Department of Homeland Security

Countering Weapons of Mass Destruction

Budget Overview

Fiscal Year 2021

Congressional Justification

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Countering Weapons of Mass Destruction
Appropriation Organization Structure

Organization Name	Level	Fund Type (* Includes Defense Funding)
Countering Weapons of Mass Destruction	**Component**	
Operations and Support	**Appropriation**	
Mission Support	PPA	Discretionary - Appropriation
Capability and Operational Support	PPA	Discretionary - Appropriation
Procurement, Construction, and Improvements	**Appropriation**	
Portable Detection Systems	PPA,Investment	Discretionary - Appropriation
Large Scale Detection Systems	PPA,Investment	Discretionary - Appropriation
Research and Development	**Appropriation**	
Transformational Research and Development	PPA	
Transformational Research and Development	R&D Project	Discretionary - Appropriation
Technical Forensics	PPA	
Technical Forensics	R&D Project	Discretionary - Appropriation
Detection Capability Development	PPA	
Detection Capability Development	R&D Project	Discretionary - Appropriation
Rapid Capabilities	PPA	
Rapid Capabilities	R&D Project	Discretionary - Appropriation
Federal Assistance	**Appropriation**	
Training, Exercises, and Readiness	PPA	Discretionary - Appropriation
Securing the Cities	PPA	Discretionary - Appropriation
Biological Support	PPA	Discretionary - Appropriation

Countering Weapons of Mass Destruction
Strategic Context
Component Overview

The strategic context presents the performance budget by tying together programs, or PPAs, and performance measures that gauge the delivery of results to our stakeholders. The Common Appropriation Structure (CAS) allows DHS to integrate the programmatic view and a significant portion of the Level 1 PPAs represent what DHS refers to as our mission programs. A mission program is a group of activities acting together to accomplish a specific high-level outcome external to DHS and includes operational processes, skills, technology, human capital, and other resources. CWMD's mission programs are presented below. Performance measures associated with these programs are presented in two measure sets, strategic and management measures. Strategic measures communicate results delivered for our agency goals by these programs and are considered our Government Performance and Results Act Modernization Act of 2010 (GPRAMA) measures. Additional management measures are displayed to provide a more thorough context of expected program performance for the Component related to its budgetary plans. Measure tables that do not display previous year's results are because the measure did not exist at that time.

Capability and Operational Support: The Capability and Operational Support program analyzes sensor data, defines requirements, provides test and evaluation capabilities, and procures chemical/biological and radiological/nuclear detection equipment that can be carried, worn, or easily moved to support operational end-users. The Program manages and supports national biosurveillance and detection capabilities, coordination, and preparedness for biological and chemical events to help communities build capabilities to prepare, respond, and recover.

Strategic Measure

Measure: Percent of top 25 special events integrating biodetection monitoring					
Description: This measure is designed to identify how many Top 25 Special Events employ biological detection capability. To protect the Homeland from the threat of biological Weapons of Mass Destruction, the Department of Homeland Security Special Events Working Group determines annually the Top 25 special events that are integrating bio detection monitoring. This is done to increase National ability to counter attempts by terrorists and other threat actors to carry out an attack against the United States using a biological weapon of mass destruction.					
Fiscal Year:	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**
Target:	FOUO	FOUO	FOUO	FOUO	FOUO	FOUO
Result:	FOUO	FOUO	FOUO	FOUO	TBD	TBD

CWMD Research and Development: The CWMD Research and Development program manages efforts to identify, explore, develop, and demonstrate science and technologies that address gaps in the detection architecture. Activities also improve the performance of detection and analysis and forensics capabilities, and/or significantly reduce the operational burden of detection systems in the field. The program works closely with supported operational customers to ensure the effective transition of technologies to the field. This program includes Technology Advancement projects, as well as Small Business Innovation Research projects.

Management Measure

Measure: Percent of Research & Development program and project milestones successfully achieved						
Description: This measure will gauge how well Research and Development program and project activities and their progress milestones are executed by DNDO's Transformational and Applied Research Directorate against numerous types of projects that are planned for and budgeted each year. A steady or slightly increasing number of milestones met is an indicator of effective program management.						
Fiscal Year:	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**
Target:	---	95.0%	95.0%	90.0%	90.0%	95.0%
Result:	---	89.0%	60.0%	91.4%	TBD	TBD

Countering Weapons of Mass Destruction
Budget Comparison and Adjustments
Appropriation and PPA Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Operations and Support	**$187,095**	**$179,467**	**$172,875**
Mission Support	$83,919	$85,380	$83,485
Capability and Operational Support	$103,176	$94,087	$89,390
Procurement, Construction, and Improvements	**$100,096**	**$118,988**	**$87,413**
Portable Detection Systems	$25,200	$27,000	$26,615
Large Scale Detection Systems	$74,896	$91,988	$60,798
Research and Development	**$83,043**	**$69,181**	**$58,209**
Transformational Research and Development	$37,002	$21,081	$23,892
Transformational Research and Development	$37,002	$21,081	$23,892
Technical Forensics	$7,100	$7,100	-
Technical Forensics	$7,100	$7,100	-
Detection Capability Development	$30,941	$33,000	$24,317
Detection Capability Development	$30,941	$33,000	$24,317
Rapid Capabilities	$8,000	$8,000	$10,000
Rapid Capabilities	$8,000	$8,000	$10,000
Federal Assistance	**$64,663**	**$64,663**	**$58,663**
Training, Exercises, and Readiness	$9,110	$14,470	$14,470
Securing the Cities	$30,000	$24,640	$13,640
Biological Support	$25,553	$25,553	$30,553
Total	**$434,897**	**$432,299**	**$377,160**

Countering Weapons of Mass Destruction
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization (Dollars in Thousands)	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Operations and Support	248	232	$187,095	248	232	$179,467	286	266	$172,875	38	34	($6,592)
Procurement, Construction, and Improvements	-	-	$100,096	-	-	$118,988	-	-	$87,413	-	-	($31,575)
Research and Development	-	-	$83,043	-	-	$69,181	-	-	$58,209	-	-	($10,972)
Federal Assistance	-	-	$64,663	-	-	$64,663	-	-	$58,663	-	-	($6,000)
Total	**248**	**232**	**$434,897**	**248**	**232**	**$432,299**	**286**	**266**	**$377,160**	**38**	**34**	**($55,139)**
Subtotal Discretionary - Appropriation	248	232	$434,897	248	232	$432,299	286	266	$377,160	38	34	($55,139)

Component Budget Overview

The FY 2021 President's Budget provides the Countering Weapons of Mass Destruction Office (CWMD) $377.2M in total gross budget authority. This funding level represents a decrease of $55.1M from the FY 2020 Enacted.

CWMD was established by the *Countering Weapons of Mass Destruction Act of 2018* to elevate and focus counter-WMD missions for the Department and to provide a focal point for the interagency. CWMD's mission is to enhance and coordinate DHS strategic and policy efforts with Federal, State, local, tribal, and territorial (FSLTT) governments and the private sector to prevent WMD use against the Homeland and promote readiness against chemical, biological, radiological, nuclear and health security threats. CWMD enhances the ability of high-risk urban areas across the United States to detect and prevent terrorist attacks using nuclear or other radiological material. CWMD is responsible for the development and implementation of the Global Nuclear Detection Architecture (GNDA), as well as coordination and support for DHS chemical and biological defense activities. CWMD holds the role and responsibilities of the Department's Chief Medical Officer (CMO), who serves as the principal advisor to DHS leadership on medical and public health issues related to natural disasters, acts of terrorism and other man-made disasters. The CMO provides operational medical support to DHS Components and coordinates with FSLTT and other stakeholders on medical and public health matters. CWMD coordinates Department Food, Agriculture, and Veterinary Defense against terrorism through oversight and management of DHS's implementation of Homeland Security Presidential Directive (HSPD)-9 Defense of United States Agriculture and Food.

Countering Weapons of Mass Destruction
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$434,897**	**$432,299**	**$377,160**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$159,714	$145,173	$8,504
Rescissions to Current Year/Budget Year	($18,248)	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	($601)	-	-
Supplementals	-	-	-
Total Budget Authority	**$575,762**	**$577,472**	**$385,664**
Collections – Reimbursable Resources	$60	-	-
Collections – Other Sources	$125	-	-
Total Budget Resources	**$575,947**	**$577,472**	**$385,664**
Obligations (Actual/Estimates/Projections)	$422,906	$568,968	$385,664
Personnel: Positions and FTE			
Enacted/Request Positions	248	248	286
Enacted/Request FTE	232	232	266
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	200	248	286
FTE (Actual/Estimates/Projections)	196	232	266

*In the table above, the rescission line includes the administrative savings rescissions per the Consolidated Appropriation Act, 2019 (P.L. 116-6).

Countering Weapons of Mass Destruction
Collections - Reimbursable Resources

Collections *(Dollars in Thousands)*		FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Change		
		Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Department of Homeland Security - Departmental Management and Operations	Source	-	-	$60	-	-	-	-	-	-	-	-	-
Operations and Support	Location	-	-	$60	-	-	-	-	-	-	-	-	-
Capability and Operational Support	Location	-	-	$60	-	-	-	-	-	-	-	-	-
Total Collections		-	-	**$60**	-	-	-	-	-	-	-	-	-

Countering Weapons of Mass Destruction
Personnel Compensation and Benefits
Pay Summary

Organization (Dollars in Thousands)	FY 2019 Enacted				FY 2020 Enacted				FY 2021 President's Budget				FY 2020 to FY 2021 Total			
	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate
Operations and Support	248	232	$49,203	$182.92	248	232	$50,381	$186.92	286	266	$58,643	$193.95	38	34	$8,262	$7.03
Total	**248**	**232**	**$49,203**	**$182.92**	**248**	**232**	**$50,381**	**$186.92**	**286**	**266**	**$58,643**	**$193.95**	**38**	**34**	**$8,262**	**$7.03**
Discretionary - Appropriation	248	232	$49,203	$182.92	248	232	$50,381	$186.92	286	266	$58,643	$193.95	38	34	$8,262	$7.03

Pay by Object Class

Pay Object Classes (Dollars in Thousands)	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 - FY 2021 Change
11.1 Full-time Permanent	$32,295	$32,295	$37,421	$5,126
11.5 Other Personnel Compensation	$462	$462	$960	$498
11.8 Special Personal Services Payments	$6,766	$7,016	$7,052	$36
12.1 Civilian Personnel Benefits	$9,680	$10,608	$13,210	$2,602
Total - Personnel Compensation and Benefits	**$49,203**	**$50,381**	**$58,643**	**$8,262**
Positions and FTE				
Positions - Civilian	248	248	286	38
FTE - Civilian	232	232	266	34

Countering Weapons of Mass Destruction
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Operations and Support	$137,892	$129,086	$114,232	($14,854)
Procurement, Construction, and Improvements	$100,096	$118,988	$87,413	($31,575)
Research and Development	$83,043	$69,181	$58,209	($10,972)
Federal Assistance	$64,663	$64,663	58,663	($6,000)
Total	**$385,694**	**$381,918**	**$318,517**	**($63,401)**
Discretionary - Appropriation	$385,694	$381,918	$318,517	($63,401)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$2,261	$1,949	$1,997	$48
23.1 Rental Payments to GSA	$11,722	$6,127	-	($6,127)
23.2 Rental Payments to Others	-	-	$518	$518
24.0 Printing and Reproduction	$31	$55	$55	-
25.1 Advisory and Assistance Services	$80,280	$84,367	$84,075	($292)
25.2 Other Services from Non-Federal Sources	$18,753	$18,344	$16,137	($2,207)
25.3 Other Goods and Services from Federal Sources	$54,682	$48,271	$38,929	($9,342)
25.5 Research and Development Contracts	$50,611	$37,740	$33,953	($3,787)
25.7 Operation and Maintenance of Equipment	$4,967	$5,866	$5,756	($110)
26.0 Supplies and Materials	$11,434	$15,634	$15,674	$40
31.0 Equipment	$107,706	$125,469	$83,683	($41,786)
41.0 Grants, Subsidies, and Contributions	$43,247	$38,096	$37,728	($368)
94.0 Financial Transfers	-	-	$12	$12
Total - Non Pay Object Classes	**$385,694**	**$381,918**	**$318,517**	**($63,401)**

Countering Weapons of Mass Destruction
Supplemental Budget Justification Exhibits
Working Capital Fund

Appropriation and PPA *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Operations and Support	**$18,844**	**$13,284**	**-**
Mission Support	$18,844	$13,284	-
Total Working Capital Fund	**$18,844**	**$13,284**	**-**

Countering Weapons of Mass Destruction
Status of Congressionally Requested Studies, Reports and Evaluations

Fiscal Year	Due Date	Reference/Citation	Requirement	Status
2018	6/21/2018	FY 2018 Appropriations P.L 115-141 Consolidated Appropriations Act 2018 and its accompanying Joint Explanatory Notes	National Biosurveillance 5 Year Plan	Transmitted – 7/30/2019
2019	9/30/2019	FY 2019 Department of Homeland Security (DHS) Appropriations P.L. 116-6 and its accompanying Joint Explanatory Statement	Fiscal Year 2019 Nonpay Funding: Operations and Support Nonpay Funding Levels	Transmitted – 11/5/2019
2020	6/17/2020	Senate Report 116-125 accompanying the FY 2020 Department of Homeland Security Appropriations Act.	CWMD Research and Development accomplishments and Strategic Plan	Pending
2020	6/17/2020	Senate Report 116-125 accompanying the FY 2020 Department of Homeland Security Appropriations Act.	Neutron Scattering Technologies to combat biological threats.	Pending

Countering Weapons of Mass Destruction
Authorized/Unauthorized Appropriations

Budget Activity *Dollars in Thousands*	Last year of Authorization	Authorized Level	Appropriation in Last Year of Authorization	FY 2021 President's Budget
	Fiscal Year	Amount	Amount	Amount
Operations and Support	N/A	N/A	N/A	**$172,875**
Mission Support	N/A	N/A	N/A	$83,485
Capability and Operational Support	N/A	N/A	N/A	$89,390
Procurement, Construction, and Improvements	N/A	N/A	N/A	**$87,413**
Portable Detection Systems	N/A	N/A	N/A	$26,615
Large Scale Detection Systems	N/A	N/A	N/A	$60,798
Research and Development	N/A	N/A	N/A	**$58,209**
Transformational Research and Development	N/A	N/A	N/A	$23,892
Technical Forensics	N/A	N/A	N/A	-
Detection Capability Development	N/A	N/A	N/A	$24,317
Rapid Capabilities	N/A	N/A	N/A	$10,000
Federal Assistance	N/A	N/A	N/A	**$58,663**
Training, Exercises, and Readiness	N/A	N/A	N/A	$14,470
Securing the Cities	N/A	N/A	N/A	$13,640
Biological Support	N/A	N/A	N/A	$30,553
Total Direct Authorization/Appropriation	N/A	N/A	N/A	**$377,160**

The Countering Weapons of Mass Destruction Act of 2018 (P.L. 115-387) (Dec. 21, 2018) authorizing the creation of the CWMD Office did not specify funding levels for the CWMD Office.

Countering Weapons of Mass Destruction
Proposed Legislative Language

Operations and Support

For necessary expenses of the Countering Weapons of Mass Destruction Office for operations and support, [$179,467,000] *$172,875,000, of which $20,697,000 shall remain available until September 30, 2022*: Provided, That not to exceed [$2,250] *$4,500* shall be for official reception and representation expenses.

Language Provision	Explanation
…[$179,467,000] *$172,875,000,…*	Dollar change only. No substantial change proposed.
…of which $20,697,000 shall remain available until September 30, 2022	Two-year period of availability in Capability and Operational Support PPA for funding Threat Information and Analysis activities and investments and improvement in Food, Ag, Vet Resilience and Medical Support is proposed. The two-year funding is required because of the extended time needed for proper procurement of investment activities for data integration and biosurveillance activities.
…[$2,250] *$4,500…*	Dollar change only. Additional funds are requested to accommodate CWMD's increasing engagement with international partners.

Procurement, Construction, and Improvements

For necessary expenses of the Countering Weapons of Mass Destruction Office for procurement, construction, and improvements, [$118,988,000] *$87,413,000,* to remain available until September 30, [2022] *2023*.

Language Provision	Explanation
…[$118,988,000] *$87,413,000…*	Dollar change only. No substantial change proposed.
…[2022] *2023…*	Fiscal year change only. No substantial change proposed.

Research and Development

For necessary expenses of the Countering Weapons of Mass Destruction Office for research and development, [$69,181,000] *$58,209,000,* to remain available until September 30, [2022] *2023*. (Department of Homeland Security Appropriations Act, 2020.)

Language Provision	Explanation
…[$69,181,000] *$58,209,000…*	Dollar change only. No substantial change proposed.
…[2022] *2023…*	Fiscal year change only. No substantial change proposed. Based on average time to identify and complete the scope of work for R&D projects, CWMD requests three-year funding to align with FY 2020 Consolidated Appropriations Act. Three year funding allows for sufficient time to define research topics, solicit for performer(s), conduct source selection, award contract(s), initiate research, identify technology approaches, conduct repeated refinement of the technological approaches and demonstrate the technology in the relevant operational environment.

Federal Assistance

For necessary expenses of the Countering Weapons of Mass Destruction Office for Federal assistance through grants, contracts, cooperative agreements, and other activities, [$64,663,000] *$58,663,000*, to remain available until September 30, [2022] *2023*. (Department of Homeland Security Appropriations Act, 2020.)

Language Provision	Explanation
…[$64,663,000] *$58,663,000…*	Dollar change only. No substantial change proposed.
…[2022] *2023*	Fiscal year change only. No substantial change proposed.

Department of Homeland Security
Countering Weapons of Mass Destruction
Operations and Support

Fiscal Year 2021
Congressional Justification

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Operations and Support
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization (Dollars in Thousands)	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Mission Support	248	232	$83,919	248	232	$85,380	286	266	$83,485	38	34	($1,895)
Capability and Operational Support	-	-	$103,176	-	-	$94,087	-	-	$89,390	-	-	($4,697)
Total	**248**	**232**	**$187,095**	**248**	**232**	**$179,467**	**286**	**266**	**$172,875**	**38**	**34**	**($6,592)**
Subtotal Discretionary - Appropriation	248	232	$187,095	248	232	$179,467	286	266	$172,875	38	34	($6,592)

Countering Weapons of Mass Destruction Office *(*CWMD) Operations and Support (O&S) funds chemical, biological, radiological, nuclear, and medical support programs and activities and activities to combat bio-threats and pandemics. O&S funding supports the costs incurred for the day-to-day operation of the organization, including salaries, travel, and enterprise business services, as well as development of CWMD capabilities through strategic planning and analysis. The O&S appropriation supports the Chief Medical Officer (CMO), DHS Components and other agencies in defining requirements associated with operations, ensuring an efficient test and evaluation program, and procuring consumables and services to support the counter-WMD mission. CWMD O&S manages bio-detection operations, coordinates DHS biodefense activities, and helps communities to prepare and build capacity to detect, identify, and respond to biological, chemical, radiological, and/or nuclear events.

The appropriation is broken out into the following Programs, Projects, and Activities (PPA):

Mission Support: Mission Support funds the Office of the Assistant Secretary and Enterprise Services. Funds support personnel compensation and benefits for CWMD employees and maintain enterprise leadership, management, and business administration for daily operations and support for CWMD regional personnel. Key capabilities include workforce management, financial management, physical and personnel security, goods and services acquisition, information technology, property and assets management, communications, and general management and administration.

Capability & Operational Support (C&OS): The Capability & Operational Support PPA provides situational awareness and decision support for DHS leadership and Federal partners, develops CWMD capabilities through strategic planning and analysis, and assists DHS operational Components and other agencies in defining requirements necessary to achieve their mission. CWMD supports DHS Components and other agencies through the definition of requirements, ensuring an efficient test and evaluation program, and the National Biosurveillance Integration Center (NBIC). CWMD manages and supports biodetection systems; the CMO; DHS medical systems; coordinates DHS biological defense activities; supports food, agricultural, and veterinarian activities; and supports preparedness for biological and chemical events to help communities prepare, respond, and recover.

Operations and Support
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$187,095**	**$179,467**	**$172,875**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$3,701	-	-
Rescissions to Current Year/Budget Year	($1,048)	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$189,748**	**$179,467**	**$172,875**
Collections – Reimbursable Resources	$60	-	-
Total Budget Resources	**$189,808**	**$179,467**	**$172,875**
Obligations (Actual/Estimates/Projections)	$183,653	$179,467	$172,875
Personnel: Positions and FTE			
Enacted/Request Positions	248	248	286
Enacted/Request FTE	232	232	266
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	200	248	286
FTE (Actual/Estimates/Projections)	196	232	266

*FY 2019 Carryover Funds were appropriated in FY 2018 to the Office of Health Affairs (OHA). FY 2019 Rescissions reflect prior year DNDO and OHA lapsed balance rescissions.

**In the table above, the rescission line includes the administrative savings rescissions per the Consolidated Appropriation Act, 2019 (P.L. 116-6).

Operations and Support
Collections – Reimbursable Resources

Collections *(Dollars in Thousands)*		FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget		
		Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Department of Homeland Security - Departmental Management and Operations	Source	-	-	$60	-	-	-	-	-	-
Total Collections		-	-	$60	-	-	-	-	-	-

Operations and Support
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	**248**	**232**	**$187,095**
FY 2020 Enacted	**248**	**232**	**$179,467**
FY 2021 Base Budget	**248**	**232**	**$179,467**
Transfer for WCF Offset for OGC Staffing from CWMD/MS to OSEM/O&S/M&O	-	-	($48)
Transfer for WCF Removals from CWMD/MS to A&O	-	-	($588)
Transfer for WCF Removals from CWMD/MS to MGMT/CFO	-	-	($12)
Transfer for WCF Removals from CWMD/MS to MGMT/CHCO	-	-	($27)
Transfer for WCF Removals from CWMD/MS to MGMT/CIO	-	-	($5,777)
Transfer for WCF Removals from CWMD/MS to MGMT/CPO	-	-	($1)
Transfer for WCF Removals from CWMD/MS to MGMT/CRSO	-	-	($6,127)
Transfer for WCF Removals from CWMD/MS to MGMT/CSO	-	-	($284)
Total Transfers	**-**	**-**	**($12,864)**
2020 Pay Raise	-	-	$383
2021 Pay Raise	-	-	$385
FERS Agency Contribution	-	-	$420
Financial Systems and Regional Support	-	-	$2,731
NCRIO Sustainment	-	-	$12
Total, Pricing Increases	**-**	**-**	**$3,931**
Total Adjustments-to-Base	**-**	**-**	**($8,933)**
FY 2021 Current Services	**248**	**232**	**$170,534**
Awards Spending Increase	-	-	$498
Chem/Bio Test Infrastructure Test & Evaluation	-	-	$1,300
Chief Medical Officer Personnel	3	3	$900
Food, Agriculture, and Veterinary Readiness and Resilience	-	-	$1,567
Mission Essential Personnel	16	15	$2,345
Regional Medical Operations Group	5	4	$1,000
Threat Analysis and Data Integration Personnel	14	12	$2,331
Total, Program Increases	**38**	**34**	**$9,941**
National Biosurveillance Integration Center Reduction	-	-	($5,000)
Technical Forensics Decrease	-	-	($2,600)

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
Total, Program Decreases	-	-	($7,600)
FY 2021 Request	286	266	$172,875
FY 2020 To FY 2021 Change	38	34	($6,592)

Operations and Support
Justification of Transfers

Transfers *(Dollars in Thousands)*	FY 2021 President's Budget		
	Positions	**FTE**	**Amount**
Transfer 1 - Transfer for WCF Offset for OGC Staffing from CWMD/MS to OSEM/O&S/M&O	-	-	**($48)**
Mission Support	-	-	($48)
Transfer 2 - Transfer for WCF Removals from CWMD/MS to A&O	-	-	**($588)**
Mission Support	-	-	($588)
Transfer 3 - Transfer for WCF Removals from CWMD/MS to MGMT/CFO	-	-	**($12)**
Mission Support	-	-	($12)
Transfer 4 - Transfer for WCF Removals from CWMD/MS to MGMT/CHCO	-	-	**($27)**
Mission Support	-	-	($27)
Transfer 5 - Transfer for WCF Removals from CWMD/MS to MGMT/CIO	-	-	**($5,777)**
Mission Support	-	-	($5,777)
Transfer 6 - Transfer for WCF Removals from CWMD/MS to MGMT/CPO	-	-	**($1)**
Mission Support	-	-	($1)
Transfer 7 - Transfer for WCF Removals from CWMD/MS to MGMT/CRSO	-	-	**($6,127)**
Mission Support	-	-	($6,127)
Transfer 8 - Transfer for WCF Removals from CWMD/MS to MGMT/CSO	-	-	**($284)**
Mission Support	-	-	($284)
Total Transfers	**-**	**-**	**($12,864)**

Transfer 1 – Transfer for WCF Offset for OGC Staffing: This transfer reflects offset amounts that are specific only to the portion of some Working Capital Fund (WCF) activities that the Office of General Counsel (OGC) usually funds through IAAs or CCFs (GSA Rent, RLIS, and NCRIO) from other Components within DHS. Due to the removal of the WCF in FY 2021, these Components have agreed to transfer funds in support these activities.

