Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604258N *I Target Systems Development*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	18.737	10.981	12.027	-	12.027	8.569	8.791	8.993	9.173	Continuing	Continuing
0609: *Aerial Target System Dev*	0.000	6.201	9.658	7.874	-	7.874	7.184	7.377	7.551	7.702	Continuing	Continuing
0610: *Wpn Sys T&E Trng Dev/ Proc*	0.000	11.248	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.248
0612: *Surface Targets Development*	0.000	1.288	1.323	1.353	-	1.353	1.385	1.414	1.442	1.471	Continuing	Continuing
2159: *ASW TARGET*	0.000	0.000	0.000	2.800	-	2.800	0.000	0.000	0.000	0.000	0.000	2.800

A. Mission Description and Budget Item Justification

This program element funds the development of Aerial Target Systems, Unmanned Aerial Vehicle targets, Sea Surface Target Systems, Target Control systems, and associated Target Mission Support Systems, Target Threat Simulation Program and Target Augmentation and Auxiliary Systems required to simulate real world threats. These capabilities are required to execute developmental/operational test and evaluation of naval combat weapon systems and to satisfy advanced fleet training requirements while ensuring the Navy continues to develop threat simulations of emerging threat requirements.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST AND EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	23.053	10.981	9.227	-	9.227
Current President's Budget	18.737	10.981	12.027	-	12.027
Total Adjustments	-4.316	0.000	2.800	-	2.800
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-4.000	0.000			
• SBIR/STTR Transfer	-0.316	0.000			
• Program Adjustments	0.000	0.000	2.800	-	2.800
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*

Change Summary Explanation

The FY20 Program Element Budget increased by $2.8M in support of Project 2159 ASW Targets.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*	Project (Number/Name) 0609 / *Aerial Target System Dev*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
0609: *Aerial Target System Dev*	0.000	6.201	9.658	7.874	-	7.874	7.184	7.377	7.551	7.702	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The mission of the Aerial Target Systems Development program is the design and development of threat representative subsonic and supersonic aerial targets that simulate threat weapon systems, threat aircraft or threat Unmanned Aerial Vehicles. In addition to representative air vehicles, this includes development of Target Control (TC) systems, and associated Target Augmentation and Auxiliary Systems (TA/AS) which are used to replicate specific threats. Targets and auxiliary payloads are developed to support test and evaluation of combat systems required to defend fleet surface and air units in a hostile environment. As to specific hardware development, this project includes:

- Supersonic Targets: Portfolio includes GQM-163A Supersonic Sea-Skimming Target (SSST), GQM-173A Multi-Stage Supersonic Target (MSST), AQM-37, and Fleet Supersonic Training Target programs. Supersonic targets represent supersonic anti-ship cruise missile threats. The design and development of GQM-163A capabilities provide threat representative targets that are used in direct support of Developmental Test and Evaluation, Operational Test and Evaluation, and Live Fire Test and Evaluation of major combat weapons programs and to a lesser degree, support fleet training. Critical live-fire Test and Evaluation events are supported for AEGIS, DDG-1000, LHA-6, CVN-78, LCS, and LSD-41/49 (SM-6, SM-2, RAM, SSDS, and ESSM). The GQM-163A is a non-recoverable supersonic sea skimming aerial target, capable of speeds in excess of Mach 2.5 and cruise altitudes from 13.0 to 66 ft. The GQM-163A has also demonstrated higher altitude diving threat profiles. MSST was a supersonic development effort that was terminated on September 25, 2015. Once the contract termination costs have been determined by DCMA, funds may be required to cover settlement costs. However, the requirement still exists to provide a multi-stage vehicle presentation. New supersonic target development efforts include the Fleet Supersonic Training Target and a replacement target for AQM-37.

- Subsonic Targets: Portfolio includes BQM-177A, and BQM-34 & BQM-74 subsonic target programs. The BQM-177A SSAT development primarily represents subsonic anti-ship cruise missile threats, replacing legacy BQM-74E targets with a modernized subsonic target with increased capabilities. The BQM-177A SSAT provides threat representation for developmental and operational test & evaluation events of major combat weapons systems programs and in support of fleet training events. Specifically, the BQM-177A SSAT provides critical live-fire test and evaluation events for AEGIS, SM-6, SM-2, RAM, and ESSM. BQM-74s are undergoing product improvement program efforts to increase their current performance envelope to meet evolving Fleet requirements and increase operational readiness needs and other subsonic targets, such as the BQM-34, are being considered for similar efforts.

