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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy **Date:** March 2019

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| Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 6: RDT&E Management Support</i> | R-1 Program Element (Number/Name) PE 0605863N / <i>RDT&E Ship & Aircraft Support</i> |
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| 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 | 105.019 | 97.471 | 93.872 | - | 93.872 | 104.982 | 101.888 | 101.298 | 107.357 | Continuing | Continuing |
| 0568: <i>RDT&E Acft Flt Hours</i> | 0.000 | 33.655 | 34.026 | 33.543 | - | 33.543 | 37.705 | 34.651 | 33.480 | 38.183 | Continuing | Continuing |
| 0569: <i>RDT&E Acft Supt</i> | 0.000 | 34.134 | 40.206 | 33.232 | - | 33.232 | 39.147 | 39.727 | 40.313 | 41.119 | Continuing | Continuing |
| 2924: <i>SDTS</i> | 0.000 | 11.365 | 10.524 | 13.386 | - | 13.386 | 12.607 | 12.400 | 12.409 | 12.657 | Continuing | Continuing |
| 3206: <i>T&E Enterprise</i> | 0.000 | 25.865 | 12.715 | 13.511 | - | 13.511 | 15.323 | 14.910 | 14.896 | 15.198 | Continuing | Continuing |
| 3238: <i>Threat Engineering</i> | 0.000 | 0.000 | 0.000 | 0.200 | - | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

This continuing program provides support for ships and aircraft required to accommodate Research, Development, Test and Evaluation (RDT&E) of new systems. The RDT&E ship and aircraft inventory is required to adequately test new and improved weapon systems, stay current with threats, and increase warfighting capability of the fleet. The program provides integrated logistics support for aircraft at selected field activities; provides depot-level rework of aircraft, engines, and components for the Navy inventory of RDT&E aircraft; and provides support for ships and aircraft bailed to contractors for Navy RDT&E projects. Costs covered under this element include aircrew training and proficiency, fuel, supplies, equipment, repair, Aviation Depot Level Repairables, overhaul of ships and aircraft, as well as organizational, intermediate, and depot maintenance of ships and aircraft in the Navy RDT&E inventory.

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 | 105.666 | 97.471 | 100.567 | - | 100.567 |
| Current President's Budget | 105.019 | 97.471 | 93.872 | - | 93.872 |
| Total Adjustments | -0.647 | 0.000 | -6.695 | - | -6.695 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.001 | 0.000 | | | |
| • SBIR/STTR Transfer | -0.646 | 0.000 | | | |
| • Program Adjustments | 0.000 | 0.000 | -6.711 | - | -6.711 |
| • Rate/Misc Adjustments | 0.000 | 0.000 | 0.016 | - | 0.016 |

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| Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy</i> / BA 6: <i>RDT&E Management Support</i> | R-1 Program Element (Number/Name) PE 0605863N / <i>RDT&E Ship & Aircraft Support</i> | |

Change Summary Explanation

Project 2924: The 2017 Board of Inspection and Survey (INSURV) report identified numerous material issues that has resulted in an increase in the required labor and consumable parts to accomplish routine preventive maintenance to prevent recurrence of identified deficiencies and material degradation of ship Hull, Mechanical and Electrical (HM&E) Systems. FY 2020 funding increase of \$1.33M from PB 2019 to PB 2020 is to support the accomplishment of this routine maintenance. Without the increase in funding, the Self Defense Test Ship risks being placed in Do Not Operate status, which will negatively impact the Navy's ability to conduct realistic live fire testing in support of CVN 78, Littoral Combat Ship and LSD 52 Class Amphibious Ship Self Defense Systems.

Project 3206 - \$1.2M FY 2020 TOA decrease from PB 2019 to PB 2020 is due to Underexecution Issue of \$1.0M and realignment of \$200k from PU 3206 to PU 3238 Threat Engineering.

Project 0569: The funding decrease of approximately \$7.0 million reflects a reduction in planned depot events for NAVAIR RDT&E aircraft - primarily driven by DON decisions to retire legacy FA-18 aircraft, and the grounding of NAVAIR C-130's due to propeller issues, resulting in delay of those depot inductions.

Project 3238: Project was established to support the Acquisition Threat Evaluation Projects (ATEP). Funding was realigned within the PE from project 3206 T&E Enterprise.

