Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION FORCES*

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	2.341	5.290	-	5.290	-	-	-	-	-	-
3444: *Airfield/Port Damage Repair*	0.000	0.000	2.341	5.290	-	5.290	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Project 3444 directly supports resilient and agile logistics in accordance with the National Defense Strategy (NDS) of 2018, A Design for Maintaining Maritime Superiority 2.0, and the NAVFAC Strategic Design 2.0 Guidance, Commandants Planning Guidance (CPG), USMC Force Design, and Naval Integration efforts. This program will deliver new capabilities to overcome expeditionary performance limitations in the areas of airfield damage repair (ADR), port damage repair (PDR), expeditionary advance base operations (EABO), and expeditionary engineering and materials to maximize resiliency and agility.

Investment in ADR technologies enhance Navy force response plans, and Joint Force Commander's flexibility to deploy and employ from expeditionary airfields, as well as deliver and sustain warfighting capabilities at the point of effect. This includes "right size, just-in-time" technologies that can facilitate both conventional and autonomous rapid assessment, repair, and re-constitution of expeditionary airfields.

Innovative PDR capabilities enable the reviving, re-armament, repair, re-fueling, re-calibration and re-constitution of fleet platforms at Navy Port Facilities of opportunity. This effort will develop technologies that facilitate just-in-time assessment and rapid repair of piers, quay-walls, fleet moorings, critical expeditionary waterfront facilities and infrastructure, and port facilities above, at, and below the waterline.

Investment in EABO technologies enables Naval Construction Force (NCF) capability modernization and adaption for Naval Integration. These technologies will enable capabilities such as Expeditionary Ordinance Re-load (ExORD), Expeditionary Fuel Distribution (ExFUEL), and Expeditionary Force Sustainment in a littoral environment. New warfighting concepts and Marine Corps organizational changes will necessitate future changes to NCF capabilities, organization, and table of allowance material outside of the existing ADR and PDR mission areas. Further, mobile infrastructure capabilities are envisioned to supplement these vulnerable fixed airfield and port infrastructure assets.

Development of alternative expeditionary engineering solutions in areas of saltwater concrete and indigenous materials will maximize agility and resilience while minimizing supply chain risk for airfields, and ports. These technologies will enable in-the-field production of parts (including original and spare parts for expeditionary equipment) and in-situ fabrication of expeditionary structures that can be utilized in an operational environment. This includes production equipment (such as additive manufacturing systems), raw materials (such as locally sourced construction materials), inspection and quality certification equipment, as well as support methods and criteria to employ these systems in the expeditionary environment. New concepts for expeditionary engineering equipment technologies enhance expeditionary engineering operations, to include site identification, selection, and planning; site clearing and preparation; construction activities; site operations support (including local material handling, damage repair, etc.); and site deconstruction and retrograde activities. Technologies demonstrated will provide required engineer support capability while maximizing deploy ability (by minimizing size and weight) and enhancing operator safety (by providing direct operator protection or allowing for remote or autonomous operation).

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	**Date:** May 2021
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION FORCES*

B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	0.000	2.350	2.314	-	2.314
Current President's Budget	0.000	2.341	5.290	-	5.290
Total Adjustments	0.000	-0.009	2.976	-	2.976
• Congressional General Reductions	-	-0.009			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	3.000	-	3.000
• Rate/Misc Adjustments	0.000	0.000	-0.024	-	-0.024

Change Summary Explanation

The increase funds of $2.949 in FY22 is to support items that have new/shifted requirements to include Airfield Damage Repair (ADR) - asphalt runway reclamation (4 COCOMs have submitted endorsements for this technology); Port Damage Repair (PDR) documenting Fleet Mooring Requirements and Gaps; PDR Quay Wall Repair efforts partial shift from FY21 to FY22 due to affordably; Addressing the gaps of the PDR AoA in process started in FY21; Expedient Pier Assessment and Repair has larger gaps than originally estimated and the outputs from the Joint Capability Technology Demonstration (JCTD) have items to address for immediate transition into TYCOM use.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		**Date:** May 2021
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION FORCES*	**Project (Number/Name)** 3444 / *Airfield/Port Damage Repair*

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3444: *Airfield/Port Damage Repair*	0.000	0.000	2.341	5.290	-	5.290	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3444 directly supports resilient and agile logistics in accordance with the National Defense Strategy (NDS) of 2018, A Design for Maintaining Maritime Superiority 2.0, and the NAVFAC Strategic Design 2.0 Guidance. This program will deliver new capabilities to overcome expeditionary performance limitations in the areas of airfield damage repair (ADR), port damage repair (PDR), and expeditionary engineering and materials to maximize resiliency and agility.

Investment in ADR technologies enhance Navy force response plans, and Joint Force Commander's flexibility to deploy and employ from expeditionary airfields, as well as deliver and sustain warfighting capabilities at the point of effect. This includes "right size, just-in-time" technologies that can facilitate both conventional and autonomous rapid assessment, repair, and re-constitution of expeditionary airfields.