- Target Threat Simulation Program (TTSP), Target Mission Support Systems (TMSS), and Target Control and Target Augmentation and Auxiliary Systems (TC/TA/AS) development: the TTSP portfolio provides the payload equipment required to electronically enhance aerial targets to provide threat representative radio frequency signatures, specifically the electronic attack and threat radar emissions (active emitters). Development of threat representative simulation components is on-going and required to keep pace with evolving threats and ensure that the Navy's threat simulation capabilities maintain warfighter readiness in the current environment. TC provides command and control of targets to enable the execution of threat-representative mission profiles. The mission also includes the design, development and qualification of various TMSS projects including but not limited to: Target RF datalink hardware, ground control hardware and software, scorer transponders, scoring

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

ground stations, telemetry antennas, radar and locator beacons, identification, friend or foe transponders, and associated test sets. TA/AS enables each target to be uniquely configured for specific mission profiles and provide for high fidelity simulation of foreign threats. TA/AS-configured targets are used for radar acquisition test, electronic countermeasures (jamming) evaluation, infrared measurement and testing, radar cross section evaluation, decoy-effectiveness testing, maneuver analysis, electronic warfare evaluation, warhead-effectiveness testing and evaluation of fleet tactics. TA/AS scoring capabilities include both surface and airborne scalar and vector scoring systems.