The FY 2020 request was reduced by \$2.5 million to reflect the availability of prior year execution balances.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy **Date:** March 2019

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| Appropriation/Budget Activity 1319 / 6 | R-1 Program Element (Number/Name) PE 0605863N / RDT&E Ship & Aircraft Support | Project (Number/Name) 0568 / RDT&E Acft Flt Hours |
|--|---|---|

| 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 |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 0568: RDT&E Acft Flt Hours | 0.000 | 33.655 | 34.026 | 33.543 | - | 33.543 | 37.705 | 34.651 | 33.480 | 38.183 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Research, Development, Test and Evaluation (RDT&E) Aircraft Flight Hours. This non-acquisition project supports direct flight hour costs, including organizational and intermediate level maintenance, as well as associated consumables, including petroleum, oil, and lubricants. These flight hours are used for post-maintenance test flights, aircrew training, and the accomplishment of pilot proficiency requirements (approximately three hours per pilot per month), in support of Research and Development programs at four Naval Air Systems Command/Naval Surface Warfare Center/Office of Naval Research flight activities.

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. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|--|---------|---------|--------------|-------------|---------------|
| Title: RDT&E Acft Flt Hours | 33.655 | 34.026 | 33.543 | 0.000 | 33.543 |
| Articles: | - | - | - | - | - |
| FY 2019 Plans: Continue to provide planned organizational and intermediate-level maintenance, supply and petroleum, oil and lubricants in support of RDT&E aircraft operations. | | | | | |
| FY 2020 Base Plans: Continue to provide planned organizational and intermediate-level maintenance, supply and petroleum, oil and lubricants in support of RDT&E aircraft operations. | | | | | |
| FY 2020 OCO Plans: N/A | | | | | |
| FY 2019 to FY 2020 Increase/Decrease Statement: The funding decrease reflects a reduction of funded Test and Evaluation pilot proficiency requirements. | | | | | |
| Accomplishments/Planned Programs Subtotals | 33.655 | 34.026 | 33.543 | 0.000 | 33.543 |

C. Other Program Funding Summary (\$ in Millions)

N/A

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| 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 0605863N / <i>RDT&E Ship & Aircraft Support</i> | Project (Number/Name) 0568 / <i>RDT&E Acft Flt Hours</i> |

C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy
Not Applicable

E. Performance Metrics
This Research, Development, Test and Evaluation (RDT&E) Aircraft program supports approximately three hours per pilot per month of post-maintenance test flights, aircrew training and the accomplishment of pilot proficiency requirements.

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| 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 0605863N / RDT&E Ship & Aircraft Support | | | | Project (Number/Name) 0569 / RDT&E Acft Supt | | | |
| 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 |
| 0569: RDT&E Acft Supt | 0.000 | 34.134 | 40.206 | 33.232 | - | 33.232 | 39.147 | 39.727 | 40.313 | 41.119 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

Note

The FY 2020 funding request was reduced by \$.834 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Research, Development, Test and Evaluation (RDT&E) Aircraft Support. This continuing project funds costs associated with RDT&E fixed and rotary wing aircraft which accommodate test and evaluation of aircraft/weapon systems. Testing aboard these platforms reduces the number of fleet units required to support RDT&E efforts. Included in these costs are Aviation Depot-Level Repairables (AVDLR), which are spare and replacement aircraft parts and components to support overhead maintenance related flight operations, aircrew training, and proficiency flight hours. This project also funds airframe Standard Depot Level Maintenance (SDLM), the Integrated Maintenance Concept (IMC) and Phased Depot Maintenance (PDM), in-service repairs, emergency repairs, and engine repairs, as well as aircraft material condition and field inspections. Additionally, it funds Aircraft Structure Periodic Adjustments (ASPA), Individual Material Readiness List (IMRL) tools and support equipment, Aviation Climate Assessment Survey System (ACASS) and other systems for application to and compatibility with RDT&E 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. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Title: Aircraft/Engine Maintenance and AVDLR/IMRL Support | 33.534 | 39.606 | 32.632 | 0.000 | 32.632 |
| Articles: | - | - | - | - | - |
| FY 2019 Plans: Continue planned transition from ASPA/SDLM to the IMC/PDM program for depot maintenance requirements, while sustaining the following programs: AVDLR/IMRL, engine repairs, support of aircraft in the RDT&E inventory. Continue operation and implementation of maintenance and material management programs at Naval Air Warfare Center activities. | | | | | |
| FY 2020 Base Plans: Continue to provide funding to in support of RDT&E depot maintenance requirements, while funding the following sustainment costs: AVDLR/IMRL in support of Pilot Readiness, engine repairs, support of aircraft in the | | | | | |