Innovative PDR capabilities enable the reviving, re-armament, repair, re-fueling, re-calibration and re-constitution of fleet platforms at Navy Port Facilities of opportunity. This effort will develop technologies that facilitate just-in-time assessment and rapid repair of piers, quay-walls, fleet moorings, critical expeditionary waterfront facilities and infrastructure, and port facilities above, at, and below the waterline.

Development of alternative expeditionary engineering materials will maximize agility and resilience while minimizing supply chain risk. These technologies will enable in-the-field production of parts (including original and spare parts for expeditionary equipment) and in-situ fabrication of expeditionary structures. This includes production equipment (such as additive manufacturing systems), raw materials (such as locally sourced construction materials), inspection and quality certification equipment, as well as support methods and criteria to employ these systems in the expeditionary environment. New concepts for expeditionary engineering equipment technologies enhance expeditionary engineering operations, to include site identification, selection, and planning; site clearing and preparation; construction activities; site operations support (including local material handling, damage repair, etc.); and site deconstruction and retrograde activities. Technologies demonstrated will provide required engineer support capability while maximizing the ability to deploy (by minimizing size and weight) and enhancing operator safety (by providing direct operator protection or allowing for remote or autonomous operation).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Naval Expeditionary	0.000	2.341	5.290	0.000	5.290
Articles:	-	-	-	-	-
FY 2021 Plans: -Development of methodologies for airfield damage repair					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION FORCES*	**Project (Number/Name)** 3444 / *Airfield/Port Damage Repair*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
-Technologies that facilitate port damage repair -Technologies that enable expeditionary advance base operations (EABO) -Expeditionary engineering materials and equipment to maximize agility and resilience while minimizing supply chain risk and enhance expeditionary engineering operations. ***FY 2022 Base Plans:*** - Continue development of methodologies for airfield damage repair to include salt water concrete for repaid repairs - Continue to invest in technologies that facilitate port damage repair including mini robotic salvage dredge research, expedient pier assessment and repair, quay wall repair technologies, port assessment sensor integration of survey data for real time operational decisions, integration of collected meta data to create 3D virtual assessments - Invest in technologies that enable expeditionary advanced base operations (EABO) and distributed maritime operation ongoing AoAs - Continue to research and demonstrate expeditionary engineering materials and equipment to maximize agility and resilience while minimizing supply chain risk and enhance expeditionary engineering operations ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The increase funds of $2.949 in FY22 is to support items that have new/shifted requirements to include Airfield Damage Repair (ADR) - asphalt runway reclamation (4 COCOMs have submitted endorsements for this technology); Port Damage Repair (PDR) documenting Fleet Mooring Requirements and Gaps; PDR Quay Wall Repair efforts partial shift from FY21 to FY22 due to affordably; Addressing the gaps of the PDR AoA in process started in FY21; Expedient Pier Assessment and Repair has larger gaps than originally estimated and the outputs from the Joint Capability Technology Demonstration (JCTD) have items to address for immediate transition into TYCOM use.					
Accomplishments/Planned Programs Subtotals	0.000	2.341	5.290	0.000	5.290

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION F ORCES*	**Project (Number/Name)** 3444 / *Airfield/Port Damage Repair*

D. Acquisition Strategy

The Projects identified in this budget are carefully selected to respond to resiliency considerations of evolving and aging airfields, ports, expeditionary operations, and to facilitate rational risk based decisions and solutions to protect and decrease risk levels for Department of the Navy-critical expeditionary waterfront facilities and infrastructure. The results of these projects will be the development of design and construction criteria and or components that directly influence Navy-critical expeditionary waterfront facilities and infrastructure.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		**Date:** May 2021
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION FORCES*	**Project (Number/Name)** 3444 / *Airfield/Port Damage Repair*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Airfield Damage Repair	WR	NAVFAC EXWC : Pt Hueneme, CA	0.000	0.000		0.240	Mar 2021	1.280	Jan 2022	-		1.280	-	-	-
Port Damage Repair	WR	NAVFAC EXWC : Pt Hueneme, CA	0.000	0.000		0.771	Mar 2021	2.065	Jan 2022	-		2.065	-	-	-
Port Damage Repair	Various	ERDC : Vicksburg, MS	0.000	0.000		1.000	Mar 2021	1.500	Feb 2022	-		1.500	-	-	-
Expeditionary Engineering Materials and Equipment	Reqn	NAVFAC EXWC : Pt Hueneme, CA	0.000	0.000		0.080	Apr 2021	0.200	Jan 2022	-		0.200	-	-	-
Expeditionary Engineering Materials and Equipment	Reqn	ERDC : Vicksburg, MS	0.000	0.000		0.250	Apr 2021	0.000		-		0.000	-	-	-
EABO(Expeditionary Advance Base Operations)	Various	NAVFAC EXWC : Pt Hueneme, CA	0.000	0.000		0.000		0.245	Jan 2022	-		0.245	-	-	-
		Subtotal	0.000	0.000		2.341		5.290		-		5.290	-	-	N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	2.341	5.290	-	5.290	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION FORCES*	**Project (Number/Name)** 3444 / *Airfield/Port Damage Repair*