In addition to the design and development of target hardware and software, funding supports studies performed by a University Affiliated Research Center (UARC) to specify and verify needed target performance for future target development. For the design and validation of targets under development, the UARC will provide engineering studies in areas such as structures, controls, guidance, and propulsion. For those hardware and software items presently under development by commercial vendors, the UARC will provide oversight and validation of vendor design and development approach.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Supersonic Targets - Development & Upgrades of Supersonic targets	0.629	0.229	0.237	0.000	0.237
Articles:	-	-	-	-	-
Description: Provides funding for the development of GQM-163A upgrades/evolutionary development to keep pace with evolving threat characteristics. Efforts include continued development of performance envelope characteristics to include flight termination performance, enhanced speed and distance capabilities, and multiple target launch capability. Funding will also support the development of other unique supersonic targets as required, and the close out of the GQM-173 development effort.					
FY 2019 Plans: Continue the GQM-163A Supersonic Sea Skimming Targets improvement and increased capability efforts including deployable chaff, EW payloads, enhanced flight performance and Orbital Front End System space allocation studies and redesign for SSST. Complete Radome and Radar Altimeter design and development efforts, integration of JTIM and M&S. Commence the development for required improvements in the current infrastructure of the launch capability to accommodate the increased number of targets to as many as six. Continue to support the development and test of other unique supersonic targets as required.					
FY 2020 Base Plans: Complete the Orbital Front End System Space Allocation study. Continue the development of GQM-163A Supersonic Sea Skimming Targets (SSST) improvements and increased capability efforts including deployable chaff, EW payloads, enhanced flight performance. Continue SSST redesign and development efforts as required for improvements and infrastructure upgrades to include those required to accommodate increased					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
simultaneous launches. Continue to support the development and test of other unique supersonic targets as required. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of 0.008 from FY 2019 to FY 2020 to account for potential future supersonic developments and inflation.					
Title: Subsonic Targets - Development & Upgrades of subsonic aerial targets with increased capabilities	1.128	1.000	1.020	0.000	1.020
Articles:	-	-	-	-	-
Description: A Subsonic Aerial Target (SSAT) replacement air vehicle, for the currently fielded BQM-74E target no longer in production, is required. The BQM-177A is a modernized subsonic target with increased capabilities providing realistic threat representation in support of critical live-fire Test and Evaluation events for major weapons systems and Fleet combat training. The target features increased capabilities to include higher speed, longer range, lower cruise altitudes and greater maneuverability. Other subsonic target alternatives are being explored, including the BQM-74G. ***FY 2019 Plans:*** BQM-177A schedule delays were experienced in FY18 due to technical issues which resulted in design modifications being incorporated to address the technical challenges. Subsequently, the entire schedule shifted to the right (FY19) to include but not limited to qualification tests, payload integrations tests, and shipboard suitability tests. Continue to prepare for a Full Rate Production (FRP) contract award and obtain support of a FRP decision. Continue the Weapon System Explosive Safety Review Board (WSESRB) approval of shipboard operations. Continue engineering, manufacturing, training, logistics and test efforts of the BQM-177A SSAT for transition to FRP including shipboard qualification and operations. Incorporate Engineering Change Proposals and modernizations in the baseline design configuration as mission and threats evolve. Continue studies & development efforts on other subsonic target alternatives, including the BQM-74G. ***FY 2020 Base Plans:*** Complete WSESRB approval of shipboard operations. Complete required shipboard suitability testing in preparation of FOC. Continue engineering, manufacturing, training, logistics and test efforts of the BQM-177A SSAT towards FOC including shipboard qualification and operations. Incorporate Engineering Change Proposals					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
and modernizations in the baseline design configuration as mission and threats evolve. Continue studies & development efforts on other subsonic target alternatives, including the BQM-74G. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of 0.02 from FY 2019 to FY 2020 to account for potential future subsonic developments and inflation.					
Title: Target Threat Simulation Program (TTSP), Target Mission Support Systems (TMSS), Target Control (TC) and Target Augmentation and Auxiliary Systems (TA/AS) ***Articles:***	4.444 -	8.429 -	6.617 -	0.000 -	6.617 -
Description: Provides funding for the development of Target Control (TC) systems and Target Augmentation and Auxiliary Systems (TA/AS) capable of supporting Test and Evaluation (T&E) and fleet training activities to ensure emerging threat simulation requirements are met. Target Control Systems (TCS) involve the improved command and control systems capable of controlling multiple targets simultaneously while delivering adequate fidelity of T&E telemetry data. The TMSS program portfolio provides target control, scoring, location, and navigation of air, land and seaborne targets for fleet training and weapons systems test and evaluation. Funding also supports the design, development and qualification of TMSS including but not limited to the current and next generation TC systems, scalar scorers, scoring ground station, telemetry antennas, radar and locator beacons, identification friend or foe and associated test sets. Augmentation and auxiliary systems must be capable of augmenting targets in support of radar acquisition test, electronic countermeasures (jamming) evaluation, infrared measurement/test, radar cross section evaluation, decoy effectiveness, maneuver analysis, electronic warfare, warhead effectiveness and evaluation of fleet tactics, readiness, and training. The Target Threat Simulation Program (TTSP) provides the payload equipment required to electronically enhance aerial/surface targets to provide threat representative Radio Frequency signatures, specifically the Electronic Attack and Threat Radar Emissions (Active Emitters). The TTSP accomplishes this by providing a collection of modules which are integrated into individual targets in various configurations to provide the ability to simulate the RF environment. TTSP equipment in various configurations is certified for carriage in aerial/surface targets. Funding supports the continued development of the TTSP portfolio so that the Navy can keep pace with emerging enemy threats. ***FY 2019 Plans:*** Continue development, prototyping and integration of threat electronic attack& active emitter simulators to ensure the Fleet meets emerging threat requirements. Gather and exploit threat intelligence. Begin fielding of					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
the TCS Radio Frequency Subsystem (SNTC BLK 3) upgrade hardware which is a two to three year process. Continue development and qualification of the SNTC BLK 4 Ground Control Station with associated hardware and software upgrades. Commence fielding the DSQ-50A Scalar Scorer and its associated Ground Telemetry Station which is a two to three year process. Begin development AN/DPN-88 Identify, Friend or Foe (IFF) replacement for fielding in FY 2020. Begin acquisition planning for a replacement TDU-32 Tow Banner in support of Fleet Aerial Gunner Training. ***FY 2020 Base Plans:*** Continue development, prototyping and integration of threat electronic attack& active emitter simulators to ensure the Fleet meets emerging threat requirements. Gather and exploit threat intelligence. Continue development and qualification of the SNTC BLK 4 Ground Control Station with associated hardware and software upgrades. Commence development of the DSQ-50B Vector Scorer. Begin fielding the replacement AN/DPN-90 Radar Beacon and the AN/DPN-88 IFF replacement. Continue fielding the DSQ-50A Scalar Scorer and its associated Ground Telemetry Station and the TCS Radio Frequency Subsystem (SNTC BLK 3) upgrade hardware, both two to three year processes. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $1.812M from FY 2019 to FY 2020 due to Payload and Mission Support System Development contracts being delayed to further in the FYDP.					
Accomplishments/Planned Programs Subtotals	6.201	9.658	7.874	0.000	7.874

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• WPN 2280: *Aerial Targets*	122.173	133.937	145.880	6.500	152.380	181.653	180.067	186.010	185.481	Continuing	Continuing

Remarks

D. Acquisition Strategy

Supersonics: The GQM-163A Supersonic Sea-Skimming Target (SSST) is an Acquisition Category II program. The acquisition strategy includes the continued development of Quad Launch, design efforts for integration of new Radome and Radar Altimeter, Electronic Warfare (EW) systems and other Engineering Change Proposals as required to emulate emerging threat systems. These development efforts will continue to be rolled into the production baseline. Production efforts are

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

expected to continue at higher quantities in order to meet projected MDAP T&E requirements. Additionally, development of alternative supersonic targets is being explored.