Transfers 2-8 –Transfer for WCF Removals: In FY 2021, DHS is dissolving the fee-for-service Working Capital Fund. Funding for all activities is transferred to the appropriate office, except for Financial and Accounting Shared Services; Flexible Spending Plan; and Transit Subsidy. Costs for the remaining three activities will be reimbursed through inter-agency agreements.

Operations and Support
Justification of Pricing Changes

Pricing Changes	FY 2021 President's Budget		
(Dollars in Thousands)	**Positions**	**FTE**	**Amount**
Pricing Change 1 - 2020 Pay Raise	-	-	**$383**
Mission Support	-	-	$372
Capability and Operational Support	-	-	$11
Pricing Change 2 - 2021 Pay Raise	-	-	**$385**
Mission Support	-	-	$360
Capability and Operational Support	-	-	$25
Pricing Change 3 - FERS Agency Contribution	-	-	**$420**
Mission Support	-	-	$420
Pricing Change 4 - Financial Systems and Regional Support	-	-	**$2,731**
Mission Support	-	-	$2,731
Pricing Change 5 - NCRIO Sustainment	-	-	**$12**
Mission Support	-	-	$12
Total Pricing Changes	-	-	**$3,931**

Pricing Change 1 – 2020 Pay Raise: This pricing change reflects the costs to support the 2020 enacted 3.1% pay increase. This includes one quarter of funding for Calendar Year 2020 to annualize the funding in Calendar Year 2021.

Pricing Change 2 – 2021 Pay Raise: This pricing change reflects the impact of the 2021 1.0% pay increase for three quarters of the year.

Pricing Change 3 – FERS Agency Contribution: Per OMB Circular A-11, agency FERS contributions increased. The regular FERS agency contribution increased by 1.3% from 16.0% in FY 2020 to 17.3% in FY 2021. The Law Enforcement FERS agency contribution increased by 2.4% from 33.4% to 35.8%. The agency contribution amount for CSRS did not change.

Pricing Change 4 – Financial Systems and Regional Support: This pricing change reflects additional costs associated with the operations of the new financial system and reflects the additional costs for regional personnel such as rent, IT equipment and infrastructure, supplies, and equipment.

Pricing Change 5 – National Capital Region Infrastructure Operations (NCRIO) Sustainment: This pricing change reflects the DHS-directed increase in the cost of IT support.

Operations and Support
Justification of Program Changes

Program Changes *(Dollars in Thousands)*	FY 2021 President's Budget		
	Positions	**FTE**	**Amount**
Program Change 1 - Awards Spending Increase	-	-	**$498**
Mission Support	-	-	$498
Program Change 2 - Chem/Bio Test Infrastructure Test & Evaluation	-	-	**$1,300**
Capability and Operational Support	-	-	$1,300
Program Change 3 - Chief Medical Officer Personnel	3	3	**$900**
Mission Support	3	3	$900
Program Change 4 - Food, Agriculture, and Veterinary Readiness and Resilience	-	-	**$1,567**
Capability and Operational Support	-	-	$1,567
Program Change 5 - Mission Essential Personnel	16	15	**$2,345**
Mission Support	16	15	$2,345
Program Change 6 - National Biosurveillance Integration Center Reduction	-	-	**($5,000)**
Capability and Operational Support	-	-	($5,000)
Program Change 7 - Regional Medical Operations Group	5	4	**$1,000**
Mission Support	5	4	$1,000
Program Change 8 - Technical Forensics Decrease	-	-	**($2,600)**
Capability and Operational Support	-	-	($2,600)
Program Change 9 - Threat Analysis and Data Integration Personnel	14	12	**$2,331**
Mission Support	14	12	$2,331
Total Program Changes	**38**	**34**	**$2,341**

Program Change 1 – Awards Spending Increase:

Description
The FY 2021 Request includes an increase of $0.5M for Awards Spending. The base for this program is $0.3M.

Justification
Consistent with this guidance, the FY 2021 Request increases awards spending to support strategic workforce development. On July 12, 2019, OMB issued Memorandum 19-24 Guidance on Awards for Employees and Agency Workforce Funding Plan. This Memorandum directs agencies to review and update their current awards spending plans in order to: 1) support the strategic use of awards and recognition throughout the year; 2) address workforce challenges and recognize high performing employees; and 3) recognize those employees with talent critical to mission achievement.

Performance
The FY 2021 Budget supports the agency workforce planning requirements by providing a one percent increase for awards spending. The additional funding will help drive positive behavior by recognizing accomplishments of agency personnel, thereby fostering a culture of recognition.

Program Change 2 – Chem/Bio Test Infrastructure for Test and Evaluation (T&E):

Description
The FY 2021 request includes an increase of $1.3M to establish a common repository and expand current archival retrieval system to incorporate biological data. There is currently no base for this program.

Justification
This program change will allow CWMD's T&E to add chemical/biological infrastructure to its existing radiation/nuclear infrastructure. The change will support the establishment and sustainment of a Common Repository for biological strains and support the expansion of the current CWMD T&E archival and retrieval system known as RNDR (Radiological Nuclear Data Repository) to accommodate chemical/biological data.

Performance
A Chem/Bio Test Infrastructure is required to support CWMD chemical, biological, radiological, and nuclear (CBRN) acquisition, research and development, and rapid capability chemical/biological test support requirements. This infrastructure will support programs such as *Biological Detection in the Twenty-first Century* (BD21) and the development, acquisition, and fielding of the next generation of Biological and Chemical Detectors.

Program Change 3 – Chief Medical Officer Personnel:

Description
The FY 2021 request includes an increase of $0.9M, 3 Positions, and 3 FTE medical personnel to ensure the ability of the Office of the Chief Medical Officer to manage simultaneous projects and current threat levels.

Justification
Adequate implementation of Chief Medical Officer's authorities to provide operational medical support to address the needs of the Department's operational Components each with their unique mission, operational environment, and capabilities requires more personnel and funding than the current bandwidth of the CMO staffing level, given the many other competing medical priorities and responsibilities under CMO purview. Additional resources would allow for wider implementation of medical oversight and direction. The additional personnel are also required to support the medical management of and enhancements to the DHS Emergency Medical Services (EMS) system to ensure adequate medical education and training for frontline operators, the ability to support medical surge operations during emergency response incidents, and support for enhanced coordination with State and local operational partners through a network of regional medical officers and technical experts.

Performance
Current Medical Support Operations are being coordinated and executed by a staff that is inadequate to meet national needs. While support to the southwest border (SWB) has been effective, current operations would impact the response to a national WMD event or crisis. The requested CMO personnel allow for the implementation of critical CWMD responsibilities to address the needs of the Department's Components by providing medical expertise, direction, and support.

Program Change 4 – Food, Agriculture, and Veterinary Readiness and Resilience:

Description
The FY 2021 request includes an increase of $1.6M to accelerate and expand development of current and new countermeasures against the intentional introduction or natural occurrence of catastrophic animal, plant, and zoonotic diseases. The base for this program is 2 Positions, 2 FTE and $0.8M.

Justification
This program change will allow CWMD to expand its capability and capacity to fulfill legislative responsibility under the FY 2017 *Securing our Agriculture and Food Act* (P.L. 115-43) by providing more robust oversight, management and inter/intra-agency integration of DHS activities relating to veterinary public health, food defense, and agricultural security. CWMD will conduct an updated comprehensive needs assessment that characterizes what is currently being done across DHS and the US Government interagency, document any critical gaps, and prioritizing courses of action to optimize DHS defensive capabilities to detect and ultimately prevent introduction of current and emerging infectious zoonotic diseases. CWMD is a key partner in the current revisions of Homeland Security Presidential Directive (HSPD) – 9 *Defense of United State Agriculture and Food* and this program change will enable CWMD to implement the Department's responsibilities and actions from this revised directive while

serving as the whole of government integrator. Additionally, CWMD will mature our exercise activities to test readiness and resilience of collective private, local, State and Federal efforts to respond effectively to the catastrophic introduction of an infectious animal disease.

Performance

CWMD has the legislative responsibility under the FY 2017 *Securing our Agriculture and Food Act* (P.L. 115-43) to carry out a program to coordinate the Department's efforts related to defending the food, agriculture, and veterinary systems against terrorism and other high-consequence events that pose a risk to homeland security. A critical component of this includes leading the Department's efforts related to domestic preparedness for and collective response to agricultural terrorism. Since enactment of this Public Law, DHS has not conducted a national assessment of needs and capabilities or a regional or State-level exercise to test readiness and resilience of collective private, local, State and Federal efforts to respond effectively to the catastrophic introduction of an infectious animal disease. As a result, CWMD is unable to determine support to ensure Federal, State and local response capabilities can respond quickly and effectively to a terrorist attack, major disease outbreak or other disaster affecting the national agriculture or food infrastructure. Establishing and maintaining a risk profile of the food and agriculture sectors will help CWMD track the Department's efforts related to implement PL 115-43, and will ensure better oversight and integration of the Department's collective activities under PL 115-43.

<u>**Program Change 5 – Mission Essential Personnel:**</u>

Description

The FY 2021 request includes an increase of $2.3M, 16 Positions, and 15 FTE to begin to implement the authorities under the *CWMD Authorization Act of 2018*.

Justification

These personnel are requested to carry out the mission of the CWMD Office which has expanded beyond the legacy Domestic Nuclear Detection Office (DNDO) and Office of Health Affairs (OHA) missions on which CWMD's original position and FTE levels were based. The three functional areas to receive mission essential personnel are detailed below:

Mission Essential Personnel	Personnel	
Functions	Positions	FTE
Operations Support: Regional & STC	9	8
Systems Support & Acquisition	5	5
Administrative & Chief of Staff Support	2	2
Total - Mission Essential Personnel	16	15

*Operations and Support Personnel***:**
To prepare our Nation's first responders to counter CBRN threats, CWMD is working to become the regional integrator, with a field capability aligned correctly with our partners to provide support across the homeland security enterprise. These personnel will work across our DHS Components, Federal, State, and local law enforcement and other public safety agencies partners to address critical vulnerabilities in preventing, protecting against, responding to, and mitigating nuclear, chemical, radiological, biological, and medical threats and incidents. These personnel will allow CWMD to align and integrate a comprehensive, sustainable regional capability including detection equipment, training and exercise support, subject matter expertise, and rapid prototyping and procurement. This will ensure engagement at all levels of government across each region for the current bio-detection programs, Chemical Defense capability, and the five legacy Securing the Cities (STC) regions and the new STC regions announced in FY 2019.

These personnel will allow CWMD to integrate with and better support our frontline operators with the tools and resources to close gaps and reduce the risk of terrorism by detecting and disrupting WMD pathways to the U.S. These personnel will promote and align CWMD's efforts to enhance the CBRN detection architecture, strengthen the biodetection programs and biosurveillance integration, enhance the health and wellness of the first responder community, and protect the Nation from the health impacts of incidents including chemical and biological threats and infectious diseases. Training and Exercise personnel will work directly with CWMD field personnel, provide tools, resources, and support to develop, improve, and sustain CWMD capability of operational partners at all levels of government through specialized training and exercise support.

Systems Support and Acquisition: The requested personnel will provide support in three primary areas: expansion of the Rapid Capabilities office to accommodate increasing DHS and other Federal partner requests which require rapid deployment of new and/or upgraded CBRN capability in accordance with the CWMD mission; expansion of the biodetection acquisition program office required to execute what is anticipated to be a DHS acquisition level 1 program when fully funded; and transition of Radiation Portal Monitor (RPM) deployment activities to the CWMD Office, including oversight of architectural and engineering efforts and other efforts associated with the redeployment of legacy RPMs and the initial deployment of new RPMs**.**

Administrative and Chief of Staff Support: The requested personnel will provide additional personnel to support the Front Office and Chief of Staff managing the day-to-day operations of the organization currently being supported by contractors.

Performance
The additional personnel will support CWMD programs within assigned regions by partnering with regional law enforcement and other public safety agencies to develop, implement, and sustain capabilities to counter CBRN threats. For Operations Support, the increase will enable improved collaboration at the regional level and with STC partners in terms of planning, execution, training and exercises, and CBRN response. For Systems Support and Acquisition, the increase will enable CWMD to provide more effective and timely response to operational partners requiring materiel solutions, allowing CWMD and its partners to more rapidly address operational capability gaps, in addition to enabling a more cost-effective approach to managing the RPM program.

Program Change 6 – National Biosurveillance Integration Center Decrease:

Description
The FY 2021 request includes a decrease of $5.0M for the National Biosurveillance Integration Center biosurveillance and early warning support for operators and decision makers of intentional biological attacks and emerging pandemics. The base for this program is 5 Positions, 5 FTE and $12.3M.

Justification
CWMD relies on NBIC as the basis of biosurveillance capability to provide situational awareness of medical threats that could affect people (e.g. Ebola, SARS, etc.) and threats to the Nations' agricultural industry (e.g., African Swine Fever). The represented decrease in FY 2021 funding for the NBIC program will discontinue planned funding from the FY 2020 Enacted appropriations for the advancement of interagency data sharing initiatives, subscriptions to national early warning platform and other data sources, maintenance of its stakeholder management and distribution platform, or maintenance of its analyst workforce at current levels in FY 2021. CWMD will strategically apply available funds within the Information Analysis Directorate to sustain NBIC activities to meet the obligations of NBIC's authorizing legislation in P.L. 110-53. The decrease in FY 2021 will not impact the quality or continuity of products distributed to Federal, State, local, tribal, and territorial (FSLTT) partners and analysis support for DHS operational decisions.

Performance
CWMD will continue to support DHS operational decisions and provide reports to NBIC Stakeholders regarding indicators of biological threats, will continue to operate the NBIC's automated open source collection and analysis tool, and will maintain baseline NBIC analytical capability. NBIC will limit planned in-depth analysis, delay system improvements and data integration efforts, and will reduce reliance on expensive data source subscriptions.

Program Change 7 – Regional Medical Operations Group:

Description
The FY 2021 request includes an increase of 5 positions, 4 FTE, and $1.0M to provide medical expertise to WMD threats and for operational medicine support. There is no base for this program.

Justification
The Regional Medical Operations Group (RMOG) will remedy several critical gaps observed throughout the past several years impacting the Nation's public health, medical resilience, and response to critical incidents. Critically, it will eliminate current information gaps with real-time situational awareness and intelligence sharing between law enforcement and public health partners to provide medical expertise with a homeland security perspective by informing response efforts at the regional level, as well as awareness and support from DHS with specialized guidance and direction. The network will develop new and build upon existing relationships across public health, EMS, FSLTT law enforcement, and emergency management. The program plans to merge concepts of the existing contracted American College of Medical Toxicology (ACMT) national network

with the expanding medical footprint of CWMD to focus on operational medicine and threats across the WMD spectrum. The FY 2021 request would allow for the hiring of personnel with qualifications in medicine and public health, specializing in areas such as emergency medicine or trauma, medical toxicology, biodefense and community health. Specialized clinical medicine (physicians, PAs, NPs, etc.) or public health expertise is the key aspect to this network, because it fills a gap in expertise for DHS and our law enforcement partners on national security issues we are addressing and responding to everyday. In contrast, existing health and medical personnel from other agencies do not address homeland security and law enforcement issues from this perspective.

Performance

This field-based, specialized network of homeland security professionals with specific medical expertise will address current critical gaps in the ability to share information between law enforcement and medical public health partners, provide a more complete risk and response operating environment, and augment a regional response to national security threats. The connections between medical experts with a homeland security focus to medical entities (such as healthcare systems, poison control centers, EMS, and community public health and academic medicine) will facilitate a more informed, appropriate and safe law enforcement response by our Components and Federal partners (USSS, USMS, FPS, FBI WMD, HHS ASPR, etc.), such as filling information gaps into investigations and responses to fentanyl or ricin. In terms of the opioid crisis, the scope and scale of drug overdoses across the country have the effects of weapons of mass destruction or casualties from a major theater of war. Much of the loss of life can be prevented through comprehensive community-wide responses that include the various sectors of law enforcement, public health, public safety, emergency medical services, and healthcare—all those entities that have a stake in the protection of their various communities. Both the SWB crisis and the National Opioid Public Health Emergency have made it evident that there are major gaps in information sharing across law enforcement and public health, preventing critical intervention activities that would preserve our Nation's health security.

This network will significantly strengthen our Nation's collective ability to support crisis response efforts regionally for public health and medical activities that do not fall within the scope of other Departments and agencies, such as the operational medical guidance and direction and direct medical support provided to support during the SWB surge response. For example, DHS relies heavily on local medical and public health capabilities to address infectious disease outbreaks that have been amplified in our facilities due to increased migrant border crossing and overcrowding, necessitating close and constant communication and connection between law enforcement and State/local public health entities that often does not occur. Specialized DHS medical expertise is needed to conduct real-time, on the ground surveillance and assessments to address the risks quickly and appropriately thus protecting the individuals in our care and custody as well as our DHS workforce.

By embedding law enforcement and medical/public health personnel together within four regions, CWMD will operationalize a new RMOG focused on a WMD prevention and response strategy that will achieved continuous sharing and monitoring of information to maintain real-time, on-demand situation awareness while supporting operational decision-making, training and exercises, regional planning, urgent response operations, and pre-staged surge capacity.

Program Change 8 – Technical Forensics Decrease:

Description
The FY 2021 request includes a decrease of $2.6M, to the National Technical Nuclear Forensics (NTNF) operational readiness mission. The base for this program is $2.6M.

Justification
The original alignment of the NTNF operational readiness mission was based on practical realities related to standing up the capability over a decade ago. Since then, the NTNF program and its associated capabilities have matured, and DHS has no operational capabilities or authorities supported by the NTNF operational readiness mission. In FY 2021, the National Nuclear Security Administration (NNSA) is requesting funding for the NTNF operational readiness mission functions.

Performance
The efforts under the NTNF operational readiness mission will be funded and performed by the NNSA in FY 2021.

Program Change 9 – Threat Analysis and Data Integration Personnel:

Description
The FY 2021 request includes an increase of $2.3M, 14 Positions, and 12 FTE to increase analytical capacity and provide a unified approach toward fusing and analyzing Departmental and multi-agency partner information holdings to increase domestic detection and response to deliberate WMD and public health threats.

Justification
As a result of various statutes and executive orders, DHS is responsible for conducting a myriad of intelligence functions related to detecting, protecting, and planning for CBRN, Food, Agriculture and Veterinary Defense (FAVD) and health security related homeland threats. Within the DHS Intelligence Enterprise, through agreement, CWMD serves as the functional proponent and mission center equivalent within the Intelligence Mission Center model for conducting departmental and national intelligence missions related to CWMD, CBRN, FAVD, and Health Security. These personnel are requested to enhance the mission of CWMD which goes beyond the legacy DNDO and OHA missions on which the number of positions and FTEs were originally based. The overall WMD threat is continuing to rise. DHS currently lacks the necessary analytical capacity and unified approach toward fusing and analyzing Departmental and multi-agency partner information holdings to increase domestic detection and response to deliberate WMD and public health threats. In addition to traditional state WMD actors, the proliferation of expertise and increased availability of materials has enabled both foreign and domestic extremists to emerge as potentially significant homeland CBRN threat actors.

The Threat Information Analysis and Integration program provides the foundation for development and sustainment of a capability to understand and anticipate Homeland WMD and Public Health Threats and to inform DHS Components and domestic first responders (Federal, State, local and industry) with timely and relevant threat information to maintain detection advantage, mitigate vulnerabilities, respond to and disrupt threats.

The program will employ the tenants of innovative data integration, aggressive analysis, constant coordination and adaptive dissemination to accomplish four primary mission functions (Physical and non-physical detection adjudication, threat illumination, CBRN threat passenger and cargo targeting, operational threat integration) to support and advance integrated operations, information flow, enforcement activities and development of unified plans and strategies.

Performance

The increase in personnel will ensure CWMD can carry out its expanded mission in support of DHS and national priorities by supporting the necessary analytical capacity and unified approach toward fusing and analyzing disparate sources of WMD and Public Health threat information. The program mitigates departmental capability gaps by bolstering analytical capacity to unify Homeland WMD and Public Health threat understanding and information integration, which will enhance and enable the domestic ability to detect, disrupt and respond to threats of concern.

Operations and Support
Personnel Compensation and Benefits
Pay Summary

Organization	FY 2019 Enacted				FY 2020 Enacted				FY 2021 President's Budget				FY 2020 to FY 2021 Total			
(Dollars in Thousands)	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate
Mission Support	248	232	$46,906	$182.92	248	232	$47,834	$186.92	286	266	$56,060	$193.95	38	34	$8,226	$7.03
Capability and Operational Support	-	-	$2,297	-	-	-	$2,547	-	-	-	$2,583	-	-	-	$36	-
Total	**248**	**232**	**$49,203**	**$182.92**	**248**	**232**	**$50,381**	**$186.92**	**286**	**266**	**$58,643**	**$193.95**	**38**	**34**	**$8,262**	**$7.03**
Discretionary - Appropriation	248	232	$49,203	$182.92	248	232	$50,381	$186.92	286	266	$58,643	$193.95	38	34	$8,262	$7.03

Pay by Object Class

Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 - FY 2021 Change
11.1 Full-time Permanent	$32,295	$32,295	$37,421	$5,126
11.5 Other Personnel Compensation	$462	$462	$960	$498
11.8 Special Personal Services Payments	$6,766	$7,016	$7,052	$36
12.1 Civilian Personnel Benefits	$9,680	$10,608	$13,210	$2,602
Total - Personnel Compensation and Benefits	**$49,203**	**$50,381**	**$58,643**	**$8,262**
Positions and FTE				
Positions - Civilian	248	248	286	38
FTE - Civilian	232	232	266	34

Operations and Support
Permanent Positions by Grade – Appropriation

Grades and Salary Range *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
Total, SES	24	24	24	-
GS-15	76	76	79	3
GS-14	75	75	90	15
GS-13	34	34	41	7
GS-12	15	15	28	13
GS-11	8	8	12	4
GS-9	4	4	5	1
GS-7	6	6	3	-3
GS-5	1	1	-	-1
GS-3	1	1	-	-1
Other Graded Positions	4	4	4	-
Total Permanent Positions	**248**	**248**	**286**	**38**
Unfilled Positions EOY	16	-	-	-
Total Perm. Employment (Filled Positions) EOY	232	248	286	38
Position Locations				
Headquarters	248	236	257	21
U.S. Field	-	12	29	17
Averages				
Average Personnel Costs, ES Positions	183,651	187,140	190,657	3,517
Average Personnel Costs, GS Positions	128,298	130,736	141,041	10,305
Average Grade, GS Positions	14	14	14	-

Operations and Support
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Mission Support	$37,013	$37,546	$27,425	($10,121)
Capability and Operational Support	$100,879	$91,540	$86,807	($4,733)
Total	**$137,892**	**$129,086**	**$114,232**	**($14,854)**
Discretionary - Appropriation	$137,892	$129,086	$114,232	($14,854)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$1,675	$1,327	$1,347	$20
23.1 Rental Payments to GSA	$11,722	$6,127	-	($6,127)
23.2 Rental Payments to Others	-	-	$518	$518
24.0 Printing and Reproduction	$31	$55	$55	-
25.1 Advisory and Assistance Services	$45,209	$42,118	$40,264	($1,854)
25.2 Other Services from Non-Federal Sources	$18,163	$17,387	$15,237	($2,150)
25.3 Other Goods and Services from Federal Sources	$40,146	$36,037	$30,959	($5,078)
25.7 Operation and Maintenance of Equipment	$4,967	$5,866	$5,631	($235)
26.0 Supplies and Materials	$11,434	$15,634	$15,674	$40
31.0 Equipment	$3,895	$3,685	$3,685	-
41.0 Grants, Subsidies, and Contributions	$650	$850	$850	-
94.0 Financial Transfers	-	-	$12	$12
Total - Non Pay Object Classes	**$137,892**	**$129,086**	**$114,232**	**($14,854)**

Mission Support – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Mission Support	248	232	$83,919	248	232	$85,380	286	266	$83,485	38	34	($1,895)
Total	**248**	**232**	**$83,919**	**248**	**232**	**$85,380**	**286**	**266**	**$83,485**	**38**	**34**	**($1,895)**
Subtotal Discretionary - Appropriation	248	232	$83,919	248	232	$85,380	286	266	$83,485	38	34	($1,895)

PPA Description

Mission Support funds personnel compensation and benefits for all CWMD employees and provides enterprise leadership, management, and business administration in support of daily operations. Key capabilities include workforce management, financial management, physical and personnel security, goods and services acquisition, information technology, property and assets management, communications, and general management and administration. In FY 2019 and FY 2020 funds are also provided to the WCF, which provides capital for services such as rent and information technology infrastructure. In FY 2021, CWMD funds are being transferred to other DHS Management Appropriations which will directly support CWMD headquarters rent, IT infrastructure, and other prior shared services.