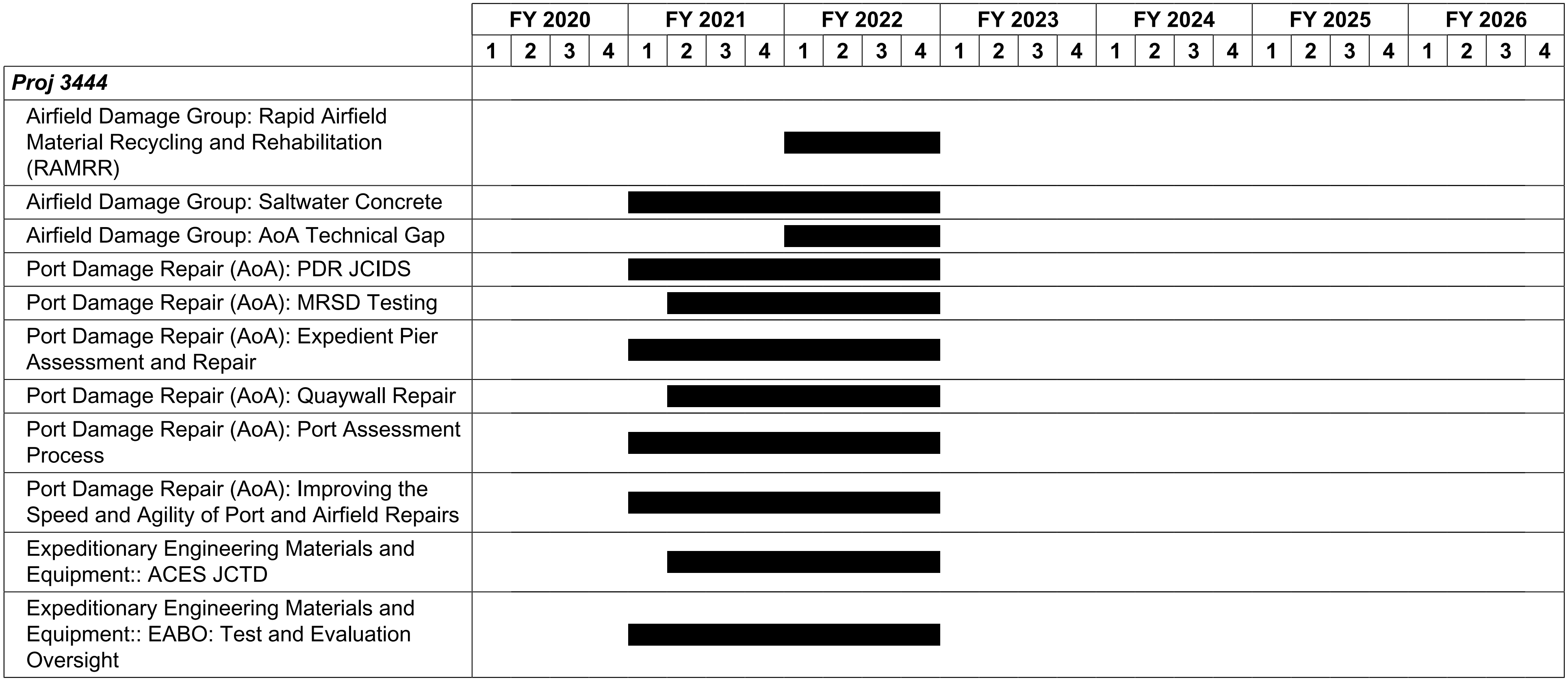

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		**Date:** May 2021
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603239N / *NAVAL CONSTRUCTION FORCES*	**Project (Number/Name)** 3444 / *Airfield/Port Damage Repair*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3444				
Airfield Damage Group: Rapid Airfield Material Recycling and Rehabilitation (RAMRR)	1	2022	4	2022
Airfield Damage Group: Saltwater Concrete	1	2021	4	2022
Airfield Damage Group: AoA Technical Gap	1	2022	4	2022
Port Damage Repair (AoA): PDR JCIDS	1	2021	4	2022
Port Damage Repair (AoA): MRSD Testing	2	2021	4	2022
Port Damage Repair (AoA): Expedient Pier Assessment and Repair	1	2021	4	2022
Port Damage Repair (AoA): Quaywall Repair	2	2021	4	2022
Port Damage Repair (AoA): Port Assessment Process	1	2021	4	2022
Port Damage Repair (AoA): Improving the Speed and Agility of Port and Airfield Repairs	1	2021	4	2022
Expeditionary Engineering Materials and Equipment:: ACES JCTD	2	2021	4	2022
Expeditionary Engineering Materials and Equipment:: EABO: Test and Evaluation Oversight	1	2021	4	2022