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| Appropriation/Budget Activity 1319 / 6 | R-1 Program Element (Number/Name) PE 0605863N / RDT&E Ship & Aircraft Support | Project (Number/Name) 0569 / RDT&E Acft Supt |

| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| RDT&E inventory. Continue operation and implementation of maintenance and material management programs at Naval Air Warfare Center activities. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: The funding decrease reflects a reduction in planned depot events for NAVAIR RDT&E aircraft - primarily driven by DON decisions to retire legacy FA-18 aircraft, and the grounding of NAVAIR C-130's due to propeller issues, resulting in delay of those depot inductions. | | | | | |
| Title: In-Service Repairs Articles: | 0.600 - | 0.600 - | 0.600 - | 0.000 - | 0.600 - |
| FY 2019 Plans: Continue to provide planned In-Service Repair funds for emergent repair requirements to aircraft performing mission critical test and evaluation projects. FY 2020 Base Plans: Continue to provide planned In-Service Repair funds for emergent repair requirements to aircraft performing mission critical test and evaluation projects. FY 2020 OCO Plans: N/A | | | | | |
| Accomplishments/Planned Programs Subtotals | 34.134 | 40.206 | 33.232 | 0.000 | 33.232 |

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| C. Other Program Funding Summary (\$ in Millions) N/A |
| Remarks |
| D. Acquisition Strategy N/A |

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| 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 0605863N / <i>RDT&E Ship & Aircraft Support</i> | Project (Number/Name) 0569 / <i>RDT&E Acft Supt</i> |

E. Performance Metrics

The RDT&E Aircraft Support program goal is to provide the required funds to meet NAVAIR Aircraft Controlling Custodian aircraft sustainment requirements. These sustainment costs include providing annual support for required Planned Depot Maintenance events, In-service Repairs (P&E, Repairs, Mods), Depot Engine Inductions, IMRL Repairs, along with the funding of management oversight of the aircraft and the AVDLR costs associated with pilot readiness requirements.

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| Appropriation/Budget Activity 1319 / 6 | R-1 Program Element (Number/Name) PE 0605863N / RDT&E Ship & Aircraft Support | Project (Number/Name) 2924 / SDTS |
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| 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 |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 2924: SDTS | 0.000 | 11.365 | 10.524 | 13.386 | - | 13.386 | 12.607 | 12.400 | 12.409 | 12.657 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This project provides for the Hull Mechanical and Electrical (HM&E) and remote control system maintenance aboard the Self-Defense Test Ship (SDTS) in support of the Navy RDT&E of ship self-defense systems. Testing aboard this ship provides the capability to safely test self-defense weapon systems within their minimum range and reduces the number of fleet units required to support RDT&E efforts.

Funds are used to purchase expendable supplies, routine equipment maintenance, and repairs and supporting services.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|--|---------|---------|--------------|-------------|---------------|
| Title: SDTS | 11.365 | 10.524 | 13.386 | 0.000 | 13.386 |
| Articles: | - | - | - | - | - |
| FY 2019 Plans: | | | | | |
| NSWC PHD continues to conduct management, operation, maintenance and repair/upgrade of ship HM&E critical items to ensure ongoing safe operation, and performance of the SDTS. Maintain, operate, configure and upgrade the TSRCS and associated infrastructure in support of T&E requirements onboard SDTS to support the AW SSD Enterprise TEMP efforts as well as Navy development test programs. | | | | | |
| FY 2020 Base Plans: | | | | | |
| NSWC PHD continues to conduct management, operation, maintenance and repair/upgrade of ship HM&E critical items to ensure ongoing safe operation, and performance of the SDTS. Maintain, operate, configure and upgrade the TSRCS and associated infrastructure in support of T&E requirements onboard SDTS to support the AW SSD Enterprise TEMP efforts | | | | | |

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| 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 0605863N / RDT&E Ship & Aircraft Support | Project (Number/Name) 2924 / SDTS |

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

as well as Navy development test programs. Continue efforts to address issues identified by the INSURV report. Continue to improve the routine maintenance and repair efforts onboard SDTS.