Programs funded by the Mission Support PPA include the following:

Office of the Assistant Secretary and Enterprise Services: The Office of the Assistant Secretary and Enterprise Services provides overall management of CWMD and develops long-range management plans for the efficient and effective operation of the organization. The office develops and reviews CWMD strategic direction and policy and issues internal guidance to employees that is consistent with regulations and the authority delegated by DHS. The office comprises the Chief of Staff, Executive and Legislative Affairs, Communications staff, and Enterprise Services. Business requirements include financial management systems and operations, workforce management, information technology, facility management, and personnel security services. The WCF, which provides capital for services such as rent and IT infrastructure, received funds in FY 2019 and FY 2020, with the funding for these services transferring to separately requested appropriations for FY 2021.

Salaries, Benefits and Detailees: Provides compensation for all CWMD Federal personnel and reimbursement to other agencies for detailees, for personnel from Federal partners and the Office of General Council (OGC). Public Health Service Officers (PHSOs) detailed to CWMD from the Department of Health and Human Services (HHS) are not funded from this PPA but are funded from the Capability and Operational Support PPA in this Appropriation.

Mission Support – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$83,919**	**$85,380**	**$83,485**
Carryover and/or Recoveries (Actual/Estimates/Projections)	-	-	-
Rescissions to Current Year/Budget Year	($686)	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$83,233**	**$85,380**	**$83,485**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$83,233**	**$85,380**	**$83,485**
Obligations (Actual/Estimates/Projections)	$81,493	$85,380	$83,485
Personnel: Positions and FTE			
Enacted/Request Positions	248	248	286
Enacted/Request FTE	232	232	266
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	200	248	286
FTE (Actual/Estimates/Projections)	196	232	266

*FY 2019 Rescissions reflect prior year lapsed balanced from the legacy organizations of Defense Nuclear Detection Office (DNDO) and the Office of Health Affairs (OHA).

Mission Support – PPA
Summary of Budget Changes

Budget Formulation Activity (Dollars in Thousands)	Positions	FTE	Amount
FY 2019 Enacted	**248**	**232**	**$83,919**
FY 2020 Enacted	**248**	**232**	**$85,380**
FY 2021 Base Budget	**248**	**232**	**$85,380**
Transfer for WCF Offset for OGC Staffing from CWMD/MS to OSEM/O&S/M&O	-	-	($48)
Transfer for WCF Removals from CWMD/MS to A&O	-	-	($588)
Transfer for WCF Removals from CWMD/MS to MGMT/CFO	-	-	($12)
Transfer for WCF Removals from CWMD/MS to MGMT/CHCO	-	-	($27)
Transfer for WCF Removals from CWMD/MS to MGMT/CIO	-	-	($5,777)
Transfer for WCF Removals from CWMD/MS to MGMT/CPO	-	-	($1)
Transfer for WCF Removals from CWMD/MS to MGMT/CRSO	-	-	($6,127)
Transfer for WCF Removals from CWMD/MS to MGMT/CSO	-	-	($284)
Total Transfers	**-**	**-**	**($12,864)**
2020 Pay Raise	-	-	$372
2021 Pay Raise	-	-	$360
FERS Agency Contribution	-	-	$420
Financial Systems and Regional Support	-	-	$2,731
NCRIO Sustainment	-	-	$12
Total, Pricing Increases	**-**	**-**	**$3,895**
Total Adjustments-to-Base	**-**	**-**	**($8,969)**
FY 2021 Current Services	**248**	**232**	**$76,411**
Awards Spending Increase	-	-	$498
Chief Medical Officer Personnel	3	3	$900
Mission Essential Personnel	16	15	$2,345
Regional Medical Operations Group	5	4	$1,000
Threat Analysis and Data Integration Personnel	14	12	$2,331
Total, Program Increases	**38**	**34**	**$7,074**
FY 2021 Request	**286**	**266**	**$83,485**
FY 2020 To FY 2021 Change	**38**	**34**	**($1,895)**

Mission Support - PPA
Personnel Compensation and Benefits
Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted				FY 2020 Enacted				FY 2021 President's Budget				FY 2020 to FY 2021 Total			
	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate
Mission Support	248	232	$46,906	$182.92	248	232	$47,834	$186.92	286	266	$56,060	$193.95	38	34	$8,226	$7.03
Total	**248**	**232**	**$46,906**	**$182.92**	**248**	**232**	**$47,834**	**$186.92**	**286**	**266**	**$56,060**	**$193.95**	**38**	**34**	**$8,226**	**$7.03**
Discretionary - Appropriation	248	232	$46,906	$182.92	248	232	$47,834	$186.92	286	266	$56,060	$193.95	38	34	$8,226	$7.03

Pay by Object Class

Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 - FY 2021 Change
11.1 Full-time Permanent	$32,295	$32,295	$37,421	$5,126
11.5 Other Personnel Compensation	$462	$462	$960	$498
11.8 Special Personal Services Payments	$4,469	$4,469	$4,469	-
12.1 Civilian Personnel Benefits	$9,680	$10,608	$13,210	$2,602
Total - Personnel Compensation and Benefits	**$46,906**	**$47,834**	**$56,060**	**$8,226**
Positions and FTE				
Positions - Civilian	248	248	286	38
FTE - Civilian	232	232	266	34

Pay Cost Drivers

Pay Cost Drivers (Dollars in Thousands)	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	FTE	Amount	Rate	FTE	Amount	Rate	FTE	Amount	Rate	FTE	Amount	Rate
Mission Personnel Compensation and Benefits	167	$32,064	$192.00	167	$32,755	$196.14	182	$36,764	$202.00	15	$4,009	$5.86
Mission Support Personnel Compensation and Benefits	65	$10,373	$159.58	65	$10,610	$163.23	84	$14,827	$176.51	19	$4,217	$13.28
Detailees	-	$4,469	-	-	$4,469	-	-	$4,469	-	-	$0	-
Total – Pay Cost Drivers	**232**	**$46,906**	**$182.92**	**232**	**$47,834**	**$186.92**	**266**	**$56,060**	**$193.95**	**34**	**$8,226**	**$7.03**

Explanation of Pay Cost Drivers

Mission Personnel Compensation and Benefits: This cost driver supports personnel compensation, benefits and performance awards for Federal employees who are direct mission-focused personnel. In FY 2019 and FY 2020, Medical Support Personnel and the CMO are included in this cost driver. In FY 2021, they are moved to the Mission Support cost driver.

Mission Support Personnel Compensation and Benefits: This cost driver supports personnel compensation, benefits, and performance awards for Federal employees indirectly facilitating the operations and mission of CWMD. It includes business, administrative, communications, facilities management, security, and finance personnel in the Front Office and Enterprise Services. In FY 2021, the personnel in Medical Support and the Chief Medical Officer are shown in the Mission Support Personnel cost driver instead of the Mission Personnel from prior years. The personnel are in highly compensated medical professionals and account for the increase in rate for this cost driver.

Detailees: This cost driver provides funding for personnel detailed from DHS operational Components, Office of General Council, and interagency partners. Public Health Service Officers detailed to DHS from Health and Human Services are funded in the Capability and Operations Support PPA.

Mission Support – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Mission Support	$37,013	$37,546	$27,425	($10,121)
Total	**$37,013**	**$37,546**	**$27,425**	**($10,121)**
Discretionary - Appropriation	$37,013	$37,546	$27,425	($10,121)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$206	$206	$206	-
23.1 Rental Payments to GSA	$11,722	$6,127	-	($6,127)
23.2 Rental Payments to Others	-	-	$518	$518
24.0 Printing and Reproduction	$27	$27	$27	-
25.1 Advisory and Assistance Services	$11,431	$14,026	$14,956	$930
25.2 Other Services from Non-Federal Sources	$445	$445	$445	-
25.3 Other Goods and Services from Federal Sources	$8,888	$11,639	$6,380	($5,259)
25.7 Operation and Maintenance of Equipment	$3,825	$4,607	$4,372	($235)
26.0 Supplies and Materials	$234	$234	$274	$40
31.0 Equipment	$235	$235	$235	-
94.0 Financial Transfers	-	-	$12	$12
Total - Non Pay Object Classes	**$37,013**	**$37,546**	**$27,425**	**($10,121)**

Non Pay Cost Drivers

Non Pay Cost Drivers *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Rental Payments to GSA	$10,996	$6,175	-	($6,175)
IT Operations (NCRIO)	$6,758	$6,832	-	($6,832)
Financial Systems	$6,619	$6,329	$6,345	$16
Operations Support	-	$7,338	$7,456	$118
Financial Systems Support	$3,170	$3,100	$3,685	$585
Information Technology Support	-	$2,450	$3,380	$930
Support of Regional Personnel	-	$870	$1,934	$1,064
Other Mission Support Costs	$9,470	$4,452	$4,625	$173
Total – Non Pay Cost Drivers	**$37,013**	**$37,546**	**$27,425**	**($10,121)**

Explanation of Non Pay Cost Drivers

Rental Payments to General Services Administration (GSA): The costs associated with Rental Payments to GSA for CWMD headquarters space in FY 2019 and FY 2020. In FY 2021, these funds are being transferred to Management.

IT Operations (NCRIO and CLAN): These costs reflect the CWMD charges through the WCF for the National Capital Region Infrastructure Operations (including allocated costs for CWMD's share of the unclassified Local Area Network (LAN), computers, phone service, printers, cell phones, and help desk support). It also includes costs for the CWMD-allocated classified LAN (CLAN). In FY 2021, NCRIO and C-LAN costs are requested to be appropriated to the DHS CIO and the Analysis and Operations account.

Financial Systems: This cost driver supports the financial systems for CWMD as well as legacy OHA and DNDO prior year obligations. It includes the cost for Immigration and Customs Enforcement (ICE) Federal Financial Management System (FFMS) and the DHS Financial Systems Modernization Solution (FSMS).

Operations Support: This includes costs for the financial management contract support staff: executive assistants and security contract staff; and facilities support personnel. In FY 2019, these costs were included in Other Mission Support Cost.

Financial Systems Support: This includes the costs for U.S. Coast Guard Finance Center, FFMS provider (ICE) service-level agreement, FSMS licenses (Oracle licenses), financial management support, and FSMS integration costs to the DHS travel management system.

Information Technology Support: Includes costs for Information Technology and Cyber Security support, credit monitoring, printer maintenance, secure telephone lines, HSDN data network circuits, Enterprise license agreements, and SharePoint site operations and maintenance costs. In FY 2019, these costs were included in Other Costs.

Support of Regional Personnel: This includes costs to operate and maintain facilities and information technology, procure supplies, and provide administrative support to personnel at regional locations across the Nation. This also includes the cost of support at partner locations.

Other Mission Support Costs: This cost driver includes for supplies, materials, enterprise service support, transit expenses, printing and reproduction, travel, training of personnel, facility support, and reception.

Capability and Operations Support – PPA

Budget Comparison and Adjustments

Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Capability and Operational Support	-	-	$103,176	-	-	$94,087	-	-	$89,390	-	-	($4,697)
Total	**-**	**-**	**$103,176**	**-**	**-**	**$94,087**	**-**	**-**	**$89,390**	**-**	**-**	**($4,697)**
Subtotal Discretionary - Appropriation	-	-	$103,176	-	-	$94,087	-	-	$89,390	-	-	($4,697)

PPA Level I Description

The Capability & Operational Support (C&OS) PPA provides situational awareness and decision support for DHS leadership and Federal partners; develops CWMD capabilities through strategic planning and analysis; assists DHS operational Components and other agencies in defining requirements necessary to achieve their mission; and tests and evaluates CWMD equipment. CWMD supports Components and other agencies through the definition of requirements and ensuring an efficient test and evaluation program. CWMD manages and supports biodetection systems; coordinates DHS biological defense activities; provides biosurveillance information; supports food, agricultural and veterinarian activities; and supports preparedness for biological and chemical events to help communities prepare, respond, and recover. CWMD supports the CMO who is responsible for health security issues; support to DHS operational medicine; and coordinates with the medical first responder community. C&OS also supports biodetection in more than 30 jurisdictions, including laboratory analysis and support, consumables, reagents, and local quality checks.

Program Descriptions

Strategic Planning and Analysis: Costs associated with Strategic Planning and Analysis ensure that CWMD planning, policies, and strategies for the nuclear, chemical, radiological, and biological mission areas align with CWMD operational requirements and priorities. Activities include developing coordinated strategies, plans, and policy recommendations to counter WMD and coordinating chemical, biological, or integrated terrorism risk assessments, hazard, or material threat assessments and operational readiness against CBRN threats. CWMD provides mission-area information to support the DHS Office of Intelligence and Analysis' process to provide senior leaders with the most current and accurate WMD threat information available at any level of classification. CWMD coordinates with the Science & Technology Directorate and interagency partners on research and development requirements as necessary. This program contains Strategic Planning and Analysis, NBIC, and CWMD Information Analysis and Anomaly Detection.

Strategic Planning and Analysis provides necessary support to develop and coordinate strategies, plans, policy, and requirements on behalf of the Department of Homeland Security on WMD, health security, and related matters as well as conducts CWMD capability architecture analysis and manages CWMD capability gaps. The Strategic Planning and Analysis program has seven main projects as follows:

Strategy, Policy and Planning Support: This project supports CWMD policy coordination for DHS and strategic and implementation planning for DHS and CWMD. This effort includes support for Department-wide planning efforts such as the Northern Border Strategy Implementation Plan and the Southern Border and Approaches Campaign Plan; Department-wide and multi-Component steady state and contingency planning, including the In-Bound CWMD Threat Plan and Non-Combatant Evacuation Operation Plan; and White House engagement and coordination.

Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Report (SPR) for Chemical, Biological, Radiological, and Nuclear (CBRN): This project develops CBRN assistance materials and training for State and local operators and planners to support the THIRA and SPR process. The THIRA and SPR process includes evaluating the CBRN threat, identifying desired CBRN detection capabilities, and enabling State and local access to preparedness grant funds from the Federal Emergency Management Agency. This effort also collects and provides requirements to inform future CWMD assistance initiatives, setting the foundation for the development of additional analytical tools and technical assistance services.

International Partner Engagement Support Project: Under this project, CWMD personnel engage with international partners to establish or improve CWMD prevention and detection capabilities along critical pathways and increase information sharing to identify threats and vulnerabilities as early and far from the U.S. border as practicable. This effort will be achieved by leveraging U.S. Government partners to build sustainable capability in priority nations, developing and maintaining cooperative relationships with critical partners along proliferation pathways, and sharing information with priority partners and conducting joint activities.

Requirements Project: This project supports personnel who coordinates the identification of capabilities, competencies and partnerships necessary to meet DHS Component requirements in support of the CWMD mission. Requirements Project personnel oversee the development and management of a standardized process to generate and maintain capability (operational) requirements in support of follow-on acquisition activities. CWMD requirements personnel also coordinate with operational partners to identify capability gaps, then CWMD works with operational partners in closing those gaps by delivering to them materiel and non-materiel solutions in support of the CWMD mission.

Architecture Planning and Capability Analysis Project: This project includes system architects who provide foundational architectural products based on the Department of Defense (DOD) Architecture Frameworks that have been incorporated into the DHS acquisition process. This includes various strategic and operational products, the most familiar being the OV-1, or Operational View. These products provide decision makers with a picture and context that illustrate the who, what, when, why, and how of an operation, a new technology deployment, or a potential new concept at varying degrees of specificity. A core team of analysts conduct Stage 0 support analysis, coordinate with operational partners in identifying operational gaps and requirements (DOTMLPF+RGS analysis), determine high-level courses of action to address or mitigate gaps and provide recommendations on the need for additional analytical support, or respond to internal and external requests for capability-based assessments. These analysts shape the various reports to provide the initial traceability of gap/requirement to ensure there is supportable data to justify resourcing and the subsequent development of supporting acquisition documentation.

National Biosurveillance Integration Center (NBIC): NBIC enhances the capability of the Federal Government to rapidly identify, characterize, localize, and track biological events of national concern. NBIC disseminates information to enhance the ability of member agencies and State, local, and tribal governments to respond to biological events of national concern.

CWMD Information Analysis and Anomaly Detection: This project is developing a robust and technologically advanced analytic capability to combat chemical, biological, radiological, and nuclear threats to the homeland and U.S. interests. This effort will provide operationally focused WMD intelligence, sensor data interpretation and tool integration, operational integration with departmental field operations, and DoD/IC/IA/Foreign Partner collaboration.

The Vision of the Five Year Analytic Support End-State is a fully integrated, operator-focused analytical support program that protects Americans by providing DHS leadership; operators; Federal interagency partners; and State, local, tribal, and territorial (SLTT) responders with early warning and timely detailed analyses to responders to effectively reduce the risk of WMD threats -- both man-made and naturally occurring—including significant biological threats.

CWMD was established to counter attempts by terrorists or other threat actors to carry out an attack against the United States or its interests using a weapon of mass destruction. CBRN threats have various origins including intentional, accidental, or natural disaster releases; adulteration of products for economic gain; and naturally occurring disease outbreaks. With this challenging mission, CWMD must develop a robust and technologically advanced analytic capability to combat CBRN threats to the homeland and U.S. interests. Building off environmental radiation and biological detection and biosurveillance programs, CWMD will expand the integration and analysis of CBRN threat information and quickly deliver that information to DHS operational Components and other local first responders.

In December 2018, the CWMD Authorization Act was signed into law establishing CWMD in order to counter attempts by terrorists or other threat actors to carry out an attack against the United States or its interests using a weapon of mass destruction. Building off environmental radiation and biological detection and biosurveillance programs, the authorities in the Act will allow CWMD to expand the integration and analysis of CBRN threat information and quickly deliver that information into the hands of DHS Operational Components and other local first responders.

CWMD's primary function is to provide the support necessary for our operational partners to identify threat actors, determine the levels of threat from manmade or naturally occurring CWMD or biological incidents and deliver the decision information to prevent and respond to the use of WMD and naturally occurring threats to the homeland. CWMD analysts work with DHS Components and other local first responders to understand the current processes, capabilities, and functions on which our customers rely to meet this threat. This support consists of four fundamental objectives:

1. Understanding the Environment and Evaluating Threats based on adversary capabilities and tactics techniques and procedures;
2. Identifying the Pathways and the Associated Vulnerabilities and Anomalies that could be exploited for the development and delivery of WMD;
3. Effectively Integrating Data to ensure data integrity and ease of use; and
4. Assisting in the Development of Supporting Tools and Infrastructure.

Readiness Program: The Readiness program funded net assessments, current operations watch desk support, and field training projects. Funding for these functions is not requested in FY 2020 or FY 2021 because of CWMD's higher priorities.

Medical Support: The Medical Support program provides expertise and activities to advise DHS leadership about health security issues, and coordinates with the medical first responder community and other stakeholders at all levels of government to prepare for, respond to, and recover from mass-casualty incidents and health consequences of terrorism and disasters. Medical Support provides oversight and policy for DHS operational EMS activities, including emergency care services provided for people in DHS care and custody. The Radiation Safety Program (RSP) focuses on supporting the Headquarters and operational Components with radiation hazard identification, developing plans and policies, and providing expert guidance on the effects of ionizing radiation on people, plants, animals, and the environment. Specific activities supported in this program include:

Chief Medical Officer (CMO): The CMO is the principal advisor to the Secretary of the Department of Homeland Security and Department leadership on health and medical issues, and coordinates among DHS operational Components, Federal interagency partners, the medical community, and SLTT partners on medical and public health matters.

Operational Medicine: CMO oversees the DHS medical support operations, such as the DHS Components EMS program and medical surge support along the Southwest Border, and CWMD provides senior medical liaison officers to operational Components. This program enhances coordination with SLTT operational partners through a regional network of medical advisors and technical experts and supports medical surge operations during emergency response incidents. CMO also provides for medical oversight of DHS Component management of the EMS programs and enhancements to ensure adequate education and training.

DHS Emergency Medical Services: CWMD administers the DHS EMS system, which includes the standardization and alignment of EMS credentialing, education, protocols, requirements, and training. DHS participates in national and Federal standards processes for EMS systems development.

Health Information Systems: CWMD is implementing a consolidated electronic patient care record system to document prehospital patient care used by EMS providers. In conjunction with CBP and the funding provided in the FY2020 CPB PC&I appropriation for this effort, the CMO is also planning to rapidly maximize the use of existing tools (e.g., maximal deployment of ePCR, assist ICE Health Service Corp to expand electronic records into contracted detention centers, improve all Components reporting and analytics tools, etc.). In addition, the CMO is beginning to design a scalable cloud-based integration platform that combines medical data from all Components in a way that enables each Component to independently determine which information systems are best suited for their particular missions, but still delivers the necessary tools for the CMO to provide oversight, direction, and support. A DHS enterprise-wide data system for medical information will support the CMO's responsibility for overseeing and directing operational medicine for the Department while ensuring seamless execution of the Department's health and medical missions in accordance with nationally accepted standards for record keeping and privacy.

First Responder Vaccination Initiative: CWMD is implementing the vaccination pilot program as required by the *First Responder Anthrax Preparedness Act* (P.L. 114-268).

Radiation Safety Program (RSP): The RSP supports headquarters and operational Components with identification of hazards, development of plans and policies, and subject matter expertise on the effects of ionizing and non-ionizing radiation on people and the environment. The RSP focuses on threats and hazards from radiation and radioactive materials. These hazards include Radiological Dispersal Devices (RDDs), Radiation Emitting Devices (REDs), Improvised Nuclear Devices (INDs), and other incidents (accidental or purposeful) involving radiation and/or radioactive materials. In conjunction with DHS Components and other Federal, State, and local partners, RSP will plan, prepare, and execute activities such as obtaining and maintaining a Nuclear Regulatory Commission Radioactive Materials License, if necessary, to support operations. RSP looks for opportunities to share information and develop synergies by leveraging partner capability and capacity and minimizing redundancy.

