PMA 251

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	4.163
System Engineering		0.516
Technical Engineering Services		2.397
Other Costs		1.285
Total	1	8.361

Description:

Aircraft Ship Integrated Secure and Traverse (ASIST) provides safe recovery, securing, straightening, traversing, stowing, and launching of MH-60R and MQ-8C.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	INDAL	SS/IDIQ	Sep 2021	New	1	4.163

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	21	24	Oct 2022

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Internal Communication (IC) Voice **PARM Code:** PEO SHIPS

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	1.700
System Engineering		0.185
Technical Engineering Services		0.920
Other Costs		0.470
Total	1	3.275

Description:
IC Voice provides shipboard internal communication consisting of the announcing system, telephones, and wireless radios.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	TBD	TBD	TBD		1	1.700

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:
N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: MK 48 Gun Weapon System (GWS) **PARM Code:** PEO IWS 3C

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	11.108
System Engineering		0.951
Technical Engineering Services		0.417
Other Costs		2.362
Total	1	14.838

Description:

The MK 48 MOD 2 Gun Weapon System is fully integrated with MK 160 MOD 18 Gun Computer System w/ MK 20 MOD 1 Electro Optical Sight System and MK 110 MOD 0 57mm gun. The MK 160 Gun Fire Control System (GFCS) is the standard USN gun fire control system; the MK 20 Electro-Optical Sensor System (EOSS) is the standard gun optical sight used for gun engagements; and the MK 110 is an automated 57mm gun system used for surface and air engagements of hostile targets.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Various	C/FFP	Various	Various	1	11.108

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

UNCLASSIFIED

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1 **P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Equipment Item: Rolling Airframe Missile (RAM) Guided Missile Launching System- 21 Cell **PARM Code:** PEO IWS 11

P-35 Category	FY 2020	
	Qty <i>(Each)</i>	Total Cost <i>(\$ M)</i>
Major Hardware	1	10.060
System Engineering		0.775
Technical Engineering Services		0.372
Other Costs		0.797
Total	1	12.004

Description:

The Rolling Airframe Missile (RAM) Guided Missile Weapon System (GMWS) is a lightweight, fast reaction, high-firepower, passive, dual-mode (IR and RF) system. The RAM GMWS is a point defense weapon system, designed to engage and destroy incoming Anti-Ship Cruise Missiles (ASCM), helicopters, and fixed wing aircraft, and to engage and intercept surface craft. This represents the 21-cell variant.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity <i>(Each)</i>	Unit Cost <i>(\$ M)</i>
FY 2020	FFG 1	Raytheon	C/FFP	TBD		1	10.060

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy **Date:** March 2019

Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate
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Equipment Item: MK 41 Vertical Launch System (VLS)- 32 Cell **PARM Code:** PEO IWS 3L

P-35 Category	FY 2020	
	Qty (Each)	Total Cost (\$ M)
Major Hardware	1	11.089
Other Costs		0.430
Total	1	11.519

Description:

The MK 41 Vertical Launch System (VLS) is a Modular, Below Deck Missile Launcher supporting Multiple Warfighting Mission Areas: AAW/ASW/BMD/Land Attack/Strike. This represents one 32-cell launcher system.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost (\$ M)
FY 2020	FFG 1	TBD	C/FFP	May 2020		1	11.089

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

Remarks:

The MK41 VLS System requirement increased from 16-cell to 32-cell. Testing and Integration costs are captured under the Frigate Weapons System (FWS).