FY 2020 OCO Plans:
N/A

FY 2019 to FY 2020 Increase/Decrease Statement:
The 2017 Board of Inspection and Survey (INSURV) report identified numerous material issues that has resulted in an increase in the required labor and consumable parts to accomplish routine preventive maintenance to prevent recurrence of identified deficiencies and material degradation of ship Hull, Mechanical and Electrical (HM&E) Systems. Funding increase of \$2,862K supports accomplishment of this routine maintenance. Without the increase in funding, the Self Defense Test Ship risks being placed in Do Not Operate status, which will negatively impact the Navy's ability to conduct realistic live fire testing in support of CVN 78, Littoral Combat Ship and LSD 52 Class Amphibious Ship self defense systems.

| | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Accomplishments/Planned Programs Subtotals | 11.365 | 10.524 | 13.386 | 0.000 | 13.386 |

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

This line of accounting is for recurring HM&E and ship maintenance.

E. Performance Metrics

1. Ability to successfully remain safe and operationally available to support testing and evaluation of systems while in an unmanned, remotely controlled mode.
2. Successful development of applicable operation and maintenance documentation and reporting of installations.
3. Successful and timely delivery of funding status, schedule and technical delays and other issues.

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| Appropriation/Budget Activity 1319 / 6 | R-1 Program Element (Number/Name) PE 0605863N / RDT&E Ship & Aircraft Support | Project (Number/Name) 3206 / T&E Enterprise |
|--|---|---|

| 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 |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 3206: T&E Enterprise | 0.000 | 25.865 | 12.715 | 13.511 | - | 13.511 | 15.323 | 14.910 | 14.896 | 15.198 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The T&E Enterprise consolidates all Air Warfare (AW) Ship Self Defense (SSD) at-sea testing across multiple class ships, beginning with LHD 8, LSD 52, LHA 6, DDG 1000, CVN 78, and Littoral Combat Ship (LCS). This consolidated AW SSD test and evaluation approach meets the Probability of Raid Annihilation (PRA) (PRA is defined as a required surface ship defense against Anti-Ship Cruise Missiles), Self Defense Test Ship (SDTS) testing requirements as outlined in Air Warfare Ship Self Defense Enterprise TEMP 1714, and lead/operational ship testing requirements for Extended Sea Sparrow Missile (ESSM) TEMP 1471, Rolling Airframe Missile (RAM) Blk 2 TEMP 286-2, DDG 1000 TEMP 1560, CVN 78 TEMP 1610, Cooperative Engagement Capability (CEC) TEMP 1415, SSDS TEMP 1400, LHA 6 TEMP 1697, AN/SPQ-9B TEMP 1463, Surface Electronic Warfare Improvement Program (SEWIP) TEMP 1658 (Block 1A), and LCS TEMP 1695.

Enterprise Cost elements:

- a) SDTS Summary includes installation, check-out and stage testing of the major combat systems elements on the SDTS.
- b) SDTS Test includes tracking and firing exercises versus single and dual, subsonic and supersonic Anti-Ship Cruise Missile (ASCM) threat surrogates for ship classes in the Enterprise TEMP from the SDTS including: LSD 52, DDG 1000, LCS and CVN 78.
- c) Lead Ship Test includes tracking and firing exercises versus single and dual, subsonic and supersonic ASCM threat surrogates for ship classes in the Enterprise TEMP from the Lead Ship including: LSD 50, LCS and CVN 78.
- d) Testbed includes all modeling and simulation (M&S) costs required to create OT-quality digital representations of shipboard combat system performance including infrastructure, distributed secure network, common environmental services for Developmental Test (DT) and Operational Test (OT).
- e) Enterprise Testing and Planning includes the contractor and government costs to administer the Enterprise, collect and distribute data from live events, maintain Information Assurance (IA) certifications, and financial management.
- f) Maintenance of Combat System (CS) includes the costs for the routine preventive maintenance and repairs of the Combat Systems elements on the SDTS.