Food, Agriculture, and Veterinary Resilience: Food, Agriculture, and Veterinary Resilience (FAVR) coordinates the Department's efforts to defend U.S. food, agriculture, and veterinary systems. FAVR represents the Department's statutory responsibility to comply with the *Securing our Agriculture and Food Act*. The Secretary of the Department of Homeland Security, acting through the Assistant Secretary for CWMD, shall carry out a program to coordinate the Department's efforts to defend the food, agriculture, and veterinary systems of the United States against terrorism and other events that pose a high risk to homeland security. Public Law 115-43 charges DHS with (1) providing oversight and management of the Department's responsibilities; (2) providing oversight and integration of the Department's activities related to veterinary public health, food defense, and agricultural security; (3) leading the Department's policy initiatives relating to food, animal, and agricultural incidents and the effect of such incidents on animal and public health; (4) leading the Department's policy initiatives related to overall domestic preparedness for and collective response to agricultural terrorism; (5) coordinating with other Department Components, including Customs and Border Protection, as appropriate, on activities related to food and agricultural security and screening procedures for domestic and imported products; and (6) coordinating with appropriate Federal departments and agencies.

Chemical Support: Supports operator-focused projects that optimize the ability to recognize, interdict and disrupt potential incidents, and enhance decision-making and actions throughout the prevention, protection, and immediate response mission space. In addition, Chemical Support provides technical expertise to CWMD personnel who train and educate FSLTT public safety operators on current, emerging, and forecasted chemical threats. Strategically, Chemical Support:

- Advises and provides technical expertise to the Secretary of the Department of Homeland Security, CWMD leadership, and other Federal senior leadership on current, emerging and forecasted threats, vulnerabilities, impacts, health security, and other chemical defense concerns.
- Provides oversight and management of DHS responsibilities under applicable executive orders and policies.
- Advises, supports, and collaborates to provide technical expertise to DHS operational and support Components, Federal interagency, and the whole community, on current, emerging, and forecasted threats, vulnerabilities, impacts, health security, and other chemical defense concerns.
- Supports integration of DHS activities related to chemical defense.
- Procures data, supports requirements generation, and conducts policy impact analysis through the lens of the end user and develops evidence-based, validated technological and non-technological solutions which target gaps and emergent needs focused on buying down risk.
- Develop capabilities and sustainment programs, or leverage existing capabilities, to integrate solutions into the chemical defense enterprise, including evaluation of projects and activities to determine effectiveness, eliminate redundancies, and verify a chain of accountability.

Biological Support: Biological Support programs fund aspects of national biodetection oversight, collector siting, and operational support; equipment, consumables, assays, and reagents; and quality assurance and quality control. Program activities include modeling of operational or impact scenarios, subject matter reachback, development of reference materials, information-sharing activities, as well a rapidly deployable, special event support. Specifically, this program:

- Provides technical and programmatic support to establish and maintain situational awareness for Federal, State, and local program participants.
- Provides a Common Operating Picture that supports presentation of network status in routine operations and facilitates timely execution of coordinated response activities during detection events, both of which are necessary as part of the national security architecture.
- Provides material and expertise in maintaining a widespread aerosol collection capability and the capability to analyze samples for the presence of bioterrorism and other agents of interests. Maintains the operational structure of the program at the State and local level. Early detection of an event enables treatment of potentially exposed individuals before they develop symptoms of disease, enabling many more lives to be saved. DHS-funded field operations (supported in the Federal Assistance appropriation) significantly lessen the financial burden imposed by the limited public health and emergency preparedness budgets of State and local jurisdictions, which would otherwise probably not be able to maintain field operations.
- Provides technical and programmatic support to the Field Detection Operations. Maintains information, systems, quality assurance, and preparedness and response capabilities necessary for an effective detection system as part of the national security architecture.

The BioWatch program is the Nation's only civilian-operated biodetection and response program. It is charged with working with FSLTT partners to prepare a rapid efficient response to a widespread bioterrorism attack, conduct environmental surveillance to provide early warning of an attack, and oversee initial situational awareness and response at all levels of government. The BioWatch program is consistent with strategies that emphasize early detection and response as key to mitigating the effects of an act of bioterrorism, including strategies outlined in Biodefense for the 21st Century, 2014 Quadrennial Homeland Security Review, National Strategy for Countering Biological Threats, and National Strategy for Biosurveillance and the Blue Ribbon Study Panel.

Technical Forensics: This program advances the science of nuclear forensics through the examination of materials recovered from radiological/nuclear events of an illicit or hostile nature to determine their character and origin for legal proceedings or national security. This program ensures forensic readiness through joint planning, working with other agencies to conduct exercise and assess capabilities, and promoting international engagements. This program is not requested in FY 2021.

Test & Evaluation (T&E): The T&E program provides funds to characterize, verify, and validate technical performance, and assess the operational effectiveness and suitability of chemical, biological, and radiological/nuclear detection technologies under development, commercially available systems, and emerging technologies and systems prior to deployment (full operational capability). CWMD's suite of test instrumentation and automated data collection systems enable testing teams to rapidly verify and validate data. The Standards project follows a development, use, and revision cycle to ensure that consensus and technical capability standards remain effective for detection technology.

Test & Evaluation supports CWMD programs by conducting tests and evaluations to determine technological maturity, effectiveness, suitability, and compliance with cybersecurity requirements. The five projects in T&E are as follows:

T&E Operations implement innovative methods scalability testing based on the maturity, complexity, and cost of the technology being tested. This includes actions to identify and implement T&E best practices for supporting Rapid Acquisition Programs; incorporate best T&E practices into the T&E Operational Instruction; deliver T&E solutions for both rapid and conventional acquisitions; evaluate technical maturity of materiel solutions in support of their transfer from R&D to Acquisition; and development T&E, operational T&E, and regression testing for deployed capabilities.

T&E Operational Analysis and Technical Assessments supports the Data Mining, Analysis, and Modeling Cell (DMAMC). The DNAMC is a unique resource that optimizes the use of CWMD's existing knowledge base to improve efficiency of test planning and execution, address questions of detector performance through the reuse and evaluation of existing data, and shift the reliance on testing only when needed to acquire new knowledge. The project has consolidated and built several databases and libraries that feature common, controlled access and easy reuse of CWMD data, and DMAMC personnel are vital resources for using these databases. Projects funded directly by DMAMC cut across programs and past tests to ensure CWMD maintains a comprehensive view of its detector knowledge base. DMAMC allows CWMD to respond to requests for information from stakeholders that require such cross-cutting analyses.

Sources and Infrastructure supports the maintenance and sustainment of testing infrastructure to promote efficiencies, cost savings, consistency and robustness across all types of test and evaluation events. This infrastructure includes but is not limited to the design/fabrication of Special Nuclear Material sources, fissile material handling, data collection systems, specialized testing equipment, models, and data repositories to allow for the reuse of data. The FY 2021 funding level for Sources and Infrastructure reflects an increase to accommodate the Chemical and Biological requirements of CWMD. The requested $1.3M Biological Test Infrastructure Test and Evaluation program increase would allow CWMD's T&E to add CHEM/BIO infrastructure to its existing radiological/nuclear infrastructure. The change will support the establishment and sustainment of a Common Repository for BIO strains and support the expansion of the current CWMD T&E archival and retrieval system known as RNDR (Radiological Nuclear Data Repository) to accommodate CHEM/BIO data.

The Standards & Conformity effort supports performance standards for radiological and nuclear detection systems. The program provides funding for the development and maintenance of American National Standards Institute standards, Technical Capability Standards, and International Electrotechnical Commission standards, as well as associated conformity testing against the criteria in those standards. The standards serve as the premier benchmark criteria for detection system capability requirements for radiological/nuclear detection. Technical Capability Standards are directed by the *Security and Accountability for Every Port Act* (or SAFE Port Act) of 2006. Voluntary consensus standards establish baseline performance requirements, provide a means to verify those requirements are met, and help promote development and revision of detection equipment for operational government users, law enforcement, and other State and local users.

The Directed Test program conducts T&E activities, which in turn support concept of operations development/refinement, training, and procurement of Federal and local first responders. In addition, Directed Test supports the development, validation, and harmonization of radiological/nuclear detection standards. Ten Directed Tests have been conducted to date. The Assistant Secretary for CWMD will approve each future Directed Test,

with concurrence from the Weapons of Mass Destruction Requirements Oversight Council. The Directed Test program directly and indirectly supports strategic investments in the Global Nuclear Detection Architecture that help to build and strengthen capabilities and prevent radiological/nuclear threats.

Capability and Operations Support – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$103,176**	**$94,087**	**$89,390**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$3,701	-	-
Rescissions to Current Year/Budget Year	($362)	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$106,515**	**$94,087**	**$89,390**
Collections – Reimbursable Resources	$60	-	-
Total Budget Resources	**$106,575**	**$94,087**	**$89,390**
Obligations (Actual/Estimates/Projections)	$102,160	$94,087	$89,390
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

*Rescissions reflect prior year Office of Health Affairs (OHA) rescissions from Operations and Support, Integrated Operations PPA.

Capability and Operations Support – PPA
Collections – Reimbursable Resources

Collections	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget		
(Dollars in Thousands)	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Department of Homeland Security - Departmental Management and Operations Source	-	-	$60	-	-	-	-	-	-
Total Collections	-	-	**$60**	-	-	-	-	-	-

Capability and Operations Support – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$103,176**
FY 2020 Enacted	-	-	**$94,087**
FY 2021 Base Budget	-	-	**$94,087**
2020 Pay Raise	-	-	$11
2021 Pay Raise	-	-	$25
Total, Pricing Increases	-	-	**$36**
Total Adjustments-to-Base	-	-	**$36**
FY 2021 Current Services	-	-	**$94,123**
Chem/Bio Test Infrastructure Test & Evaluation	-	-	$1,300
Food, Agriculture, and Veterinary Readiness and Resilience	-	-	$1,567
Total, Program Increases	-	-	**$2,867**
National Biosurveillance Integration Center Reduction	-	-	($5,000)
Technical Forensics Decrease	-	-	($2,600)
Total, Program Decreases	-	-	**($7,600)**
FY 2021 Request	-	-	**$89,390**
FY 2020 To FY 2021 Change	-	-	**($4,697)**

Capability and Operations Support – PPA
Personnel Compensation and Benefits
Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted				FY 2020 Enacted				FY 2021 President's Budget				FY 2020 to FY 2021 Total			
	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate	Pos.	FTE	Amount	Rate
Capability and Operational Support	-	-	$2,297	-	-	-	$2,547	-	-	-	$2,583	-	-	-	$36	-
Total	-	-	**$2,297**	-	-	-	**$2,547**	-	-	-	**$2,583**	-	-	-	**$36**	-
Discretionary - Appropriation	-	-	$2,297	-	-	-	$2,547	-	-	-	$2,583	-	-	-	$36	-

* Pay reflects the cost for Public Health Service Officers (PHSOs) detailed to CWMD from Health and Human Services so no FTE is reflected in this table.

Pay by Object Class

Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 - FY 2021 Change
11.8 Special Personal Services Payments	$2,297	$2,547	$2,583	$36
Total - Personnel Compensation and Benefits	**$2,297**	**$2,547**	**$2,583**	**$36**
Positions and FTE				

*Pay reflects the cost for Public Health Service Officers (PHSOs) detailed to CWMD from Health and Human Services so no FTE is reflected in this table.

Pay Cost Drivers

Pay Cost Drivers *(Dollars in Thousands)*	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	FTE	Amount	Rate	FTE	Amount	Rate	FTE	Amount	Rate	FTE	Amount	Rate
Public Health Service Officer Costs	-	$2,297	-	-	$2,547	-	-	$2,583	-	-	$36	-
Total Pay Cost Drivers	**-**	**$2,297**	**-**	**-**	**$2,547**	**-**	**-**	**$2,583**	**-**	**-**	**$36**	**-**

Explanation of Pay Cost Driver

Public Health Service Officer Costs: The table above displays the reimbursable payments (Object Class 11.8, "Special Personal Services Payments") that support personnel only from HHS, U.S. Public Health Service Corps. CWMD has Public Health Service Officers (PHSO) detailed from HHS helping staff with CWMD programs. No positions are reflected here, since the PHSO positions are held by HHS.

Capability and Operations Support – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Capability and Operational Support	$100,879	$91,540	$86,807	($4,733)
Total	**$100,879**	**$91,540**	**$86,807**	**($4,733)**
Discretionary - Appropriation	$100,879	$91,540	$86,807	($4,733)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$1,469	$1,121	$1,141	$20
24.0 Printing and Reproduction	$4	$28	$28	-
25.1 Advisory and Assistance Services	$33,778	$28,092	$25,308	($2,784)
25.2 Other Services from Non-Federal Sources	$17,718	$16,942	$14,792	($2,150)
25.3 Other Goods and Services from Federal Sources	$31,258	$24,398	$24,579	$181
25.7 Operation and Maintenance of Equipment	$1,142	$1,259	$1,259	-
26.0 Supplies and Materials	$11,200	$15,400	$15,400	-
31.0 Equipment	$3,660	$3,450	$3,450	-
41.0 Grants, Subsidies, and Contributions	$650	$850	$850	-
Total - Non Pay Object Classes	**$100,879**	**$91,540**	**$86,807**	**($4,733)**

Non Pay Cost Drivers

Non Pay Cost Drivers *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Biological Support	$49,579	$48,287	$48,310	$23
Strategic Planning and Analysis	$21,800	$23,727	$18,722	($5,005)
Test and Evaluation	$11,000	$11,000	$12,300	$1,300
Medical Support and Food, Ag, Vet Resilience (FAVR)	$2,700	$3,673	$5,232	$1,559
Other Costs	$15,800	$4,853	$2,243	($2,610)
Total - Non Pay Cost Drivers	**$100,879**	**$91,540**	**$86,807**	**($4,733)**

Explanation of Non Pay Cost Drivers

Biological Support: Provides BioDetection capability for aerosolized biological threats, in conjunction with the funds provided as Federal assistance through cooperative agreements (via the Federal Assistance appropriation). This program supports the Nation's only civilian-operated biodetection and response program (BioWatch) and funds collector siting and operational support; equipment, consumables, assays, and reagents; quality assurance and quality control: modeling of operational or impact scenarios: subject matter reachback: development of reference materials: information sharing activities: and rapidly deployable special event support.

Strategic Planning and Analysis: Strategic Planning and Analysis provides resources for requirements, threat hazard identification and risk assessments, NBIC, and information analysis and anomaly detection. CWMD will: provide operationally focused WMD intelligence, sensor data interpretation and tool integration, biosurveillance, operational integration with departmental field operations, and DoD/IC/IA/Foreign Partner collaboration. The decrease reflects a reduction to NBIC which is explained in the program change section of this document.

Test and Evaluation: Test and Evaluation includes funds for T&E Operations, Operational Analysis and Technical Assessments (OATA), Sources and Infrastructure, Standards and Conformity, and Directed Test. The increase reflects Biological test support data.

Medical Support and Food, Agriculture and Veterinary Resilience (FAVR): Includes funding for the Chief Medical Officer programs including the Food, Agriculture and Veterinary Resilience efforts.

Other Costs: Provide funding for Chemical Support and Analysis and Technical Forensics. The decrease reflects the FY 2021 transfer of the Technical Forensics Program to National Nuclear Security Administration (NNSA) .

Department of Homeland Security

Countering Weapons of Mass Destruction

Procurement, Construction, and Improvements

Fiscal Year 2021
Congressional Justification

Table of Contents

Procurement, Construction, and Improvements
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Portable Detection Systems	$25,200	$27,000	$26,615	($385)
Large Scale Detection Systems	$74,896	$91,988	$60,798	($31,190)
Total	**$100,096**	**$118,988**	**$87,413**	**($31,575)**
Discretionary - Appropriation	$100,096	$118,988	$87,413	($31,575)

The Countering Weapons of Mass Destruction Office (CWMD) Procurement, Construction and Improvements (PC&I) appropriation provides resources necessary for the planning, operational development, procurement, deployment, operational test and evaluation, and improvement of assets that help the Department of Homeland Security (DHS) and its partners to prevent, protect against, respond to, and mitigate chemical, biological, radiological and nuclear (R/N) threats and incidents. It also provides for minor construction related to the deployment of Radiation Portal Monitors (RPM).

PC&I funding supports two Programs, Projects, and Activities (PPA): Large Scale Detection Systems, and Portable Detection Systems:

Large Scale Detection Systems: This PPA includes resources to acquire and deploy large scale Radiation Detection Equipment (RDE), or other related equipment, to support DHS operational end-users and address operational and technical detection requirements. This PPA includes the procurement and/or deployment of RDE systems at user locations throughout the United States, and provides the scientific and technical expertise to design, acquire, and deploy these systems.

Portable Detection Systems: This PPA supports the procurement of chemical, biological, and radiological detection equipment that can be carried, worn, or easily moved to support operational end-users. This program includes the Special Mission Support and Sensor Capability Deployment that acquires and deploys human portable, mobile, or relocatable detection equipment to address capability gaps for operational users. This program also includes limited sustainment of sensors, detectors and/or equipment that CWMD provides to support DHS Components and other first responders.

Procurement, Construction, and Improvements
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$100,096**	**$118,988**	**$87,413**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$49,804	$65,057	-
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$149,900**	**$184,045**	**$87,413**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$149,900**	**$184,045**	**$87,413**
Obligations (Actual/Estimates/Projections)	$83,907	$184,045	$87,413
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Procurement, Construction, and Improvements
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$100,096**
FY 2020 Enacted	-	-	**$118,988**
FY 2021 Base Budget	-	-	-
International Rail	-	-	$7,506
Portable Detection Systems	-	-	$26,615
Radiation Portal Monitor (RPM) Program	-	-	$31,951
RPM Replacement Program	-	-	$21,341
Total Investment Elements	-	-	**$87,413**
FY 2021 Request	-	-	**$87,413**
FY 2020 To FY 2021 Change	-	-	**($31,575)**

Procurement, Construction, and Improvements
Non Pay Budget Exhibits
Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$211	$229	$183	($46)
25.1 Advisory and Assistance Services	$10,160	$10,123	$11,810	$1,687
25.2 Other Services from Non-Federal Sources	$590	$957	$900	($57)
25.3 Other Goods and Services from Federal Sources	-	$2,000	$1,600	($400)
31.0 Equipment	$89,135	$105,679	$72,920	($32,759)
Total - Non Pay Object Classes	**$100,096**	**$118,988**	**$87,413**	**($31,575)**

Procurement, Construction, and Improvements
Capital Investments Exhibits
Capital Investments

Investment *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT/Non-IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Radiation Portal Monitor Program (RPMP)	N/A	3	Procurement	Non-IT	No	$24,046	$13,747	$31,951
Radiation Portal Monitor Replacement Program (RPM RP)	024-000005961	3	Procurement	Non-IT	Yes	$47,750	$66,841	$21,341
International Rail (IRAIL)	N/A	3	Procurement	Non-IT	No	$3,100	$3,500	$7,506
Common Viewer	N/A	3	Procurement	IT	No	-	$7,900	-
Personal Radiation Detectors (PRD)	N024-000005959	3	Procurement	Non-IT	Yes	$7,550	$7,450	$16,044
Basic Handheld (BHH) Radioisotope Identification Devices (RIID)	N024-000005960	3	Procurement	Non-IT	Yes	$5,650	$5,550	$5,000
Multi-Modal Sensors	n/a	n/a	Procurement	Non-IT	No	-	$2,000	-
Next-Gen CBRN Sensors	n/a	n/a	Procurement	Non-IT	No	$12,000	$10,000	$3,539
Special Mission Support Equipment	n/a	n/a	Procurement	Non-IT	No	-	$2,000	$2,032

Large Scale Detection Systems – PPA

Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Radiation Portal Monitor Program (RPMP)	$24,046	$13,747	$31,951	$18,204
Radiation Portal Monitor Replacement Program (RPM RP)	$47,750	$66,841	$21,341	($45,500)
International Rail (IRAIL)	$3,100	$3,500	$7,506	$4,006
Common Viewer	-	$7,900	-	($7,900)
Total	**$74,896**	**$91,988**	**$60,798**	**($31,190)**
Discretionary - Appropriation	$74,896	$91,988	$60,798	($31,190)

PPA Level I Description

Large Scale Detection Systems PPA includes resources to acquire and deploy large scale Radiation Detection Equipment (RDE), or other related equipment, to support DHS operational end-users address operational and technical detection requirements. This PPA includes the procurement and/or deployment of RDE systems at user locations throughout the United States, and provides the scientific and technical expertise to design, acquire, and deploy these systems.

The following table provides descriptions for the projects within the CWMD Large Scale Detection Systems PPA.

Projects	General Description
Radiation Portal Monitor Program (RPMP)	RPMP is a post-Full Operational Capability (FOC) program with the objective to maintain scanning coverage at previously deployed sites. Major activities include: Decommission low-use/no-use RPMs and reconfigure sites as required; deploy new RPMs and redeploy previously decommissioned and refurbished RPMs as necessary to address required level of scanning capability at sites; deploy additional large-scale systems at POEs or between POEs near the border; deploy improvements to fielded systems; and conduct test and evaluation of improvements.
Radiation Portal Monitor Replacement Program (RPM RP)	RPM RP is a project with the objective to acquire and deploy enhanced Radiation Portal Monitors (RPM) to begin to recapitalize the current fleet of fixed portal monitors.
International Rail (IRAIL)	IRAIL is a project to acquire and deploy a solution to detect and identify nuclear or other radioactive materials out of regulatory control entering the United States via freight rail. This supports the CBP-led rail NII Recapitalization Program by leading the RDE procurement, integration, and test and evaluation with rail NII.
Common Viewer	Common Viewer is a project to provide a single user interface for CBP personnel to access, control and monitor in real-time various systems at ports of entry (POEs) such as RDE, Non-Intrusive Inspection (NII) systems, and traffic control systems, thereby providing CBP officers with capabilities to more effectively detect, identify, and/or localize radiological, nuclear or other WMD threats.

Large Scale Detection Systems – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$74,896**	**$91,988**	**$60,798**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$21,198	$49,758	-
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$96,094**	**$141,746**	**$60,798**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$96,094**	**$141,746**	**$60,798**
Obligations (Actual/Estimates/Projections)	$45,969	$141,746	$60,798
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Large Scale Detection Systems – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$74,896**
FY 2020 Enacted	-	-	**$91,988**
FY 2021 Base Budget	-	-	-
International Rail	-	-	$7,506
Radiation Portal Monitor (RPM) Program	-	-	$31,951
RPM Replacement Program	-	-	$21,341
Total Investment Elements	-	-	**$60,798**
FY 2021 Request	-	-	**$60,798**
FY 2020 To FY 2021 Change	-	-	**($31,190)**

Large Scale Detection Systems – PPA
Non Pay Budget Exhibits
Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$173	$187	$138	($49)
25.1 Advisory and Assistance Services	$5,098	$5,045	$5,560	$515
25.2 Other Services from Non-Federal Sources	$590	$957	$900	($57)
25.3 Other Goods and Services from Federal Sources	-	$2,000	$1,600	($400)
31.0 Equipment	$69,035	$83,799	$52,600	($31,199)
Total - Non Pay Object Classes	**$74,896**	**$91,988**	**$60,798**	**($31,190)**

Large Scale Detection Systems – PPA
Capital Investments Exhibits
Capital Investments

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Radiation Portal Monitor Program (RPMP)	N/A	3	Procurement	Non-IT	No	$24,046	$13,747	$31,951
Radiation Portal Monitor Replacement Program (RPM RP)	024-000005961	3	Procurement	Non-IT	Yes	$47,750	$66,841	$21,341
International Rail (IRAIL)	N/A	3	Procurement	Non-IT	No	$3,100	$3,500	$7,506
Common Viewer	N/A	3	Procurement	IT	No	-	$7,900	-

Radiation Portal Monitor Program (RPMP) – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Radiation Portal Monitor (RPM) Program
Procurement, Construction, and Improvements Funding

Investment *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Radiation Portal Monitor Program (RPMP)	N/A	3	Procurement	Non-IT	No	$24,046	$13,747	$31,951

Investment Description

RPMs are used at U.S. land and sea POEs by U.S. Customs and Border Protection (CBP) to scan cargo and conveyances to prevent the smuggling of R/N threats or threat materials into the United States, while facilitating the flow of legitimate trade and commerce.