Congress was notified on September 25, 2015 that the Department of the Navy made the decision to terminate the Multi-Stage Supersonic Target (MSST) development program. Termination settlement efforts are ongoing with DCMA.

Subsonics: The Subsonic Aerial Target (SSAT) program is an ACAT-IV program. The EMD contract is ongoing and a follow-on Low Rate Initial Production (LRIP) 3 contract will be awarded in 3rd Quarter of FY19 with Full Rate Production (FRP) Contracts to follow. Engineering Change Proposals will be contracted as required via IDIQ contract vehicles to keep pace with emerging threat systems and changes rolled into the production baseline. Development efforts for other subsonic targets will be resourced via other contracting efforts as required.

Target Threat Simulation Program (TTSP), Target Mission Support Systems (TMSS), Target Control, and Target Augmentation and Auxiliary Systems: The acquisition strategy for these components vary, depending on industry responses to government issued Requests for Information, but most are acquired via Firm Fixed Price IDIQ contracts.

E. Performance Metrics

EFFORT	PERFORMANCE REQUIREMENT	OBJECTIVE	THRESHOLD	TEST RESULT
BQM-177 EMD	Maximum Speed at Low Altitude [Mach(M) at feet (ft) above wave crest at WMO Sea State conditions]	0.95 M @ 6.6 ft @ Sea State 5	0.90 M @ 10.0 ft @ Sea State 3	TBD

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*	Project (Number/Name) 0610 / *Wpn Sys T&E Trng Dev/Proc*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
0610: *Wpn Sys T&E Trng Dev/ Proc*	0.000	11.248	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.248
Quantity of RDT&E Articles		5	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development and procurement of aerial targets and associated systems. These systems are used exclusively for test and evaluation of naval weapons systems, which closely represent current and projected threats to fleet units in the joint strike and the littoral warfare environments. These threat representations must include characteristics in relation to size, performance envelope, and electromagnetic and infrared signatures. As threats evolve, changes must be made to keep the targets threat representative in response to increased complexity in the test requirements from the developers of naval weapons systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: QF-16 Full-Scale Aerial Target (FSAT)	11.248	0.000	0.000	0.000	0.000
Articles:	5	-	-	-	-
Description: The QF-16 FSAT has been developed as a 4th generation, full scale, threat representative target providing a replacement for the FSAT/QF-4 and are maintained and operated by the Air Force. The QF-16 FSAT is a converted F-16 aircraft that provides a supersonic, high altitude, remote-controlled aerial target. This target will have full command and control capability through normal flight envelopes. The QF-16 FSAT target presentations will support aircraft and weapons systems testing and development, including that of the Joint Strike Fighter, AIM-9X Sidewinder missile, AIM-120 Advanced Medium Range Air-to-Air Missile, and Standard Missile-6.					
FY 2019 Plans: FY 2019 funds were reprogrammed to the Weapons Procurement, Navy (WPN) appropriation (BLI 2280).					
FY 2020 Base Plans: N/A					
FY 2020 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	11.248	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0610 / *Wpn Sys T&E Trng Dev/Proc*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• WPN 2280: *Aerial Targets*	122.173	143.637	152.380	-	152.380	181.653	180.067	186.010	185.481	Continuing	Continuing

Remarks

D. Acquisition Strategy

A Memorandum of Agreement (MOA) for Lots 6-8 is being developed between the United States Navy (USN) and the United States Air Force (USAF) for the QF-16 Full-Scale Aerial Target Program (FSAT). Milestone C was achieved in 1st Quarter FY14 and Initial Operating Capability was achieved 4th Quarter FY 2016. FOC is planned for FY 2018. Commencing in FY 2019, the QF-16 program will be reprogrammed to a WPN program.