The T&E Enterprise merges common ship, element, and system requirements into the least number of test events while leveraging planned Combat System Ship Qualification Trials (CSSQTs) to accomplish Developmental Testing (DT) and Operational Testing (OT) requirements. All tests on the SDTS require the sharing of infrastructure, missile range allocations, execution time and underway time to eliminate duplicative testing. T&E Enterprise preserves end-to-end mission Operational Testing in a realistic operational environment, capitalizing on Probability of Raid Annihilation Modeling and Simulation (M&S) data validated with results of that

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Operational Testing, and ensuring a consistent approach across ship classes. Applicability of all test events is beneficial across multiple ship classes with the same variation under test.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|---|---------|---------|--------------|-------------|---------------|
| <p>Title: T&E Enterprise</p> <p align="right">Articles:</p> <p>FY 2019 Plans: Continue to conduct test planning in support of CVN 78, LSD 52, LCS and DDG 1000.</p> <p>The Enterprise will continue routine maintenance, IA/Cybersecurity Certification and Accreditation on combat systems elements and the remote control system on the SDTS.</p> <p>Continue to facilitate the integration of systems into the PEO IWS M&S framework.</p> <p>FY 2020 Base Plans: Continue to conduct test planning in support of CVN 78, LSD 52, LCS and DDG 1000.</p> <p>The Enterprise will continue routine maintenance, IA/Cybersecurity Certification and Accreditation on combat systems elements and the remote control system on the SDTS.</p> <p>Continue to facilitate the integration of systems into the PEO IWS M&S framework.</p> <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The funding increase from FY19 to FY20 supports continued test planning for CVN 78, LSD 52, LCS and DDG 1000. The Enterprise will continue routine maintenance, IA/Cybersecurity Certification and Accreditation on combat systems elements and the remote control system on the SDTS. Continue to facilitate the integration of systems into the PEO IWS M&S framework.</p> <p>Funding in the amount of \$200K was realigned within this program element to a new project - 3238 Threat Engineering.</p> | 25.865 | 12.715 | 13.511 | 0.000 | 13.511 |
| | - | - | - | - | - |
| Accomplishments/Planned Programs Subtotals | 25.865 | 12.715 | 13.511 | 0.000 | 13.511 |

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| C. Other Program Funding Summary (\$ in Millions) N/A | | |
| Remarks | | |
| D. Acquisition Strategy N/A | | |
| E. Performance Metrics Successfully complete required documentation and reporting for Enterprise installations and required check out and testing of installations. Successfully complete all Enterprise Operational Test Readiness Reviews (OTRR). Successfully complete required Enterprise developmental testing and operational testing, with 0 casualty delays. Successfully collect related test result data and distribute accordingly. | | |

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| Appropriation/Budget Activity 1319 / 6 | | | | | R-1 Program Element (Number/Name) PE 0605863N / RDT&E Ship & Aircraft Support | | | | Project (Number/Name) 3238 / Threat Engineering | | | |
| 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 |
| 3238: Threat Engineering | 0.000 | 0.000 | 0.000 | 0.200 | - | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Threat Engineering produces Acquisition Threat Evaluation Products (ATEPs) that are inputs to System of System requirements across Program Executive Office (PEO) Integrated Warfare Systems (IWS) platforms, elements, and DoD systems to deliver scalable fleet level performance capability. This program also produces critical, valid T&E assets that satisfy Commander Operational Test & Evaluation Force (COTF) and Director of Operational Test and Evaluation (DOT&E) requirements as these same tools will be used to support and supplement test and evaluation and training against the assessed threats in both testbed and at-sea configurations, ensuring consistency between the development and T&E acquisition phases.

ATEP is the surface navy cost effective, affordable, single, common threat modeling architecture that supports its Major Defense Acquisition Program (MDAP), (and other subordinate programs) RDT&E activities throughout the acquisition life cycle and extending through operations and sustainment. ATEP satisfies Life Cycle Mission Planning (LCMP) requirements by providing the threat modeling architecture needs to support systems engineering trade-off analysis, T&E (DT and OT) and operations and sustainment (OA) through testbed evaluation activities. ATEP is a critical component in ensuring requirements are achievable, affordable and testable.