The RPM Program supports CBP's efforts to maintain scanning coverage at POEs. As POEs are reconfigured or expanded, RPMs must be relocated, decommissioned, and/or additional RPM systems must be deployed to maintain current scanning capabilities. In addition, improvements will be deployed to systems in the field to extend the service life of RPMs, including mobilePMs (mRPM), as well as augment detection efficacy, operational performance, and operational efficiency.

In Fiscal Year (FY) 2021, CWMD plans to continue managing the redeployment of the legacy RPM systems to meet CBP requirements and to deploy selected improvements that have been projected to enhance operational or threat detection performance for fielded systems.

Justification

Funding in FY 2021 will support CWMD's effort to maintain and improve the legacy fleet of RPMs to ensure the Department can meet the *Security and Accountability For Every (SAFE) Port Act of 2006 (Public Law 107—347)* and ensure DHS continues to meet the WMD threat. RPMs are used to scan nearly 100 percent of the over 100 million containers, conveyances and parcels that arrive in the United States through a port of entry (POE) each year. In addition, improvements to RPM equipment and operations that increase operational efficiency allows for CBP officers to be redirected to other law enforcement duties. DHS faces an enduring requirement to maintain and continue the capability to cost effectively scan cargo for radiological/nuclear threats at land, sea, and air POEs, without an adverse impact to the flow of commerce. The RPM Program funding supports sustainment and modernization activities at previously deployed sites based on available funding and priority of activities.

FY 2019 Key Milestone Events
- Reconfigured RPMs at 19 POEs.
- Deployed remote operations equipment at six POEs.
- Deployed software updates (e.g., Enhanced Radiological Nuclear Inspection and Evaluation (ERNIE) to one POE).

FY 2020 Planned Key Milestone Events
- Reconfigure RPMs at 50 POEs.
- Deploy remote operations equipment at six POEs.

FY 2021 Planned Key Milestone Events
- Reconfigure RPMs at 62 POEs.
- Deploy remote operations equipment at five POEs.

Overall Investment Funding

(Dollars in Thousands)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021**
Operations and Support*	-	-	-	-
Procurement, Construction, and Improvements	$32,005	$24,046	$13,747	$31,951
Research and Development	-	-	-	-
Legacy Appropriations	$974,385			
Project Funding	$1,006,390	$24,046	$13,747	$31,951
Obligations	$1,006,390	$16,415		
Expenditures	$1,006,390	$12,033		

* Note: RPMs are used by U.S. Customs and Border Protection (CBP) which funds associated Operations and Support (O&S) costs separately.

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value (Dollars in Thousands)
HSHQDC-15-X-00060	Pacific Northwest National Lab	IAA	03/2015	03/2015	03/2020	No	$119,964
HSHQDC-17-IPA006	CBP Border Security Deployment Program (BSDP)	IAA	05/2017	05/2017	05/2022	No	$20,000
HSHQDC-17-IPA008	CBP Data Analysis Center – Threat Evaluation Reduction (DAC-TER)	RWA	06/2017	06/2017	06/2022	No	$8,400
HSHQDC18IPA001	General Service Administration	RWA	07/2017	08/2017	06/2020	No	$740

Significant Changes to Investment since Prior Year Enacted

The FY 2020 Enacted funding level reflected deferral of lower priority activities, delayed the continuing implementation of remote operations capability for RPMs at selected POEs and caused CWMD and CBP to also defer redeployment of RPMs required by port reconfigurations and expansions. Increased funding will enable the RPM Program to increase reconfigurations/relocations at various POEs to meet growing demand and to accelerate RPM remote operations installations which will improve CBP efficiencies by allowing the redirection of CBP officers to other critical law enforcement duties, and address enduring shortfalls to sustain the scanning capability of the deployed RPM "fleet."

Investment Schedule

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	Completed	Initiated	Completed	
FY 2019					
Deployment/redeployment			FY 2019 QTR 2	FY 2019 QTR 2	$7,365
Continuing System Improvements incl Remote Ops			FY 2019 QTR 2	FY 2019 QTR 3	$9,825
Science and Engineering			FY 2019 QTR 2	FY 2019 QTR 4	$2,060
Logistics			FY 2019 QTR 2	FY 2019 QTR 4	$2,166
Indirect Support			FY 2019 QTR 2	FY 2019 QTR 4	$2,630
FY 2020					
Deployment/redeployment			FY 2020 QTR 1	FY 2020 QTR 4	$3,947
Continuing System Improvements incl Remote Ops			FY 2020 QTR 1	FY 2020 QTR 4	$3,700
Science and Engineering			FY 2020 QTR 1	FY 2020 QTR 4	$3,100
Indirect Support			FY 2020 QTR 1	FY 2020 QTR 4	$3,000
FY 2021					
Deployment/redeployment			FY 2021 QTR 1	FY 2021 QTR 4	$18,751
Continuing System Improvements incl Remote Ops			FY 2021 QTR 1	FY 2021 QTR 4	$5,600
Science and Engineering			FY 2021 QTR 1	FY 2021 QTR 4	$4,300
Indirect Support			FY 2021 QTR 1	FY 2021 QTR 4	$3,300

Radiation Portal Monitor Replacement Program (RPM RP) – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Radiation Portal Monitor Replacement Program (RPM RP)
Procurement, Construction, and Improvements Funding

Investment *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Radiation Portal Monitor Replacement Program (RPM RP)	024-000005961	3	Procurement	Non-IT	Yes	$47,750	$66,841	$21,341

Investment Description
RPMs are used at U.S. land and sea POEs by CBP to scan cargo and conveyances to prevent the smuggling of R/N threats or threat materials into the United States, while facilitating the flow of legitimate trade and commerce. The program supports the needed enhancements to CBP R/N materials detection and identification capabilities at high-volume POEs by addressing the five key drivers of enhancing mission effectiveness: (1) monitoring the state of health; (2) modernizing; (3) addressing emerging needs; (4) increasing reliability and availability; and (5) maintainability. These drivers were developed jointly by CBP and Pacific Northwest National Laboratory to guide DHS RPM recapitalization and modernization efforts.

The focus of the RPM RP is the selective deployment of new RPMs to enhance mission effectiveness, gain operational efficiencies, and to address emerging mission needs. RPM RP is aligned to several overarching technical requirements for improving R/N detection, including the following areas:
1) Deploy detection systems for scanning of cargo and conveyances for R/N materials at U.S. POEs.
2) Ensure steady state operations of deployed radiation detection systems do not unduly disrupt commercial cargo and passenger flow.

The RPM RP program will acquire, deploy, and install 200 RPMs. CWMD has procured nine systems to date, and will be able to procure the remaining RPMs with with FY 2019 and FY 2020 funding.

Justification
The FY 2021 President's Budget provides funding required to deploy and install 111 RPMs. These deployments will not only increase the inventory of RPMs to meet current and expected near-term demand but also allow the replacement of older units that cannot accommodate new revised operational settings. Excessive nuisance alarms are precluding the implementation of remote operations capability.

FY 2019 Key Milestone Events
- Evaluate the operational effectiveness, suitability, and cybersecurity of the selected RPMs in their intended operational environment.
- Complete a cyber security assessment of the RPM systems integrated into the CBP network.
- Obtain CBP authority to operate (ATO) for selected systems.

FY 2020 Planned Key Milestone Events
- Award delivery orders with selected vendors to procure 191 systems for deployment (80 with FY 2019 funding and 111 with FY 2020 funding).
- Deploy and install RPMs procured in early FY 2020 at CBP POEs.
- Declare Initial Operating Capability (IOC) after successful deployments.

FY 2021 Planned Key Milestone Events
- Deliver, deploy, and install the remainder of the RPMs procured in FY 2020 to CBP POEs.

Overall Investment Funding

(Dollars in Thousands)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021**
Operations and Support*	-	-	-	-
Procurement, Construction, and Improvements	$26,751	$47,750	$66,841	$21,341
Research and Development	-	-	-	-
Legacy Appropriations	$6,460			
Project Funding	$33,211	$47,750	$66,841	$21,341
Obligations	$33,211	$5,505		
Expenditures	$33,211	$1,402		

* Note: RPMs are used by CBP which funds associated O&S costs separately.

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value *(Dollars in Thousands)*
70RDND18D00000001	L-3 Communications	IDIQ	09/2018	09/2018	09/2023	No	$291,400*
70RDND18D00000002	Leidos	IDIQ	09/2018	09/2018	09/2023	No	$291,400*
70RDND18D00000003	Smiths Detection	IDIQ	09/2018	09/2018	09/2023	No	$291,400*
70 RDND18K00000011	Pacific Northwest National Lab	IAA	07/2018	07/2018	07/2021	No	$34,361

* The program contract ceiling is $291.4M (the total is shared between all three contractors)

Significant Changes to Investment since Prior Year Enacted

None.

Investment Schedule

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	**Completed**	**Initiated**	**Completed**	
FY 2019					
System Development, Integration, and Test			FY 2019 Q2	FY 2020 Q4	$1,160
System Procurement (80 systems)			FY 2020 Q2	FY 2021 Q1	$41,805
System Deployment and Construction			FY 2019 Q3	FY 2021 Q1	$4,785
FY 2020					
System Procurement (111 Systems)			FY 2020 Q4	FY 2022 Q1	$50,117
System Deployment and Construction			FY 2020 Q2	FY 2021 Q2	$16,724
FY 2021					
System Deployment and Construction			FY 2021 Q1	FY 2022 Q3	$21,341

International Rail (IRAIL) – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

International Rail (IRAIL)
Procurement, Construction, and Improvements Funding

Investment *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
International Rail (IRAIL)	N/A	3	Procurement	Non-IT	No	$3,100	$3,500	$7,506

Investment Description

The International Rail program will acquire and deploy fixed RDE, such as an RPM, to detect and identify nuclear or other radioactive materials out of regulatory control entering the United States via freight rail cargo through the active rail POEs. The CWMD IRAIL Program will acquire and deploy a solution in coordination with the CBP Non-Intrusive Inspection (NII) Program, which is recapitalizing aging NII systems rail POEs. Rail RDE will be procured as a separate equipment item on CBP's NII recapitalization contract, with integration and testing to be conducted to ensure the NII and RDE function in as an integrated capability.

Justification

The FY 2021 President's Budget supports the procurement and deployment RDE of up to six rail variant RPM-type systems required to enhance the technological capability to scan cargo at international rail crossings. RDE procurement will align with NII procurement, and RDE and NII capabilities will be combined into a single integrated capability for deployment at rail crossings.

FY 2020 Planned Key Milestone Events

- Procure "rail variant" RDE systems through CBP HE-NII contract vehicle for testing and deployment.

FY 2021 Planned Key Milestone Events

- Initiate integration of RDE systems with CBP NII systems.
- Initiate Testing of integrated NII/RDE systems.
- Initiate Procurement "rail variant" RDE systems for deployment through the CBP NII contract

Overall Investment Funding

(Dollars in Thousands)	Prior Years	FY 2019	FY 2020	FY 2021
Operations and Support*	-	-	-	-
Procurement, Construction, and Improvements	$3,000	$3,100	$3,500	$7,506
Research and Development	$2,750	$3,000	-	-
Legacy Appropriations	-			
Project Funding	$5,750	$6,100	$3,500	$7,506
Obligations	$3,740	$6,100		
Expenditures	$251	$2,537		

* Note: This technology is used by CBP which funds associated O&S costs separately.

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value *(Dollars in Thousands)*
HSHQDN-16-X-00047	Pacific Northwest National Lab	Existing IAA	08/2016	08/2016	08/2021	No	$9,000

Significant Changes to Investment since Prior Year Enacted

CWMD and CBP have evolved their approach for implementing this acquisition. CWMD is coordinating closely with the CBP High-Energy Non-Intusive Inspection (HE-NII) acquisition team to include the acquisition and integration of Radiation Detection Equipment through the prime HE-NII contracts. This will better ensure an intergrated solution to scanning International Rail cargos. The acquisition, intergration, and testing of IRAIL RDE has been delayed pending execution of the CBP-NII acquisition. The CBP HE-NII RFP was released in December 2019.

Given the delays in releasing the CBP RFP, $1.5M in PC&I FY2019 funding was allocated to an emerging need to conduct a technology refresh of the existing fleet of 61 mobile RPMs (mRPM). In addition, $975,000 of R&D funding was allocated to the Exodus Accountability Referral System (EARS).

Investment Schedule

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	**Completed**	**Initiated**	**Completed**	
FY 2019					
System Procurement and deployment			FY 2020 Q2	FY 2020 Q4	$1,600
Tech Refresh mRPMP			FY 2019 Q4	FY 2020 Q4	$1,500
FY 2020					
System Procurement and deployment			FY 2020 Q2	FY 2020 Q4	$3,500
FY 2021					
System Procurement and deployment			FY 2021 Q1	FY 2021 Q4	$7,506

Common Viewer – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Common Viewer Program
Procurement, Construction, and Improvements Funding

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Common Viewer	N/A	3	Procurement	IT	No	-	$7,900	-

Investment Description
Common Viewer is a project to provide a single user interface for CBP personnel to access and control various systems encountered at POEs such as RDE, NII systems, and traffic control systems. Common Viewer will simultaneously allow both CBP officers in the field, staff at National Targeting Centers, and CBP remote operations and analysis centers to monitor real-time radiographic, spectrographic, optical, and x-ray imaging data against traveler, cargo, and conveyance information for comparison against law enforcement, intelligence, and other enforcement data. Common Viewer will therefore provide CBP officers with capabilities to be more effective to detect, identify, and/or localize radiological/nuclear threats (including material and other components) that may be smuggled via both containerized and non-containerized cargo at points of entry into the United States of America.

Justification
No funds are included in the FY 2021 President's Budget for this investment.

FY 2020 Planned Key Milestone Events
- Deploy and demonstrate Common Viewer prototypes at El Paso, TX (Bridge of the Americas) and Calexico, CA.
- Conclude CWMD prototype efforts and provide results to CBP to inform that Component's follow-on acquisitions.

FY 2021 Planned Key Milestone Events
- N/A

Overall Investment Funding

(Dollars in Thousands)	Prior Years	FY 2019	FY 2020	FY 2021
Operations and Support	-	-	-	-
Procurement, Construction, and Improvements	-	-	$7,900	-
Research and Development	$2,680	-	-	-
Project Funding	$2,680	-	$7,900	-
Obligations	$1,835	-		
Expenditures	$758	-		

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value (Dollars in Thousands)
CWMD 2019-350 (CWMD1829-002)	Rapiscan – Prototype (Funded w/ R&D)	FFP	11/2018	11/2018	02/2020	No	$483
CWMD 2019-350 (CWMD1829-003)	Symmetric -- Prototype (Funded w/ R&D)	FFP	02/2019	02/2019	12/2019	No	$1,287

Significant Changes to Investment since Prior Year Enacted

After an operational demonstration of the CWMD Common Viewer prototype at El Paso, TX (Bridge of the Americas) POE, CBP determined the CWMD system would not be required. Instead, CBP will pursue its own Common Viewer system with a greater emphasis on NII systems. CWMD will defer further acquisition and deployment of a Common Viewer capability and provide subject matter expertise support to CBP. Lessons learned during the CWMD protype demonstrations will be incorporated into the CBP Common Viewer Effort.

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	**Completed**	**Initiated**	**Completed**	
FY 2019					
N/A					
FY 2020					
N/A					
FY 2021					
N/A					

Portable Detection Systems – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Personal Radiation Detectors (PRD)	$7,550	$7,450	$16,044	$8,594
Basic Handheld (BHH) Radioisotope Identification Devices (RIID)	$5,650	$5,550	$5,000	($550)
Multi-Modal Sensors	-	$2,000	-	($2,000)
Next-Gen CBRN Sensors	$12,000	$10,000	$3,539	($6,461)
Special Mission Support Equipment	-	$2,000	$2,032	$32
Total	**$25,200**	**$27,000**	**$26,615**	**($385)**
Discretionary - Appropriation	$25,200	$27,000	$26,615	($385)

PPA Level I Description

The Portable Detection Systems PPA supports the procurement of chemical, biological, and radiological detection equipment that can be carried, worn, or easily moved to support operational end-users. This program also includes limited sustainment of sensors, detectors and/or equipment that CWMD provides to support DHS Components and other first responders.

The following table provides descriptions for the projects within the CWMD Portable Detection Systems PPA.

Projects	General Description
Personal Radiation Detectors (PRD)	PRDs are pager-size devices worn by an operator at all times for the purposes of R/N detection. They monitor the user's environment and alert operators when radioactivity levels above the natural background are detected, at which time the user would call for an identification device.
Basic Handheld (BHH) Radioisotope Identification Devices (RIID)	BHH RIIDs are used for search, detection, localization, and identification of R/N materials, and for quick and accurate measurement of dose rate and count rate. These devices are also used to support secondary screening and small-area searches.
Multi-Modal Sensors	Multi-modal sensors combine chemical, biological, and/or radiological detectors into single portable monitoring systems to enhance operational user capabilities and address multiple threats.
Next-Gen CBRN Sensors	Next-generation CWMD sensors provide new capabilities to DHS Federal partners and State/local users through new materiel solutions and/or increasing the capability of existing equipment.
Special Mission Support Equipment	Critical Counter-WMD capabilities including detection equipment, personal protective equipment, and decontamination equipment for DHS Special Mission Units.
Helium-3 Alternative Implementation Backpack Program (HAIBP) Program	The Helium-3 (3He) Alternative Implementation Backpack Program replaces current capabilities provided by the legacy 3He backpack detection systems and combine the wide-area search, detection, and identification functions into a single data-streaming enabled device using Helium-3 alternative technology for neutron detection. Program is currently working with four Vendors: BTI, Target, Symetrica and Mirion.
HPRDS Communication Package, Version 2 (HCP2)	Operators transfer spectral files from a RIID to a smart platform (e.g., cell phone or tablet computer). Operators send those files to LSS for analysis via commercial wireless networks using cellular or SATCOM transmission paths.
Advanced Handheld Detection (AHH) Program	AHHs are more accurate than the basic devices due to enhanced detection materials. They are typically deployed by personnel with advanced training to adjudicate and resolve alarms.

Portable Detection Systems – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$25,200**	**$27,000**	**$26,615**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$28,606	$15,299	-
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$53,806**	**$42,299**	**$26,615**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$53,806**	**$42,299**	**$26,615**
Obligations (Actual/Estimates/Projections)	$37,938	$42,299	$26,615
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Portable Detection Systems – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$25,200**
FY 2020 Enacted	-	-	**$27,000**
FY 2021 Base Budget	-	-	**-**
Portable Detection Systems	-	-	$26,615
Total Investment Elements	-	-	**$26,615**
FY 2021 Request	-	-	**$26,615**
FY 2020 To FY 2021 Change	-	-	**($385)**

Portable Detection Systems – PPA
Non Pay Budget Exhibits
Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$38	$42	$45	$3
25.1 Advisory and Assistance Services	$5,062	$5,078	$6,250	$1,172
31.0 Equipment	$20,100	$21,880	$20,320	($1,560)
Total - Non Pay Object Classes	**$25,200**	**$27,000**	**$26,615**	**($385)**

Portable Detection Systems – PPA
Capital Investments Exhibits
Capital Investments

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Personal Radiation Detectors (PRD)	N024-000005959	3	Procurement	Non-IT	Yes	$7,550	$7,450	$16,044
Basic Handheld (BHH) Radioisotope Identification Devices (RIID)	N024-000005960	3	Procurement	Non-IT	Yes	$5,650	$5,550	$5,000
Multi-Modal Sensors	n/a	n/a	Procurement	Non-IT	No	-	$2,000	-
Next-Gen CBRN Sensors	n/a	n/a	Procurement	Non-IT	No	$12,000	$10,000	$3,539
Special Mission Support Equipment	n/a	n/a	Procurement	Non-IT	No	-	$2,000	$2,032

Personal Radiation Detectors (PRD) – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Personal Radiation Detector (PRD)
Procurement, Construction, and Improvements Funding

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Personal Radiation Detectors (PRD)	N024-000005959	3	Procurement	Non-IT	Yes	$7,550	$7,450	$16,044

Investment Description

PRDs are pager-size devices worn by an operator at all times for the purposes of R/N detection. They monitor the user's environment and alert operators when radioactivity levels above the natural background are detected. CWMD procures two types of PRD variants: A general purpose (GP) variant which detects gamma radiation only (primarily for CBP), and a maritime variant which detects gamma and neutron radiation (primarily for USCG).

Justification

The FY 2021 President's Budget funds the procurement of approximately 10,500 GP variant PRDs for CBP and 275 GP variant PRDs for TSA, for total of 10,775 PRDs.
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FY 2019 Key Milestone Events
- Procured 18,921 PRDs for CBP.
- Procure 80 PRDs for ICE
- Awarded two BPAs for maritime variant PRD s and procured 20 maritime variant PRDs for testing.

FY 2020 Planned Key Milestone Events
- Procure approximately 2000 PRDs for USCG

FY 2021 Planned Key Milestone Events
- Procure approx. 10,500 PRDs for CBP
- Procure approx. 275 PRDs for TSA.

Overall Investment Funding

(Dollars in Thousands)	Prior Years	FY 2019	FY 2020	FY 2021
Operations and Support*	-	-	-	-
Procurement, Construction, and Improvements	$7,404	$7,550	$7,450	$16,044
Research and Development	-	-	-	-
Legacy Appropriations	$11,000			
Project Funding	$18,404	$7,550	$7,450	$16,044
Obligations	$18,404	$7,550		
Expenditures	$18,404	$7,550		

* Note: PRDs are used by CBP, TSA, and the U.S. Coast Guard which fund associated O&S costs separately.

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value (Dollars in Thousands)
HSHQDN-17-D-00001	PRD: Polimaster, Inc.	IDIQ	9/17	9/17	9/22	No	$90,000*
HSHQDN-17-D-00002	PRD: Thermo-Fisher	IDIQ	9/17	9/17	9/22	No	$90,000*
GS-07F-0248T	Maritime Variant PRD: William F. Hawk Consulting, Inc	BPA	9/19	9/19	9/24	No	$35,000
GS-07F-100GA	Maritime Variant PRD: Thermo-Fisher	BPA	9/19	9/19	9/24	No	$35,000

*The program contract ceiling is $90.0M (the total is shared between the two contractors)

Significant Changes to Investment since Prior Year Enacted

N/A

Investment Schedule

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	**Completed**	**Initiated**	**Completed**	
FY 2019					
PRD equipment procurement			FY 2019 Q1	FY 2019 Q4	$7,550
FY 2020					
PRD equipment procurement			FY 2020 Q1	FY 2020 Q4	$7,199
PRD training and testing			FY2020 Q1	FY 2020 Q4	$251
FY 2021					
PRD equipment procurement			FY 2021 Q1	FY 2021 Q4	$16,044

Basic Handheld (BHH) Radioisotope Identification Devices (RIID) – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Basic Handheld (BHH) Radioisotope Identification Devices (RIID)
Procurement, Construction, and Improvements Funding

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Basic Handheld (BHH) Radioisotope Identification Devices (RIID)	N024-000005960	3	Procurement	Non-IT	Yes	$5,650	$5,550	$5,000

Investment Description

BHH RIIDs are used for search, detection, localization, and identification of R/N materials, and for quick and accurate measurement of dose rate and count rate. These devices are also used to support secondary screening and small-area searches. This project will conduct a Service Life Extension Program (SLEP) on CBP's RadSeeker DL fleet of approximately 730 devices.

Justification

The FY 2021 President's Budget funds the procurement of 160 BHH RIIDs that will be deployed to DHS Components.