E. Performance Metrics

EFFORT	PERFORMANCE REQUIREMENT	OBJECTIVE	THRESHOLD	TEST RESULT
QF-16	Drone Mission Performance	Achieve requirement	Threshold=objective	TBD
FSAT	Payload Integration	Achieve requirement	Threshold=objective	TBD
Superiority	carry, operation & monitoring TEMS,			
Target	ALE-47, AIM-9, ALQ-188, ALQ-167 ALE-56 & 300 Gallon Fuel Tank			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*	Project (Number/Name) 0612 / *Surface Targets Development*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
0612: *Surface Targets Development*	0.000	1.288	1.323	1.353	-	1.353	1.385	1.414	1.442	1.471	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops seaborne targets and their related target augmentation systems in support of air-to-surface and surface-to-surface weapons test and evaluation and fleet training.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Surface Targets Development	1.288	1.323	1.353	0.000	1.353
Articles:	-	-	-	-	-

FY 2019 Plans:

Develop specifications and initiate design concepts for Mobile Ship Target Replacement - MST(X). Analyze and develop control concepts for MST(X). Research improved system for over-the-horizon command and control for Seaborne Targets including satellite links. Integrate Ship Deployable Seaborne Target (SDST) with formation algorithms in Portable Command and Control Unit (PCCU). Perform testing on new platform for High Speed Maneuvering Surface Target - Streamlined Variant (HSMST-s). Measure radar cross section of HSMST-s. Develop advanced radar and infrared signature enhancement for towed Seaborne Targets. Develop configurations of Low Cost Modular Target (LCMT) to support test and evaluation of new weapon systems. Review emerging threats and developing weapon systems and analyze requirements for new targets or improvements/alterations to existing targets.

FY 2020 Base Plans:

Develop new hardware for Portable Command and Control Unit (PCCU) with reduced footprint to enhance portability. Develop post-exercise analysis system for target swarm exercises. Develop chaff countermeasure launch controller for seaborne targets. Research large-scale electronic scoring systems for application to seaborne target exercises. Develop improvements to SeaCAN data bus and signal processing. Develop encryption method for SeaCAN data. Develop improvements to SeaCAN system to reduce potential for Electro-Magnetic Interference (EMI) and perform testing on new system components. Research and develop station-keeping capability for towed target platforms.

FY 2020 OCO Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0612 / *Surface Targets Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Number and complexity of RDT&E projects has increased due to increased weapon system Test and Evaluation and Fleet training requirements.					
Accomplishments/Planned Programs Subtotals	1.288	1.323	1.353	0.000	1.353

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/5429: *ASW SE*	10.571	7.753	10.790	-	10.790	13.581	12.214	11.675	11.909	0.000	115.405

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Review capability of inventory with respect to threat, weapons test schedules and fleet training requirements. OBJECTIVE: Available inventory of seaborne targets meets fleet requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*	Project (Number/Name) 2159 / *ASW TARGET*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2159: *ASW TARGET*	0.000	0.000	0.000	2.800	-	2.800	0.000	0.000	0.000	0.000	0.000	2.800
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

This project is a new start in FY2020.

A. Mission Description and Budget Item Justification

RDT&E,N Budget provides funding for Small Business Innovation Research (SBIR) Phase 2.5 for sprint speed and frequency expansion to improve performance capability for the Mk39 Mod 3 Expendable Mobile ASW Training Target (EMATT). This effort supports the transition of the Sprint Speed and Low Frequency Improvement Phase 2.5 efforts into MK 39 Mod 3 EMATT production and starts to investigate Continuous Active Sonar (CAS) capability to provide better detection performance and provide operators with a continuous track. Sprint Speed and Frequency Expansion upgrade allows EMATT to more closely represent submarine tactics for evasion and will make it compatible with new ASW sensors like the LCS ASW mission package.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: New Accomplishment/Planned Program Entry	0.000	0.000	2.800	0.000	2.800
Articles:	-	-	-	-	-
FY 2019 Plans: N/A					
FY 2020 Base Plans: RDT&E,N funding in FY20 will be used to continue to address performance shortfalls in the current fleet of MK39 Mod 3 EMATTs to add Sprint Speed and Frequency Expansion upgrades to be more compatible with New ASW Sensors.					
FY 2020 OCO Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement: The FY20 Program Element Budget increased by $2.8M to provide for SBIR Phase 2.5 for sprint speed and frequency expansion to improve performance capability for the Mk39 Mod 3 Expendable Mobile ASW Training Target (EMATT).					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.800	0.000	2.800

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 2159 / *ASW TARGET*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

- Frequent IPT meetings with contract and government technical program personnel.
- Rigorous acoustic, environmental and in-water dynamic test program.
- Award SBIR Phase 2.5 Sprint Speed and Frequency Expansion Contractor efforts