ATEP provides the required threat models to ensure fleet operational readiness against the threat. Specifically, ATEP Satisfies Operational Test (OT) and Operational Assessment (OA) requirements including COMOPTEVFOR requirement (COMOPTEVFOR Memo, 3960, SER 00/244 of 29 April 2016). This requirement specifies ATEP is necessary to provide the surface navy validated Anti-Ship Cruise Missile (ASCM) threat models for use in the M&S infrastructure supporting OT&E. Moreover, ATEP satisfies COMOPTEVFOR requirement that threat models must be at a fidelity commensurate with the blue-force system representations and contain intel-derived lethality/vulnerability data, physics-based six degrees-of-freedom models, reactive seekers and guidance, and other engineering data. ATEP is necessary to evaluate mandatory Key Performance Parameters including operational effectiveness, and suitability to include a systems lethality and survivability, and achieving its performance requirements within operation and sustainment costs.

ATEP provides the threat models necessary to ensure the surface navy 1.) Avoids Technological Surprise and 2.) Eliminates Point Solutions. ATEP satisfies necessary Threat model requirements to conduct warfare systems analysis of alternatives including gaps analysis, and threat systems mission and performance analysis and effectiveness studies supporting both material and non-material solutions while supporting the development of Intelligence Community Tasking Threat.

With Threat Engineering efforts and development of ATEPs the Navy and PEO IWS will produce substantiated risk and cost based Fleet Level Engineering decisions producing predictable and timely fleet capability against stressing threats. Scalable warfighting performance will be evaluated against the appropriate threat environment, using sufficient, verified and validated models applied to produce Fleet Level Engineering requirements and gaps analysis.

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| Appropriation/Budget Activity 1319 / 6 | R-1 Program Element (Number/Name) PE 0605863N / RDT&E Ship & Aircraft Support | Project (Number/Name) 3238 / Threat Engineering |
|--|---|---|

Without Threat Engineering efforts and ATEPs the Navy and the PEO will incur unsubstantiated risk and cost in developing capability for the fleet. Scalable warfighting performance will not be evaluated against the threat environment, sufficient models will not be developed or applied to produce Fleet Level Engineering requirements and gaps analysis.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2018 | FY 2019 | FY 2020 Base | FY 2020 OCO | FY 2020 Total |
|---|---------|---------|--------------|-------------|---------------|
| <p>Title: Threat Engineering</p> <p align="right">Articles:</p> <p>FY 2019 Plans: N/A</p> <p>FY 2020 Base Plans: -Acquisition Threat Evaluation Projects (ATEP) Products Support and Sustainment, which includes support of the ATEP products, as well as tracking and troubleshooting issues. This could result in the production of an upgraded version and/or a development plan with an updated systems requirements document (dependent upon the magnitude of the changes). -Threat Requirements Development, which includes identifying additional requirements from the program offices and other users to determine what work needs to be accomplished to satisfy those requirements and to develop the appropriate planning to address the requirements based on prioritization from the PEO program offices that will result in the development plan and updated system requirements document.</p> <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The funding increase reflects the realignment of funding to support the threat engineering efforts from project 3206 T & E Enterprise, within this program element.</p> | 0.000 | 0.000 | 0.200 | 0.000 | 0.200 |
| | - | - | - | - | - |
| Accomplishments/Planned Programs Subtotals | 0.000 | 0.000 | 0.200 | 0.000 | 0.200 |

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

New start program required integration into an existing applicable PE to consolidate and bring to bear scalable fleet level warfighting capability to the fleet and is not accounted for within this exhibit.

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| 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 0605863N / <i>RDT&E Ship & Aircraft Support</i> | Project (Number/Name) 3238 / <i>Threat Engineering</i> |

E. Performance Metrics

Successfully complete Verification & Validation testing of ATEP Products against Validated intelligence and ensure Acceptance of Delivery of ATEP products by community of users and stakeholders. Successfully complete all program acquisition milestones (System Requirements Review (SRR), Preliminary Design Review (PDR), Critical Design Review (CDR), Test Readiness Review (TRR), and Acceptance and Delivery Review (ADR)).