FY 2019 Key Milestone Events
- Delivered 442 devices for USCG, completed all training courses for device end users, and reach Final Operating Capability (FOC) for USCG.
  - FY 2019 funding reallocated to higher CWMD priorities in Helium-3 Alternative Implementation Backpack Program (HAIBP) Program and HPRDS Communication Package, Version 2 (HCP2).

FY 2020 Planned Key Milestone Events
- Conduct Acquisition Decision Event (ADE)-2a to enter DHS Obtain phase for CBP RIID Service Life Extension Program (SLEP).

FY 2021 Planned Key Milestone Events
- Award contract for RIID SLEP and begin first deliveries of modified RIIDs to the Customs and Border Protection (CBP).

Overall Investment Funding

(Dollars in Thousands)	Prior Years	FY 2019	FY 2020	FY 2021
Operations and Support*	-	-	-	-
Procurement, Construction, and Improvements	$8,877	$5,650	$5,550	$5,000
Research and Development	-	-	-	-
Legacy Appropriations	$7,708			
Project Funding	$16,585	$5,650	$5,550	$5,000
Obligations	$16,585	$3,632		
Expenditures	$16,585	$3,631		

* Note: BHH RIIDs are used by CBP, TSA, and USCG, which fund associated O&S costs separately.

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value (Dollars in Thousands)
HSHQDC-15-D-00018	BHH: Smiths Detection (current strategic sourcing contract vehicle)	IDIQ	09/2015	09/2015	09/2020	No	$143,000

Significant Changes to Investment since Prior Year Enacted

$2.0M of $5.7M of FY 2019 appropriated funding was reallocated to HAIBP and HCP2.

Investment Schedule

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	**Completed**	**Initiated**	**Completed**	
FY 2019					
BHH program documentation & analysis			FY 2020 QTR 1	FY 2020 QTR 2	$5,650
FY 2020					
BHH equipment procurement			FY 2020 QTR 3	FY 2020 QTR 4	$3,550
BHH testing			FY 2020 QTR 1	FY 2020 QTR 4	$2,000
FY 2021					
BHH equipment procurement			FY 2021 QTR 3	FY 2021 QTR 4	$4,500
BHH training			FY 2021 QTR 1	FY 2021 QTR 3	$500

Multi-Modal Sensors – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Multi-Modal Sensors

Procurement, Construction, and Improvements Funding

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Multi-Modal Sensors	n/a	n/a	Procurement	Non-IT	No	-	$2,000	-

Investment Description

Multi-modal sensors combine chemical, biological, and/or radiological detectors into single portable monitoring systems to enhance operational user capabilities and address multiple threats. These sensors will enable smaller footprints, minimize the need for multiple equipment types, reduce power and networking requirements, reduce the number of operators required to use the system, and provide a more robust capability for surging efforts in support of national special security events.

Justification

No funding is included in the FY 2021 President's Budget for this technology

FY 2020 Planned Key Milestone Events

- To Be Determined

FY 2021 Planned Key Milestone Events

- N/A

Overall Investment Funding

(Dollars in Thousands)	Prior Years	FY 2019	FY 2020	FY 2021
Operations and Support	-	-	-	-
Procurement, Construction, and Improvements	-	-	$2,000	-
Research and Development	-	-	-	-
Legacy Appropriations	-			
Project Funding	-	-	$2,000	-
Obligations	-	-		
Expenditures	-	-		

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value (Dollars in Thousands)
TBD							

Significant Changes to Investment since Prior Year Enacted

The Multi-modal effort was expected to integrate existing sensors into portable monitoring systems to meet operational needs, but after initial market research was completed, it was determined the types of sensors required were not available and needed to be developed. The prototyping effort was halted, eliminating the need for PC&I funding in FY20. When sensors become available in the future, the prototyping effort and subsequently the procurement effort will request funding to pursue this capability.

Investment Schedule

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	**Completed**	**Initiated**	**Completed**	
FY 2019					
N/A					
FY 2020					
Equipment procurement			FY 2020 QTR 1	FY 2020 QTR 1	$1,400
Equipment testing			FY 2020 QTR 2	FY 2020 QTR 3	$300
Initial deployment and sustainment			FY 2020 QTR 4	FY 2020 QTR 4	$300
FY 2021					
N/A					

Next-Gen CBRN Sensors – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Next-Generation CBRN Sensors
Procurement, Construction, and Improvements Funding

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Next-Gen CBRN Sensors	n/a	n/a	Procurement	Non-IT	No	$12,000	$10,000	$3,539

Investment Description

Next-generation CWMD sensors will acquire and deploy new capabilities to DHS Federal partners and State/local users that were successfully developed through Next Generation CWMD Systems R&D funding or through prototyping efforts by the Rapid Capabilities Office. Materiel solutions will be driven by user generated operational requirements to close documented capability gaps. Potential material solutions might include, pending successful completion of developmental activities, the following efforts: mobile and relocatable detection systems for U.S. Border Patrol checkpoints, remotely operated capability that could be deployed in inter-coastal waterways or strategic river choke points to mitigate a portion of the small maritime vessel threat, recapitalization of human portable RDE with next generation, multi-model sensors, and/or material solutions to support detect threats to food, agriculture, and veterinary vectors.

Justification

The FY 2021 President's Budget funds the acquisition and deployment of of emerging Next-Generation CBRN Sensors based on capability needs analyses while balancing other CWMD priorities to stay within budget limitations. Since these are emerging needs and follow-on acquisition depends on success of development and prototyping activities, exact numbers and types of system are not yet definitized.

FY 2019 Key Milestone Events

- Acquire and deploy chem/bio sensors for Mobile Detection Deployment Program (MDDP).

FY 2020 Planned Key Milestone Events

- Conduct market research and prototyping and prepare program acquisition documentation.
- Acquire and deploy one or more types of Next-Generation Sensors.

FY 2021 Planned Key Milestone Events

- Conduct market research and prototyping and prepare program acquisition documentation.
- Acquire and deploy one or more types of Next-Generation Sensors.

Overall Investment Funding

(Dollars in Thousands)	Prior Years	FY 2019	FY 2020	FY 2021
Operations and Support	-	-	-	-
Procurement, Construction, and Improvements	-	$12,000	$10,000	$3,539
Research and Development	-	-	-	-
Legacy Appropriations	-			
Project Funding	-	$12,000	$10,000	$3,539
Obligations	-	$12,000		
Expenditures	-	-		

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value (Dollars in Thousands)
TBD	TBD	FFP	09/2019	09/2019	TBD	No	$5,400
TBD	DLA IDIQ	FFP	09/2019	09/2019	TBD	No	$1,983

Significant Changes to Investment since Prior Year Enacted
N/A

Investment Schedule

Description	Design Work		Project Work		Estimated Cost *(Dollars in Thousands)*
	Initiated	**Completed**	**Initiated**	**Completed**	
FY 2019					
Procure CBRN equipment			FY 2019 QTR 4	FY 2021 QTR 4	$12,000
FY 2020					
Procure next-gen CBRN equipment			FY 2020 QTR 2	FY 2020 QTR 3	$6,500
Procure upgrades to existing CBRN equipment			FY 2020 QTR 1	FY 2020 QTR 2	$3,000
Test			FY 2020 QTR 2	FY 2020 QTR 3	$500
FY 2021					
Procure next-gen CBRN equipment			FY 2020 QTR 2	FY 2020 QTR 3	$2,539
Procure upgrades to existing CBRN equipment			FY 2020 QTR 1	FY 2020 QTR 2	$1,000

Special Mission Support Equipment – Investment
Capital Investments Exhibits
Procurement/Acquisition Programs

Special Mission Support Equipment
Procurement, Construction, and Improvements Funding

Investments *(Dollars in Thousands)*	Unique Item Identifier	Acquisition Level	Procurement/ Construction	IT / Non IT	MAOL	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Special Mission Support Equipment	n/a	n/a	Procurement	Non-IT	No		-	$2,000	$2,032

Investment Description
CWMD will rapidly equip DHS Special Mission Units with critical Counter-WMD capabilities including detection equipment, personal protective equipment, and decontamination equipment for DHS Special Mission Units. This equipment is necessary to enable mission success and ensure the unimpeded employment of DHS Special Mission Units in potentially toxic/hazardous environments to execute their Counter-WMD mission. CWMD fills the role to acquire the capability, with sustainment being provided by the operational components.

Justification
The FY 2021 President's Budget funds the rapid procurement and deployment of various types and quantities of Countering-WMD capabilities based on DHS Special Mission Unit capability needs analyses.

FY 2020 Planned Key Milestone Events
- Gather and prioritize Special Mission Unit mission gaps
- Acquire and deploy one or more types of Countering-WMD capabilities

FY 2021 Planned Key Milestone Events
- Gather and prioritize Special Mission Unit mission gaps
- Acquire and deploy one or more types of Countering-WMD capabilities

Overall Investment Funding

(Dollars in Thousands)	Prior Years	FY 2019	FY 2020	FY 2021
Operations and Support	-	-	-	-
Procurement, Construction, and Improvements	-	-	$2,000	$2,032
Research and Development	-	-	-	-
Legacy Appropriations	-			
Project Funding	-	-	$2,000	$2,032
Obligations	-	-		
Expenditures	-	-		

Contract Information (Current/Execution Year, Budget Year)

Contract Number	Contractor	Type	Award Date (mo/yr)	Start Date (mo/yr)	End Date (mo/yr)	EVM in Contract	Total Value (Dollars in Thousands)
TBD							

Significant Changes to Investment since Prior Year Enacted

NA

Investment Schedule

Description	Design Work		Project Work		Estimated Cost (Dollars in Thousands)
	Initiated	Completed	Initiated	Completed	
FY 2019					
N/A					
FY 2020					
Rapidly procure Countering-CWMD capabilities			FY 2020 Q1	FY 2020 Q4	$2,000
FY 2021					
Rapidly procure Countering-CWMD capabilities			FY 2021 Q1	FY 2021 Q4	$2,032

Department of Homeland Security
Countering Weapons of Mass Destruction

Research and Development

Fiscal Year 2021
Congressional Justification

Table of Contents

Research and Development
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Transformational Research and Development	-	-	$37,002	-	-	$21,081	-	-	$23,892	-	-	$2,811
Technical Forensics	-	-	$7,100	-	-	$7,100	-	-	-	-	-	($7,100)
Detection Capability Development	-	-	$30,941	-	-	$33,000	-	-	$24,317	-	-	($8,683)
Rapid Capabilities	-	-	$8,000	-	-	$8,000	-	-	$10,000	-	-	$2,000
Total	**-**	**-**	**$83,043**	**-**	**-**	**$69,181**	**-**	**-**	**$58,209**	**-**	**-**	**($10,972)**
Subtotal Discretionary - Appropriation	-	-	$83,043	-	-	$69,181	-	-	$58,209	-	-	($10,972)

*Carry over funds in FY2019 include funds appropriated in FY17 and FY18 to the Domestic Nuclear Detection Office (DNDO). Carryover funding in FY2020 reflects a combination of FY2019 CWMD funding and earlier DNDO R&D funding.

The Countering Weapons Mass Destruction (CWMD) Research and Development (R&D) appropriation provides resources necessary to identify, explore, and demonstrate new technologies and capabilities that will help enable the Department of Homeland Security (DHS) and its partners to prevent, protect against, respond to, and mitigate chemical, biological, radiological and nuclear threats and incidents.

R&D funds are used to support the following Technology Readiness Levels (TRLs):

Basic Research		Applied Research		Technology Development	Technology Demonstration	System Development
TRL-1	TRL-2	TRL-3	TRL-4	TRL-5	TRL-6	TRL-7
Basic Principles Observed/ Reported	Technology Concept/Application Formulated	Critical Function or Characteristic Proof of Concept	Validation in Lab Environment	Validation in Relevant Environment	System Prototypes in Relevant Environment	System Prototypes in Operational Environment

The appropriation includes the following Program, Project, and Activities (PPA's):

Transformational Research and Development: This program covers basic and applied research and technology development at TRL 1 – 5 related to chemical, biological, radiological and nuclear threat detection for CWMD: CWMD data analytics and anomaly detection, and Small Business Innovative Research (SBIR) project.

Technical Forensics: This program advances the U.S. Government's technical capability to rapidly, accurately, and credibly characterize and identify the nature, origin, and history of nuclear materials interdicted before a detonation. As mandated by the *Nuclear Forensics and Attribution Act, 2010 (P.L. 111-140)*, the National Nuclear Forensics Expertise Development program is the comprehensive U.S. Government effort to address the enduring challenge of sustaining a preeminent workforce of scientists and policymakers that are educated and trained in nuclear forensics-related specialties by funding research projects. National Technical Nuclear Forensics (NTNF) funding is not requested by CWMD in FY 2021. Funding for NTNF will be included in the National Nuclear Security Administration's portion of the FY 2021 President's Budget.

Detection Capability Development: This project supports capability development projects that are characterized as late-stage TRL (6-7) and are anticipated to lead to a materiel solution. CWMD acquisition activities adhere to the Department's integrated lifecycle management approach to develop, acquire, procure, deploy and sustain chemical, biological, radiological and nuclear detection systems for operational customers that operate the systems in the field.

Rapid Capabilities: CWMD executes rapid and/or sensitive acquisition development and procurement activities for chemical, biological, radiological and nuclear detection systems in response to emerging operational needs across the CWMD mission space. Rapid Capabilities initiatives implement Federal Acquisition Regulation (FAR)-based acquisition procedures; however, the program may also utilize DHS and CWMD-specific acquisition authorities to rapidly develop, procure and field capabilities that disrupt terrorist attempts to utilize weapons of mass destruction (WMD).

Research and Development
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$83,043**	**$69,181**	**$58,209**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$68,428	$41,099	$8,504
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	($601)	-	-
Supplementals	-	-	-
Total Budget Authority	**$150,870**	**$110,280**	**$66,713**
Collections – Reimbursable Resources	-	-	-
Collections – Other Sources	$100	-	-
Total Budget Resources	**$150,970**	**$110,280**	**$66,713**
Obligations (Actual/Estimates/Projections)	$109,129	$101,776	$66,713
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Research and Development
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$83,043**
FY 2020 Enacted	-	-	**$69,181**
FY 2021 Base Budget	-	-	-
Detection Capability Development	-	-	$24,317
Rapid Capabilities	-	-	$10,000
Transformational R&D	-	-	$23,892
Total Research and Development Projects	-	-	**$58,209**
FY 2021 Request	-	-	**$58,209**
FY 2020 To FY 2021 Change	-	-	**($10,972)**

Research and Development
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Transformational Research and Development	$37,002	$21,081	$23,892	$2,811
Technical Forensics	$7,100	$7,100	-	($7,100)
Detection Capability Development	$30,941	$33,000	$24,317	($8,683)
Rapid Capabilities	$8,000	$8,000	$10,000	$2,000
Total	**$83,043**	**$69,181**	**$58,209**	**($10,972)**
Discretionary - Appropriation	$83,043	$69,181	$58,209	($10,972)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$152	$188	$230	$42
25.1 Advisory and Assistance Services	$12,044	$13,326	$13,426	$100
25.3 Other Goods and Services from Federal Sources	$14,536	$10,234	$6,275	($3,959)
25.5 Research and Development Contracts	$50,611	$37,740	$33,953	($3,787)
41.0 Grants, Subsidies, and Contributions	$5,700	$7,693	$4,325	($3,368)
Total - Non Pay Object Classes	**$83,043**	**$69,181**	**$58,209**	**($10,972)**

Transformational Research and Development – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
(Dollars in Thousands)	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Transformational Research and Development	-	-	$37,002	-	-	$21,081	-	-	$23,892	-	-	$2,811
Total	-	-	**$37,002**	-	-	**$21,081**	-	-	**$23,892**	-	-	**$2,811**
Subtotal Discretionary - Appropriation	-	-	$37,002	-	-	$21,081	-	-	$23,892	-	-	$2,811

*FY2020 Funding was requested in CWMD R&D PPA. The only funding reflected in FY2020 is the Carryover from prior year.

PPA Level I Description

The Transformational Research and Development program covers basic and applied research and technology development (TRL 1 – 5) related to chemical, biological, radiological and nuclear threat detection for CWMD; CWMD data analytics and anomaly detection; and the SBIR project.

Recurring analyses and reviews conducted by CWMD in conjunction with U.S. government partner agencies on chemical, biological, radiological, and nuclear (CBRN) detection have highlighted a number of technical areas that provide a focus for research activities to be conducted through Transformational Research and Development.

This type of R&D explores innovative technologies that address gaps in U.S. counter WMD CBRN detection capabilities. These technologies also provide improvements in performance or a reduction in cost for CBRN detection capabilities that support the CWMD mission. Work is focused on the transition of chem/bio technologies developed by interagency partners to operational capability. Research and Development for less mature technology components in support of the next-generation biodetection system will also occur under this project, such as anomaly detection algorithmic capabilities.

Transformational Research and Development – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$37,002**	**$21,081**	**$23,892**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$47,617	$24,869	-
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$84,619**	**$45,950**	**$23,892**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$84,619**	**$45,950**	**$23,892**
Obligations (Actual/Estimates/Projections)	$59,741	$45,950	$23,892
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Transformational Research and Development – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$37,002**
FY 2020 Enacted	-	-	**$21,081**
FY 2021 Base Budget	-	-	-
Transformational R&D	-	-	$23,892
Total Research and Development Projects	-	-	**$23,892**
FY 2021 Request	-	-	**$23,892**
FY 2020 To FY 2021 Change	-	-	**$2,811**

Transformational Research and Development – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Transformational Research and Development	$37,002	$21,081	$23,892	$2,811
Total	**$37,002**	**$21,081**	**$23,892**	**$2,811**
Discretionary - Appropriation	$37,002	$21,081	$23,892	$2,811

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$55	$55	$90	$35
25.1 Advisory and Assistance Services	$4,392	$4,229	$5,205	$976
25.3 Other Goods and Services from Federal Sources	$6,271	$3,804	$2,780	($1,024)
25.5 Research and Development Contracts	$20,584	$8,757	$11,492	$2,735
41.0 Grants, Subsidies, and Contributions	$5,700	$4,236	$4,325	$89
Total - Non Pay Object Classes	**$37,002**	**$21,081**	**$23,892**	**$2,811**

Transformational Research and Development
Research and Development
Technology Readiness Level Exhibit

Research and Development Project *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Transformational Research and Development	$37,002	$21,081	$23,892

Transformational Research and Development Program

Funding for Transformational Research and Development will be used to develop innovative new detection technologies, connectivity technologies, and anomaly detection software for the purposes of strengthening DHS and U.S. government agencies' WMD detection programs. This R&D is intended to enable new technologies to be fielded or to directly spur commercial development that strengthens the homeland security enterprise.

The table that follows identifies initiatives and funding levels for FY 2021.

Transformational Research and Development *(Dollars in Thousands)*			
Project	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Radiological/Nuclear (R/N) Research and Development	$22,747	$7,346	$7,882
Chemical/Biological (Chem/Bio) Research and Development	$3,000	$3,000	$3,000
Data Analytics	$8,680	$8,680	$10,680
Small Business Innovation Research (SBIR)	$2,575	$2,055	$2,330
TOTAL	$37,002	$21,081	$23,892

R&D Project Descriptions

Radiological Nuclear (R/N) Research and Development

- **Problem:** Recurring analyses and reviews conducted by CWMD in conjunction with U.S. government partner agencies on counter WMD detection have highlighted a number of technical areas that provide a focus for research activities to be conducted under the Transformational R&D program. Further, through across government consensus in framing the Nuclear Defense Research and Development Roadmap (NDRD),

several important grand challenges were identified to help inform agencies that enable capabilities through research and development related to Radiological/Nuclear (R/N) detection.

- **Solution:** This project enhances the Nation's ability to prevent the use of nuclear/radiological WMDs by developing break-through technologies that meet DHS operational requirements. The R/N Research and Development project explores innovative, high-risk technologies that address gaps in U.S. R/N detection capabilities and provide improvements in performance or reduction in cost of R/N detection capabilities in support of the CWMD mission.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to develop breakthrough technologies that address R/N detection technical capability needs and provide cost effective, enhanced performance to CWMD operators.

- **Impact:** Completion of this project will provide enabling technologies in support of the developmental R&D programs with CWMD Acquisition or Rapid Capabilities or directly spur commercial development.

Type of Research
Basic, Applied

Technology Readiness Level
Technology Readiness Level (TRL) varies between TRL 1-5, with the majority in TRL 3-5 for counter WMD radiological and nuclear detection and technology development. Technologies developed under this project will undergo TRL changes as they mature through the research and development pipeline during budget years. The frequency of TRL changes will be dependent on the technology itself and the need it is aiming to address. In general, TRL changes within the program do occur annually.

Transition Plans
Technologies developed under the R/N Research & Development project will transition to developmental R&D programs under the CWMD Acquisition Division and Rapid Capabilities Division to meet specific needs for DHS Component(s) or Homeland Security Enterprise customers. There is a potential for commercialization as well. Technologies developed under this program will undergo transitions as they mature through the research and development pipeline during budget years. The frequency of transitions will be dependent on the technology itself and the need it is aiming to address.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Complete assessment of scenario visualization tool from operational usage to CWMD-relevant data sets.	FY2019 Q4	FY 2020 Q3	4
FY 2020			
Complete assessment of scenario visualization tool from operational usage to CWMD-relevant data sets	FY 2019 Q1	FY 2020 Q1	5
Complete proof-of-concept demonstration of anomaly detection algorithms on existing sensors	FY 2019 Q1	FY 2020 Q4	4
FY 2021			
Proof-of-Concept demonstration of anomaly detection algorithms utilizing physical and non-physical sensor information	FY 2021 Q1	FY 2021 Q4	4

Chemical/Biological (Chem/Bio) Research and Development

- **Problem:** Recurring analyses and reviews conducted by CWMD in conjunction with U.S. government partner agencies on counter WMD detection have highlighted a number of technical areas that provide a focus for research activities to be conducted under the Transformational R&D program. Specifically, there exists a need for innovative chemical and biological detection capabilities to support CWMD operators.

- **Solution:** Chem/Bio Research and Development will focus on transitioning chemical/biological technologies developed by interagency partners to operational capabilities for the CWMD office. The Chem/Bio Research and Development project also explores innovative, high-risk technologies that address gaps in U.S. chem/bio detection capabilities and provide improvements in performance or reduction in cost of chem/bio detection capabilities in support of the CWMD mission. The largest activity within this project is the Biological Detection for the 21st Century (BD21) Anomaly Detection Algorithm Development to enable early detection of potential biological threats.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to to develop breakthrough technologies that address chem/bio detection technical capability needs and provide cost effective, enhanced performance to CWMD operators.

- **Impact:** Completion of this project will will provide enabling technologies in support of the developmental R&D programs with CWMD Acquisitions or Rapid Capabilities or directly spur commercial development.

Type of Research
Basic, Applied

Technology Readiness Level

Technology Readiness Level (TRL) varies between TRL 1-5, with the majority in TRL 3-5 for counter WMD chemical and biological detection and technology development. This research also includes a review of counter WMD chem/bio detection technologies developed by others and transition them from the component or research prototype stage to higher TRL products. Technologies developed under this project will undergo TRL changes as they mature through the research and development pipeline during budget years. The frequency of TRL changes will be dependent on the technology itself and the need it is aiming to address. In general, TRL changes within the program do occur annually.

Transition Plans

Technologies developed under the Chem/Bio Research & Development project will transition to developmental R&D programs under the CWMD Acquisition Division and Rapid Capabilities Division to meet specific needs for DHS Component(s) or Homeland Security Enterprise customers. There is a potential for commercialization as well. Technologies developed under this program will undergo transitions as they mature through the research and development pipeline during budget years. The frequency of transitions will be dependent on the technology itself and the need it is aiming to address.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Kickoff and initiate data survey & baseline analysis for Anomaly Detection Algorithm for biological threats.	FY 2019 Q4	FY 2020 Q2	2
FY 2020			
Complete data survey & baseline analysis, algorithm development (single platform and multiple platform) for Anomaly Detection Algorithm for biological threats	FY 2019 Q4	FY 2020 Q4	3
Proof-of-Concept integrating R/N and chemical detection sensors	FY 2019 Q4	FY 2020 Q2	4
FY 2021			
Conduct open air simulant testing for Anomaly Detection Algorithm for biological threats	FY 2019 Q4	FY 2021 Q4	5
Proof-of-Concept of chemical/biological stand-off capabilities	FY 2020 Q2	FY 2021 Q4	4

Data Analytics

- **Problem:** Recurring analyses and reviews conducted by CWMD in conjunction with U.S. government partner agencies on counter WMD detection have highlighted a number of technical areas that provide a focus for research activities to be conducted under the Transformational R&D program. Specifically, there exists a need for new operational capabilities to enable detection of indicators of a weapon of mass destruction from as far away from the homeland as possible.

- **Solution:** The Data Analytics project includes a family of R&D initiatives focused on technologies that integrate physical sensor data with other information streams (e.g., non-physical contextual and intelligence data), perform data analytics to determine patterns, and produce techniques for identifying anomalies. These activities will support global targeting and interdiction by domestic and global partners. This work is designed specifically to improve capabilities to prevent weapons of mass destruction terrorism as far away from targets in the homeland as possible and supports development of the CWMD Information Architecture.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to to develop breakthrough technologies that address technical capability needs to enable CWMD operators to prevent weapons of mass destruction terrorism from as far away from the homeland as possible.

- **Impact:** Completion of this project will will provide enabling technologies in support of the developmental R&D programs with CWMD Acquisitions or Rapid Capabilities or directly spur commercial development.

Type of Research
Basic, Applied

Technology Readiness Level
Technology Readiness Level (TRL) varies between TRL 1-5, with the majority in TRL 3-5 for counter WMD detection and technology development. Technologies developed under this project will undergo TRL changes as they mature through the research and development pipeline during budget years. The frequency of TRL changes will be dependent on the technology itself and the need it is aiming to address. In general, TRL changes within the program do occur annually.

Transition Plans
Technologies developed under the Data Analytics project will transition to developmental R&D programs under the CWMD Acquisition Division and Rapid Capabilities Division to meet specific needs for DHS Component(s) or Homeland Security Enterprise customers. There is a potential for commercialization as well. Technologies developed under this program will undergo transitions as they mature through the research and development pipeline during budget years. The frequency of transitions will be dependent on the technology itself and the need it is aiming to address.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Design and develop an implementation roadmap for CWMD Information Architecture.	FY 2019 Q1	FY 2019 Q3	3
FY 2020			
Complete assessment of scenario visualization tool from operational usage to CWMD-relevant data sets.	FY2019 Q4	FY 2020 Q3	5
Complete proof-of-concept demonstration of anomaly detection algorithms on existing sensors.	FY 2019 Q1	FY 2020 Q4	4
Kick-off, feasibility evaluation, begin Proof-of-Concept planning for Smart Cities CWMD detection integration.	FY 2019 Q4	FY 2020 Q4	3
FY 2021			
Proof-of-concept testing, begin Smart City demonstration planning.	FY 2020 Q3	FY 2021 Q4	4
Proof-of-Concept demonstration of anomaly detection algorithms utilizing physical and non-physical sensor information.	FY 2020 Q3	FY 2021 Q4	4

Small Business Innovation Research (SBIR)

- **Problem:** Recurring analyses and reviews conducted by CWMD in conjunction with U.S. government partner agencies on counter WMD detection have highlighted a number of technical areas that provide a focus for research activities to be conducted under the Transformational R&D program to enable detection of a weapon of mass destruction. The statutory purpose of the Small Business Innovation Research (SBIR) project is to stimulate technological innovation by strengthening the role of innovative small business concerns (SBCs) in federally-funded R&D.

- **Solution:** The Small Business Innovation Research (SBIR) program enables technological innovation by strengthening the role of small business concerns in federally-funded R&D. CWMD Small Business Innovation Research is specifically focused on meeting Federal Research and Development needs for chemical/biological/radiological/nuclear (CBRN) detection for counter WMD. Includes R&D technological approaches that address gaps in the larger framework for CBRN detection capabilities; significantly improve the performance of CBRN detection methods, components, and systems; and/or significantly reduce the operational burden of these technologies.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to enable small business concerns to develop technologies addressing counter WMD technical capability needs.

- **Impact:** Completion of this project will stimulate technological innovation by strengthening the role of innovative small business concerns in federally funded R&D to meet CWMD operator needs. SBIR programs transition near-term solutions, supporting identified capability gaps, into commercial products or services.

Type of Research
Applied, Developmental

Technology Readiness Level
SBIR includes applied and developmental R&D, depending on the phase of the contract. SBIR Phase I and Phase II projects are aimed at applied R&D, with a Phase I ending at TRL 3-4 and a Phase II ending at a TRL 5. SBIR Phase III projects are for developmental R&D.

The primary objective of the SBIR program, at the whole-of-government level, is for new innovative products to reach the consumer market towards one or more identified end users – i.e., "commercialization." The CWMD SBIR program also seeks projects which can meet R&D needs identified by operational end-users, as well as the development of components which can be integrated into larger development R&D projects or utilized by Rapid Capabilities and/or Acquisition. Aspects of the technologies developed under SBIR will support and can further augment technologies of all other R&D programs within CWMD.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Sensor Fusion Phase II kickoff, video management system architecture build-out, and midphase review	FY 2019 Q4	FY 2020 Q4	4
Robotic Inspection Phase II kickoff, robot and sensor integration build-out, and midphase review	FY 2019 Q4	FY 2020 Q4	4
Unmanned Aerial System Phase I kickoff, feasibility study, and final feasibility report	FY 2019 Q3	FY 2020 Q1	3
Networked sensors Phase I kickoff, Interim Technical Report and feasibility study review, and final feasibility report	FY 2019 Q3	FY 2020 Q1	3
FY 2020			
Video-enabled unattended radiation sensor completes with a field-tested product capable of connecting to an existing sensor network	FY 2020 Q1	FY 2021 Q2	5
Sensor Fusion video management system architecture demonstration and final report	FY 2020 Q4	FY 2021 Q4	5
Robotic Inspection autonomous system demonstration and final report	FY 2020 Q4	FY 2021 Q4	5
Unmanned Aerial System (UAS) Phase II kickoff, sensor integration build-out, and midphase review	FY 2020 Q4	FY 2021 Q4	4
Networked sensors Phase II kickoff, network demonstration with sensor integration build-out, and midphase review	FY 2020 Q4	FY 2021 Q4	4
FY 2021			
Unmanned Aerial System demonstration of autonomous search at a deployment site and final report	FY 2021 Q4	FY 2022 Q4	5
Demonstration of adaptable sensor network management infrastructure and final report	FY 2021 Q4	FY 2022 Q4	5

Technical Forensics – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
(Dollars in Thousands)	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Technical Forensics	-	-	$7,100	-	-	$7,100	-	-	-	-	-	($7,100)
Total	**-**	**-**	**$7,100**	**-**	**-**	**$7,100**	**-**	**-**	**-**	**-**	**-**	**($7,100)**
Subtotal Discretionary - Appropriation	-	-	$7,100	-	-	$7,100	-	-	-	-	-	($7,100)

*FY2020 funding is requested in CWMD R&D PPA. Only carryover funding is reflected in FY2020.

PPA Level I Description

The Technical Forensics program advances the U.S. Government's technical capability to rapidly, accurately, and credibly characterize and identify the nature, origin, and history of nuclear materials interdicted before a detonation. In FY 2021 CWMD is transferring primary responsibility for this mission to the Department of Energy's National Nuclear Security Administration (NNSA).

Technical Forensics – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$7,100**	**$7,100**	-
Carryover and/or Recoveries (Actual/Estimates/Projections)	$9,959	$3,956	-
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	($601)	-	-
Supplementals	-	-	-
Total Budget Authority	**$16,458**	**$11,056**	-
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$16,458**	**$11,056**	-
Obligations (Actual/Estimates/Projections)	$12,492	$11,056	-
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Technical Forensics – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$7,100**
FY 2020 Enacted	-	-	**$7,100**
FY 2021 Base Budget	-	-	-
FY 2021 Request	-	-	-
FY 2020 To FY 2021 Change	-	-	($7,100)

Technical Forensics – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Technical Forensics	$7,100	$7,100	-	($7,100)
Total	**$7,100**	**$7,100**	**-**	**($7,100)**
Discretionary - Appropriation	$7,100	$7,100	-	($7,100)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$2	$10	-	($10)
25.1 Advisory and Assistance Services	$833	$929	-	($929)
25.5 Research and Development Contracts	$6,265	$2,704	-	($2,704)
41.0 Grants, Subsidies, and Contributions	-	$3,457	-	($3,457)
Total - Non Pay Object Classes	**$7,100**	**$7,100**	**-**	**($7,100)**

Technical Forensics
Research and Development
Technology Readiness Level Exhibit

Research and Development Project *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Technical Forensics	$7,100	$7,100	-

R&D Project Description

Technical Forensics

- **Problem:** There is a need to assess, identify, develop, demonstrate, and operationalize scientific and technological approaches that address gaps in the Nuclear Forensics and Attribution Capabilities of the United States and to continuously improve the speed, quality, and confidence of pre-detonation bulk material Nuclear Forensics methodologies. Current technical Nuclear Forensics activities leverage the shrinking nuclear weapons complex which has been in decline since the end of the Cold War with nuclear scientists leaving the field for other pursuits.

- **Solution:** The Technical Forensics project explores innovative, low-risk, later-stage technologies and methodologies to develop technologies and methodologies that:
  o Address capability gaps and weaknesses found in the National Strategic Five-Year Plan for Improving the Nuclear Forensics and Attribution Capabilities of the United States FY 2015-FY 2019;
  o Assess current forensics laboratory performance, identify improvement areas, develop methodologies, and field solutions to enhance operational nuclear forensics capabilities; and
  o Develop pre-detonation material nuclear forensics signatures to determine material and statistical population characteristics that can uniquely identify linkages with known or predicted material characteristics.
  The Technical Forensics project provides long term and continued investment to promote education and training within academia, the national and defense laboratories that perform nuclear forensics research, and the Federal workforce.

- **Justification:** In accordance with interagency policy changes, CWMD will no longer support R&D for NTNF after FY 2020. In FY 2021 CWMD is transferring primary responsibility of this mission to NNSA.

- **Impact:** Capabilities developed under Technical Forensics continuously improve the United States' Government pre-detonation materials nuclear forensics operational capability. These improvements allow experts to reach technical conclusions about interdicted material based on known

signatures, comparative samples of materials, and modeling of manufacturing processes to support attribution assessments for decision makers. In addition, Technical Advancement efforts support development of the next generation of nuclear forensic scientific expertise.

Type of Research

Basic, Applied, Developmental

Technology Readiness Level

TRLs 1-7: Maintains the technical expertise required to execute the Nation's Nuclear Forensics mission through interdisciplinary R&D collaboration among students, academic departments, universities, and national laboratories.

Transition Plans

Successful Technical Forensics methodologies and concepts will transition to operational customers through the Bulk Special Nuclear Material (SNM) Analysis Program. Nuclear Forensics funding in FY2021 will be requested by NNSA.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Reference Material Development – Production and Certification of Reference Materials	FY 2019 Q1	FY 2019 Q4	7
Plutonium Processing Signatures – Signature Development from Plutonium Materials	FY 2019 Q1	FY 2019 Q4	7
Complete proof-of-concept demonstration for Chemical Forensic Science of Plutonium Oxides	FY 2019 Q1	FY 2019 Q4	4
Uranium Processing Signatures – Signature Development from Uranium Materials	FY 2019 Q1	FY 2019 Q4	7
Expertise Development: Academics and Laboratories – Education Support for Next Generation Scientists/Engineers	FY 2019 Q1	FY 2019 Q4	5
FY 2020			
Data Evaluation Tools – Development and Demonstrate New Tools	FY 2019 Q4	FY 2020 Q4	7
Reference Material Development – Production and Certification of Reference Materials	FY 2019 Q4	FY 2020 Q4	7
Plutonium Processing Signatures – Signature Development from Plutonium Materials	FY 2019 Q4	FY 2020 Q4	7
Uranium Processing Signatures – Signature Development from Uranium Materials	FY 2019 Q4	FY 2020 Q4	7
Material Characterization – Characterization of Materials to Validate Signatures	FY 2019 Q4	FY 2020 Q4	7
Expertise Development: Academics and Laboratories – Education Support for Next Generation Scientists/Engineers	FY 2019 Q4	FY 2020 Q4	5
Complete proof-of-concept demonstration for Focused Ion Beam for 3D Microscopy	FY 2020 Q1	FY 2020 Q2	4

Detection Capability Development – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
(Dollars in Thousands)	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Detection Capability Development	-	-	$30,941	-	-	$33,000	-	-	$24,317	-	-	($8,683)
Total	**-**	**-**	**$30,941**	**-**	**-**	**$33,000**	**-**	**-**	**$24,317**	**-**	**-**	**($8,683)**
Subtotal Discretionary - Appropriation	-	-	$30,941	-	-	$33,000	-	-	$24,317	-	-	($8,683)

*FY2020 funds are requested in CWMD R&D PPA. Only carryover funds are reflected in FY2020.

PPA Level I Description

The Detection Capability Development program supports R&D projects that are characterized as late-stage TRL (6-7) and are anticipated to lead to a materiel solution. Capability gaps exist across multiple pathways through which WMD can be transported. These capability gaps can to some degree be mitigated with non-materiel solutions but primarily require a materiel solution to be developed, acquired, and deployed to address the gap. DHS operational users and CWMD recognize many deployed systems will be reaching their respective end-of-life and modernization and/or recapitalization efforts will be required to maintain or improve CWMD sensor capabilities. Additionally, potential Commercial off the Shelf (COTS) material solutions may require customization and will always require test and evaluation to ensure they meet operational and functional requirements.

Through analyses of alternatives, threat assessments, preparation of documentation to prepare for materiel solution acquisition, evaluation of proposed materiel solutions, and test and evaluation activities, CWMD can conduct the capability development effort necessary to acquire and deploy materiel solutions. CWMD acquisition activities adhere to the Department's Integrated Lifecycle Management approach to develop, acquire, procure, deploy and sustain chemical, biological, radiological and nuclear detection systems for operational customers that operate the systems in the field. Throughout the life of each Detection Capability Development, CWMD works collaboratively with the DHS Operational Components and with State and local agencies to manage the equipment configuration to ensure it continues to meets its operational requirements, as well as collect and analyze operational performance and maintenance data to maximize performance per maintenance dollar and inform future procurement requirements.

Detection Capability Development – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$30,941**	**$33,000**	**$24,317**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$10,852	$10,048	$8,504
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$41,793**	**$43,048**	**$32,821**
Collections – Reimbursable Resources	-	-	-
Collections – Other Sources	$100	-	-
Total Budget Resources	**$41,893**	**$43,048**	**$32,821**
Obligations (Actual/Estimates/Projections)	$31,122	$34,544	$32,821
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Detection Capability Development – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$30,941**
FY 2020 Enacted	-	-	**$33,000**
FY 2021 Base Budget	-	-	**-**
Detection Capability Development	-	-	$24,317
Total Research and Development Projects	-	-	**$24,317**
FY 2021 Request	-	-	**$24,317**
FY 2020 To FY 2021 Change	-	-	**($8,683)**

Detection Capability Development – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Detection Capability Development	$30,941	$33,000	$24,317	($8,683)
Total	**$30,941**	**$33,000**	**$24,317**	**($8,683)**
Discretionary - Appropriation	$30,941	$33,000	$24,317	($8,683)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$73	$75	$75	-
25.1 Advisory and Assistance Services	$5,599	$6,736	$6,725	($11)
25.3 Other Goods and Services from Federal Sources	$6,515	$5,015	$2,050	($2,965)
25.5 Research and Development Contracts	$18,754	$21,174	$15,467	($5,707)
Total - Non Pay Object Classes	**$30,941**	**$33,000**	**$24,317**	**($8,683)**

Detection Capability Development
Research and Development
Technology Readiness Level Exhibit

Research and Development Project *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Detection Capability Development	$30,941	$33,000	$24,317

Detection Capability Development Program

The capability development activities funded with this program will support acquisition and deployment of counter-WMD devices that will partially or wholly address capability gaps and provide DHS operational users and other Federal users with commercially-available or next-generation CWMD devices. This R&D is intended to enable new technologies to be fielded or to directly spur commercial development that strengthens the homeland security enterprise.

The table that follows identifies initiatives and funding levels for FY 2021.

Detection Capability Development *(Dollars in Thousands)*			
Project	**FY 2019 Enacted**	**FY 2020 Enacted**	**FY 2021 President's Budget**
Biological Detection for the 21st Century (BD21)	$1,577	$3,500	$3,500
Cognitive Sensor Network (CSN)	$9,554	$3,100	-
Common Viewer	$2,800	-	-
CWMD Information Architecture(IA)/GATE-U	$2,109	$5,000	$10,000
Enhanced Radiological Nuclear Inspection and Evaluation (ERNIE)	$1,300	$1,000	-
Helium-3 Alternative Implementation Backpack Program (HAIBP)	$2,079	-	-
International Rail	$3,100	-	-
Maritime Non-Containerized Cargo (MNCC)	$2,100	-	-
Mobile Active Interrogation Using Neutrons (MAIN)	-	$4,300	$611
Mobile Urban Radiation Search (MURS)	$750	$315	-
Next-Generation CWMD Systems	-	$7,325	$5,156

Nuclear and Radiological Imaging Platform (NRIP)	$800	-	-
Radiation Portal Technology Enhancement & Replacement (RAPTER)	$2,038	$8,000	$5,050
Wearable Intelligent Nuclear Detection (WIND)	$2,734	$460	-
TOTAL	**$30,941**	**$33,000**	**$24,317**

R&D Project Descriptions

Biological Detection for the 21st Century (BD21)

- **Problem:** The existing bio-detection capability has several capability gaps validated by DHS, the most significant being a prolonged event-to-detection timeline. Additionally, the current capability is not postured to address threats in indoor environments in ways that match anticipated threat vectors, and it does not provide a common operating picture.

- **Solution:** Recognizing opportunities for improvements in the current U.S. system that monitors for biological attack, CWMD is leading an effort to develop the next-generation biodetection system. CWMD is committed to protecting the American people from biological threats by utilizing technology advancements and collaborating with partners across the homeland security enterprise. The BD21 program of record is working to design, develop, and deploy networked detection systems that continuously monitor the air, collect real-time data, and employ data analytics to detect anomalies. The faster anomalies are detected, the faster first responders can address potential threats. BD21 efforts are tightly integrated with BD21 Technology Demonstration efforts funded by Rapid Capabilities PPA, and Anomaly Detection Algorithm development efforts funded by Transformational R&D PPA. DHS CWMD is currently focused on gathering data and partner feedback to inform system requirements.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to continue the analysis and selection of solution concepts that will make a marked improvement in the ability to detect current biological threats in timely yet cost effective ways. FY21 funding will also be used to support obtaining first articles of viable solution components, and commence a developmental test and evaluation effort to validate and verify system performance, particularly with respect to timeliness of anomaly detection.

- **Impact:** Completion of this project will inform decision making regarding the progression to subsequent phases of the acquisition life cycle, leading to testing and evaluation activities that will confirm obtained solutions are both effective and affordable over the life of their deployment

Type of Research
Development

Technology Readiness Level
TRLs 6-7

Transition Plans

Procured equipment will be fielded by State and local jurisdictional stakeholders, in some cases as a replacement for existing biodetection capabilities, and in other cases as expansions of their current capability sets and coverage environments.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Complete initial requirements documents such as the Mission Needs Statement and Capability Development Plan (MNS and CDP), conduct Acquisition Decision Event (ADE)-1, initiate Technical Parameters study, and initiate Alternatives Analysis (AA)	FY 2019 Q2	FY 2020 Q1	6
FY 2020			
Continue AA, develop Concept of Operations, Operational Requirements Document, Integrated Management Schedule (CONOPs, ORD, IMS) and all other acquisition documents.	FY 2020 Q1	FY 2021 Q4	6
FY 2021			
Complete AA, Life Cycle Cost Estimate (LCCE) and all required acquisition documents, complete ADE-2 stage gate review, release Request for Proposal (RFP), conduct source selection, and initiate Developmental Test & Evaluation activities, update all applicable documents.	FY 2021 Q1	FY 2023 Q1	7

Cognitive Sensor Network (CSN)

- **Problem:** Capability gaps exist across multiple pathways through which WMD can be transported. These capability gaps can to some degree be mitigated with non-materiel solutions but primarily require a materiel solution to be developed, acquired, and deployed to address the gap. There exists a need for a CWMD Information Architecture to bring advanced data analytics capabilities to gather, integrate, analyze, and disseminate information to CWMD partners to anticipate, prevent, and respond to public health concerns and WMD threats to the Homeland.

- **Solution:** Based on SIGMA open source web-scale software and communications technology, the Cognitive Sensor Network (CSN) is a sensor architecture with a common operating picture to support operations and feed into the CWMD Information Architecture. Provides a cost-effective, operationally practical, continuous and ubiquitous Radiological/Nuclear (R/N) detection capability supporting both human portable and mobile detection equipment.

- **Justification:** No funding is included in the FY 2021 President's Budget for this research initiative.

- **Impact:** Completion of this project will inform future advances in sensor networking to support the CWMD Information Architecture.

Type of Research
Developmental

Technology Readiness Level
TRL 6

Transition Plans
Technologies developed under the CSN project will transition to the CWMD Information Architecture program.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Remaining DARPA SIGMA R&D contracts migrated to DHS. Initiated R&D requirements generation from DHS for the CWMD mission.	FY 2019 Q1	FY 2019 Q2	5
FY 2020			
Integrate into the CWMD Information Architecture system of systems as a sensor-centric component.	FY 2020 Q1	FY 2020 Q4	6
Technology demonstration of future advances in sensor networking to support the CWMD Information Architecture.	FY 2021 Q1	FY 2021 Q4	6
FY 2021			
N/A	N/A	N/A	N/A

Common Viewer

- **Problem:** CBP operates many different detection and information acquisition systems at the Nation's Ports of Entry such as license plate readers, high energy radiagraphy non-intrusive inspection (NII) systems, and radiation detection equipment (RDE). These systems have been developed and deployed as stand alone capabilities with separate user interfaces for each system. This does not allow for a common operating picture that aloows users to see all the complimentary information and requires multiple users to operate each system.

- **Solution:** The Common Viewer intended to provide a single user interface for CBP personnel to access and control various systems (e.g., radiation detection equipment (RDE), non-intrusive inspection (NII) systems, ancillary control systems) simultaneously, allowing both CBP officers on the ground, staff at the National Targeting Center, and CBP remote operations / analysis centers to check real-time radiographic, spectrographic, optical, and x-ray imaging data against traveler, cargo, and conveyance information for comparison against law enforcement, intelligence, and other enforcement data.

- **Justification:** No funding is in the FY 2021 President's Budget for this research initiative.

- **Impact:** Completion of this project will develop and demonstrate two working Common Viewer prototypes at two ports of entry. The lessons learned and feedback from the two prototypes will inform the development and acquisition of CBP's Common Viewer solution.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
The program has transitioned to the investment phase and is funded through the PC&I appropriation.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Prototype system deployed to initial CBP POE.	FY 2019 Q4	FY 2020 Q3	7
FY 2020			
N/A	N/A	N/A	N/A
FY 2021			
N/A	N/A	N/A	N/A

CWMD Information Architecture (IA)/GATE-U

- **Problem:** The CWMD Office requires a common platform for advanced data analytics and data pattern recognition, and a common platform to store, analyze, and archive large data sets, such as from sensor networks. With a common platform, CWMD can maximize the effectiveness of sensor networks, data sharing, data analysis, and internal communications on data-driven analysis.

- **Solution:** The CWMD IA will gather, integrate, analyze, and disseminate information to CWMD partners to anticipate, prevent, and respond to public health concerns and WMD threats to the Homeland. The CWMD IA represents an interconnected system-of-systems capable of integrating disparate data streams and information sources to identify unique indicators of threats to the Homeland based on WMD activity or public health concerns. The CWMD IA will disseminate operationally relevant results to DHS, the intelligence community, Federal/State & local law enforcement, and international partners.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to develop a common cloud based environment to host large data sets and data analysis tools. Efforts will include developing data sharing agreements, developing and lamentinging propersecurity protocols, an initial integration of prototype data analysis tools.

- **Impact:** Completion of this project will support expansion of the quality and breadth of information available to complete data-driven CWMD missions. It is expected to save cost and time by automating data analysis and promote integration between programs and components.

Type of Research
Developmental

Technology Readiness Level
TRLs 5-6

Transition Plans
Upon completion of the information architecture, the operations will transition to the CWMD Information and Analysis Directorate to operate and maintain and add additional data analysis tools.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Begin prototyping efforts on GATE-U to support long-term CWMD Information Architecture design.	FY 2019 Q3	FY 2020 Q1	5
FY 2020			
Complete an Initial Operating Capability, with Authority to Operate	FY 2019 Q4	FY 2020 Q4	6
FY 2021			
Operate IOC capabilities, Definition and development of Full Operational Capability	FY 2021 Q1	FY 2021 Q4	6

Enhanced Radiological Nuclear Inspection and Evaluation (ERNIE)

- **Problem:** Capability gaps exist across multiple pathways through which WMD can be transported. These capability gaps can to some degree be mitigated with non-materiel solutions but primarily require a materiel solution to be developed, acquired, and deployed to address the gap. There exists a need for development of a capability to reduce nuisance alarm rates in Radiation Portal Monitor scans, enabling improved system performance.

- **Solution:** The Enhanced Radiological Nuclear Inspection and Evaluation system is an advanced machine learning-based approach to analyze Radiation Portal Monitor scans for greater overall system performance (improved threat detection with reduced nuisance alarm rates). This project includes spiral development of improvements to Enhanced Radiological Nuclear Inspection and Evaluation machine learning algorithms. The Enhanced Radiological Nuclear Inspection and Evaluation system is an advanced machine learning-based approach to analyze Radiation Portal Monitor scans for greater overall system performance (improved threat detection with reduced nuisance alarm rates). This project includes spiral development of improvements to Enhanced Radiological Nuclear Inspection and Evaluation machine learning algorithms.

- **Justification:** No funding is included in the FY 2021 President's Budget for this research initiative.

- **Impact:** Completion of this project will provide a capability supporting Customs and Border Protection (CBP) operations by reducing nuisance alarm rates of Radiation Portal Monitors at Ports of Entry.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
Technologies developed under the ERNIE project will transition to the acquisition phase to support CBP operations.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Kickoff effort to develop land-border crossing and anomaly detection software versions	FY 2019 Q1	FY 2020 Q1	5
FY 2020			
Complete software development and implementation for land-border crossings	FY 2020 Q1	FY 2020 Q4	6
FY 2021			
N/A	N/A	N/A	N/A

Helium-3 Alternative Implementation Backpack Program (HAIBP)

- **Problem:** Backpack-type RDE is a widely deployed class of systems used by Federal, State, local and Tribal operational partners. Historically, backpack systems used Helium-3 tubes for neutron detection. Helium-3 is a National Strategic Resource being managed by the National Security Council and its continued wide-spread use for new RDE has been prohibited. New and enhanced Backpack systems are needed that utilize alternative neutron detection technology and provide additional enhanced detection capability over legacy backpack systems.

- **Solution:** Helium-3 Alternative Implementation Backpack Program (HAIBP) intended to replace current capabilities provided by the legacy Helium-3 backpack radiation detection systems using Helium-3 alternative. As part of this program, the HAIBP prototype project will leverage the commercial market and support a rapid modification to develop improved performance and suitability of the backpack or vest configured system, and expand the capability of the wearable detection system by including radionuclide identification and data transfer.

- **Justification:** No funding is included in the FY 2021 President's Budget for this research initiative because all the planned R&D activities have been completed and the program has transitioned to acquire solution using the PC&I funds.

- **Impact:** The project has transitioned to acquisition program with a schedule deployment in late FY20 providing DHS Operators an enhanced capability to search for nuclear and radiological threats.

Type of Research
Developmental

Technology Readiness Level
TRL-7

Transition Plans
This program has been transitioned to the investment phase and is now funded through the PC&I appropriation.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Initial Article Delivery.	FY 2019 Q3	FY 2019 Q4	7
FY 2020			
N/A	N/A	N/A	N/A
FY 2021			
N/A	N/A	N/A	N/A

International Rail

- **Problem:** Rail ports of entry require an R/N detection solution integrated with high energy NII systems to meet capability gaps.

- **Solution:** Working collaboratively with CBP, an integrated system including both High-Energy Rail Radiography and RDE will be developed, acquired and deployed to recapitalize the aging first generation VACIS systems currently deployed and adding R/N threat scanning capability.

- **Justification:** No funding was enacted in FY 2020 nor requested in the FY 2021 President's Budget for this research initiative because this effort has transitioned to acquisition phase and is funded with CWMD PC&I funding.

- **Impact:** Completion of this project will allow the operational users to deploy solutions to detect and categorize nuclear or other radioactive materials out of regulatory control entering the United States.

Type of Research
Development

Technology Readiness Level
TRL 7

Transition Plans
This program has transitioned to acquisition phase and is funded through the PC&I appropriation.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Conduct RDE / NII integration and testing.	FY 2020 Q4	FY 2021 Q4	7
FY 2020			
N/A	FY 2020 Q4	FY 2021 Q4	7
FY 2021			
N/A	N/A	N/A	N/A

Maritime Non-Containerized Cargo (MNCC)

- **Problem:** CBP and CWMD has developed and deployed Radiation Portal Monitor (RPM) and other technologies at Land and Seaports of Entry to scan most conveyances and containerized cargo for R/N threats. However, no effective solution exists for scanning non-containerized types of cargo at seaports of entry for R/N threats.

- **Solution**: This program was intended to develop, acquire, and deploy efficient and effective scanning capability of the most diverse cargo types – break bulk cargo (transported unpackaged in large quantities) and roll-on, roll-off (vehicles, bags, bundles, crates, loose materiel, and containerized liquid) – for R/N material entering the United States at sea POEs.

- **Justification:** Recently, CBP indicated this threat vector didn't warrant a separate dedicated solution. Needed detection capability can be effectively implemented using next generation mobile technology that is being developed under the separate project. No funding is included in the FY 2021 President's Budget for this research initiative because the program has transitioned to Next Gen-Mobile Sysytems.

- **Impact:** Completion of this project would have informed acquisition and deployment of MNCC capabilitiy.

Type of Research
Developmental

Technology Readiness Level
TRL 6

Transition Plans
The program has transitioned to Next Gen Mobile Systems.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Develop programmatic approach and artifacts required for program governance	FY 2019 Q1	FY 2020 Q1	6
FY 2020			
N/A	N/A	N/A	N/A
FY 2021			
prototype/A	N/A	N/A	N/A

Mobile Active Interrogation Using Neutrons (MAIN)

- **Problem:** Current capabilities for scanning conveyances for Special Nuclear Materials (SNM), drugs, and explosives involve the use of individual platforms and technologies specifically designed to detect either SNM or drugs and explosives. Therefore, there exists a need for a single platform capable of scanning conveyances for multiple items of concern to Homeland Security operators.

- **Solution:** Development and demonstration of a mobile, one sided system using neutron interrogation to scan conveyances for Special Nuclear Materials, drugs, and explosives in both CBP and TSA applications. In FY 2019, the MAIN sub-project completed TRL-4 studies and in FY 2020, the program transitions to Device Capability Development for critical design reviews, technology demonstration and characterization efforts (TRL-6).

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to conduct the technology demonstration and characterization of the developed capability for both CBP and TSA applications.

- **Impact:** Completion of this project will result in a demonstration of a technology for scanning conveyances for Special Nuclear Materials, drugs, and explosives in both CBP and TSA applications.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
Technologies developed under the MAIN project will transition to the CWMD Acquisition Division for a future acquisition supporting TSA and CBP applications.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
[Prevoiusly funded in Transformational R&D]	N/A	N/A	N/A
FY 2020			
Critical design reviews	FY 2020 Q1	FY 2020 Q1	6
FY 2021			
Technology demonstration and characterization (TD&C)	FY 2021 Q1	FY 2021 Q2	7

Mobile Urban Radiation Search (MURS)

- **Problem:** Capability gaps exist across multiple pathways through which WMD can be transported. These capability gaps can to some degree be mitigated with non-materiel solutions but primarily require a materiel solution to be developed, acquired, and deployed to address the gap. There exists a need for a next-generation mobile radiation detection platform capability.

- **Solution:** The goal of the Mobile Urban Radiation Search sub-project is to efficiently migrate the knowledge and technology of previous stand-off and long-range detection research projects into a production-ready, compact, next-generation mobile radiation detection platform. The sub-project emphasizes spiral development based upon operational feedback from a variety of DHS end-users.

- **Justification:** No funding is included in the FY 2021 President's Budget for this research initiative.

- **Impact:** Completion of this project will inform alternatives for future mobile radiation detection platform procurements for Homeland Security operators.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
Technologies developed under the MURS project will be transitioned to operational partners and to future programs under the CWMD Acquisition Division to meet specific needs for DHS Component(s) or Homeland Security Enterprise customers.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Four prototypes completed. Established technology demonstrations with US Border Patrol.	FY 2019 Q1	FY 2020 Q1	7
FY 2020			
Complete report on suitability and user requirements to inform Analysis of Alternatives.	FY 2020 Q1	FY 2020 Q4	7
Completes the limited production run of six prototypes. Technology demonstrations with operational partners conclude. Results inform alternatives for future mobile procurements.	FY 2020 Q1	FY 2020 Q4	7
FY 2021			
Final report providing technology alternatives for mobile R/N search. Final report providing technology alternatives for mobile R/N search.	FY 2021 Q1	FY 2021 Q1	7

Next-Generation CWMD Systems

- **Problem:** Capability gaps exist across multiple pathways through which weapons of mass destruction can be transported. These capability gaps can, to some degree, be mitigated with non-materiel solutions but primarily require a materiel solution to be developed, acquired, and deployed to address the gap. Further, DHS operational users and the CWMD office recognize many deployed systems will be reaching their respective end-of-life and modernization and/or recapitalization efforts will be required to maintain or improve CWMD sensor capabilities. Additionally, potential commercial-off-the-shelf material solutions may require customization and will always require test and evaluation to ensure they meet operational and functional requirements.

- **Solution:** These initiatives include a number of required solutions based on capability gaps, anticipated recapitalization of deployed equipment, and/or solutions that have otherwise been identified and documented by DHS operational users as a required capability. For instance, CBP has identified the need for mobile and relocatable radiation detection equipment as well as a radiation scanning solution for border patrol checkpoints. Additionally, CWMD is tracking the service life of all human portable radiation detection devices and is planning for recapitalization with next generation, networkable, multi-modal equipment when deployed devices reach their end of life. For example, CWMD is looking at a next

generation radiation isotope identifiender (RIID) that uses new materials such as thallium bromide Threat pathway analysis has identified small vessels as a high priority capability gap. This project will develop a remotely operated capability that could be deployed in inter-coastal waterways or strategic river choke points to mitigate a portion of the small maritime vessel threat. The R&D funding also supports the algorithm development that broadens the capacity of existing detection equipment that can identify trace/diluted threats such as Fentanyl detection. The detection capability should be accurate to not require secondary screening and testing. The equipment should be usable in the most extreme conditions without increasing the risk of contamination to the user.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to develop next-generation initiatives being identified by ongoing capability gap analyses. Additionally, these initiatives include continuous efforts to improve legacy systems capabilities to communicate and network with next-generation systems.

- **Impact:** Completion of this project will inform the acquisition and deployment of counter-WMD devices that will partially or wholly address capability gaps and provide DHS operational users and other Federal users with commercially-available or next-generation CWMD devices.

Type of Research
Developmental

Technology Readiness Level
TRLs 5-7

Transition Plans
If the research is successful, then the programs will transfer to PC&I.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
N/A	N/A	N/A	N/A
FY 2020			
Fentanly Detection Development	FY 2020 Q2	FY 2021 Q4	6
Next Generation RIID: Kick-off effort to develop and release solicitation for customized RIID using Thallium Bromide detection technology	FY 2020 Q2	FY 2020 Q4	6
Maritime Waterway Detection Program (MWDP): Develop prototype	FY2020 Q3	FY 2020 Q4	5
FY 2021			
Next Generation RIID: Development and demonstration of customized RIID using Thallium Bromide detection technology	FY2021Q2	FY2022Q2	7
Maritime Waterway Detection Program (MWDP): Demonstrate prototype	FY2021 Q3	FY 2021 Q4	6
Next-generation mobile RDE: Completion alternatives analysis and conduct ADE-1	FY 2021 Q1	FY 2021 Q4	6

Nuclear and Radiological Imaging Platform (NRIP)

- **Problem:** Capability gaps exist across multiple pathways through which WMD can be transported. These capability gaps can to some degree be mitigated with non-materiel solutions but primarily require a materiel solution to be developed, acquired, and deployed to address the gap. There exists a need for a new capability to detect radiological and nuclear threats in cargo screening applications with minimal impact to flow of commerce.

- **Solution:** This project leverages recent advancements in the commercial sector as well as prior Transformational R&D work. By combining the merits of passive and active technologies, new systems are being developed so that a single system is able to detect radiological and nuclear threats, regardless of the amount of shielding or the complexity of cargo, in primary mode with minimal impact to the flow of commerce. In addition to system performance characterization in a simulated operational environment, these systems will also undergo testing in a controlled, but realistic, operational environment.

- **Justification:** No funding is included in the FY 2021 President's Budget for this research initiative. The NRIP was an Advanced Technology Demonstration project that completed its objectives and the project has concluded.

- **Impact:** Completion of this project will inform future technology developments in cargo screening applications.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
Technologies developed under the NRIP project will be used to inform future programs under the CWMD Acquisition Division and Rapid Capabilities Division to meet specific needs for DHS Component(s) or Homeland Security Enterprise customers.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Complete Final Report and close out program	FY 2019 Q1	FY 2019 Q4	7
FY 2020			
Complete closeout deployment at Conley Terminal at Mass Port.	FY 2020 Q1	FY 2020 Q4	7
FY 2021			
N/A	N/A	N/A	N/A

Radiation Portal Technology Enhancement & Replacement (RAPTER)

- **Problem:** Since calendar year 2003, DHS has deployed more than 1,400 RPM systems, with an original estimated operational life of 10 to 13 years. Recapitalization of the aging RPM systems must address the following known deficiencies in the currently deployed systems: no state of health, no gain stabilization, lack of ability to remain in calibration, excessive nuisance alarms, no feedback mechanism to inform user when system is no longer operating within the required performance envelope.

- **Solution:** There are two complementary acquisition programs to modernize and recapitalize the RPM fleet:
  o The RPM Replacement program will acquire and deploy approximately 200 enhanced RPMs at high-priority sites identified by CBP beginning in FY2020
  o The Radiation Portal Technology Enhancement & Replacement (RAPTER) program will recapitalize, modernize, and replace remaining legacy RPMs in the FY25 through FY32 timeframe with a fully-integrated modular open system architecture solution.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to rapidly develop and test a modular open system architecture solution to recapitalize the aging RPM fleet. This R&D funding is for National Lab technical support, program office activities, systems engineering, acquisition artifact development, system development, and developmental testing activities to a readiness level appropriate to transition to system acquisition. The program plans to re-use the existing RPM shrouds and Helium-3 tubes to lower technical risk and reduce costs.

- **Impact:** Completion of this project will inform effort to develop, acquire and deploy new fully-integrated RPM systems to recapitalize the fleet.

Type of Research
Development

Technology Readiness Level
The component technologies to be included in the RAPTER system have all been proven and deployed in operational environments, these technologies will be repackaged in a modular open system architecture. A prototype RAPTER system has been developed and tested in a relevant environment. This prototype needs to be commercialized and validated against CBP operational requirements. Thus the TRL is estimated to be at 6.

Transition Plans
Radiation Portal Monitor Replacement Program (RPM RP) program is already in acquisition phase. The plan for RAPTER is to transition to PCI funding once systems have been developed and system requirements have been verified through developmental testing.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
N/A	N/A	N/A	N/A
FY 2020			
Conduct RPM Recapitalization Acquisition Analysis	FY 2020 Q2	FY 2020 Q4	8
Complete Acquisition Decision Event (ADE)-2A and begin the Obtain Phase.	FY 2020 Q4	FY 2020 Q4	6
FY 2021			
Release Request for Proposal (RFP)	FY 2021 Q4	FY 2021 Q4	7

Wearable Intelligent Nuclear Detection (WIND)

- **Problem:** Capability gaps exist across multiple pathways through which WMD can be transported. These capability gaps can to some degree be mitigated with non-materiel solutions but primarily require a materiel solution to be developed, acquired, and deployed to address the gap. There exists a need for development of a next generation backpack system for R/N detection.

- **Solution:** The Wearable Intelligent Nuclear Detection (WIND) sub-project will develop and characterize a highly-modular, multi-purpose, and human-portable (e.g., backpack or vest) system that greatly advances the ability to detect and interdict threats during wide area search missions. These advancements will inform the development and acquisition of the next backpack detection technology. The Performance Test Units are built around an open architecture allowing incorporation of third-party hardware or algorithms and the ability to upgrade the Performance Test Units/system in the future. They provide high spatial resolution radiation mapping capability for localization, enhanced sensitivity, and area clearing.

- **Justification:** No funding is included in the FY 2021 President's Budget for this research initiative.

- **Impact:** Completion of this project will inform alternatives for future backpack radiation detection platform procurements for Homeland Security operators.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
Technologies developed under the WIND project will transition to the CWMD Acquisition Division for a future acquisition in support of CWMD operators.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Complete Characterization Readiness phase	FY 2019 Q1	FY 2019 Q3	6
FY 2020			
Complete technology and operational demonstration and characterization of performance test units	FY 2020 Q1	FY 2020 Q4	7

Rapid Capabilities – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
(Dollars in Thousands)	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Rapid Capabilities	-	-	$8,000	-	-	$8,000	-	-	$10,000	-	-	$2,000
Total	**-**	**-**	**$8,000**	**-**	**-**	**$8,000**	**-**	**-**	**$10,000**	**-**	**-**	**$2,000**
Subtotal Discretionary - Appropriation	-	-	$8,000	-	-	$8,000	-	-	$10,000	-	-	$2,000

*FY2020 funds are requested in CWMD R&D PPA. Only carryover funds are reflected in FY2020.

PPA Level I Description

The Rapid Capabilities program enables CWMD to execute expedited and/or sensitive acquisition development and procurement activities for nuclear, chemical, radiological and biological detection systems in response to emerging operational needs across the CWMD mission space. A quickly evolving threat environment can outpace traditional capability acquisition processes and timelines and make the Nation vulnerable to WMD attack and/or impede response to an attack. The Rapid Capabilities activities (pilots, tech demos, operational demos, studies, etc.) place prototype capabilities in the field for operator use to support their mission and/or accelerate knowledge to support future missions.

Data from Rapid Capabilities activities are used by other efforts (such as software development and testing) to accelerate their development and/or lower programmatic risk. Specifically, with prototype data, programs will have access to real-world data to document performance vs relying on studies or models to predict performance. This research initiative enabless the study, identification, development, and deployment of pilots, tech demos, operational demos capabilities in the field to gain operational insights earlier in the system acquisition process for capabilities addressing rapidly evolving threats.

Funding for this R&D program will strengthen operational capabilities to prevent, protect against, and respond to WMD and pandemic threats and strengthen national scanning for emerging dangers via robust research and development. Rapid Capabilities initiatives implement FAR-based acquisition procedures; however, the program may also utilize DHS and CWMD-specific acquisition authorities to rapidly develop, procure and field capabilities that disrupt terrorist attempts to utilize weapons of mass destruction (WMD).

Rapid Capabilities – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$8,000**	**$8,000**	**$10,000**
Carryover and/or Recoveries (Actual/Estimates/Projections)	-	$2,226	-
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$8,000**	**$10,226**	**$10,000**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$8,000**	**$10,226**	**$10,000**
Obligations (Actual/Estimates/Projections)	$5,774	$10,226	$10,000
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Rapid Capabilities – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$8,000**
FY 2020 Enacted	-	-	**$8,000**
FY 2021 Base Budget	-	-	**-**
Rapid Capabilities	-	-	$10,000
Total Research and Development Projects	-	-	**$10,000**
FY 2021 Request	-	-	**$10,000**
FY 2020 To FY 2021 Change	-	-	**$2,000**

Rapid Capabilities – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Rapid Capabilities	$8,000	$8,000	$10,000	$2,000
Total	**$8,000**	**$8,000**	**$10,000**	**$2,000**
Discretionary - Appropriation	$8,000	$8,000	$10,000	$2,000

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$22	$48	$65	$17
25.1 Advisory and Assistance Services	$1,220	$1,432	$1,496	$64
25.3 Other Goods and Services from Federal Sources	$1,750	$1,415	$1,445	$30
25.5 Research and Development Contracts	$5,008	$5,105	$6,994	$1,889
Total - Non Pay Object Classes	**$8,000**	**$8,000**	**$10,000**	**$2,000**

Rapid Capabilities
Research and Development
Technology Readiness Level Exhibit

Research and Development Project *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget
Rapid Capabilities	$8,000	$8,000	$10,000

Rapid Capabilities Program

The rapid capabilities development through this program will make the Nation more prepared and resilient to defend against WMD attacks and to respond if an attack occurs. Additionally, the lessons learned by operating pre-production equipment greatly informs follow-on programs of record to ensure technical and operational requirements are met and Concepts of Operations (CONOPS) to support the capability are quickly matured.

The table that follows identifies initiatives and funding levels for FY 2021.

Rapid Capabilities *(Dollars in Thousands)*			
Project	**FY 2019 Enacted**	**FY 2020 Enacted**	**FY 2021 Presidents Budget**
BD21 Tech Demo	$7,500	$2,500	$2,000
Future New Starts Based on Operator Requirements	-	$2,500	$8,000
Handheld Chemical Detection Pilot	-	$1,000	-
Project ARCHER	$500	$2,000	-
TOTAL	**$8,000**	**$8,000**	**$10,000**

R&D Project Descriptions

BD21 Tech Demo

- **Problem:** The Mission Needs Statement for Biological Detection validated by the DHS Joint Requirements Council on 9 May 2019 identifies several biological detection gaps, with the most critical gap being timeliness to detect, confirm, and respond to a biological attack.

- **Solution:** The BD21 Technology Demonstration is an effort designed to gather information and data to support future requirements for an advanced biological detection capability and the development of an anomaly detection algorithm. The effort includes: the exploration of the current state of bio-detection technology, collection of environmental background data in diverse geographical locations to support an anomaly detection algorithm, and CONOPS maturation. All outputs of the BD21 tech demo support the BD21 Program of Record.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to mature biological detection technologies to support a more timely response over current fielded biodetection system.

- **Impact:** Completion of this project will inform the BD21 Program of Record by providing data to support requirement generation, software development and assess performance of available technologies.

Type of Research
Developmental

Technology Readiness Level
TRLs 6-7

Transition Plans
Technical maturation and lessons learned will transition to the BD21 Program of Record

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Develop/Deploy 12 environmental detection units in US cities	FY 2019 Q1	FY 2021 Q1	6
FY 2020			
Continue to collect/analyize data from environmental detection units in US cities	FY 2019 Q1	FY 2021 Q1	6
FY 2021			
Based on results of data collection, a new effort to gain additional data in different environments is expected.	FY 2021 Q1	FY 2021 Q4	7

Future New Starts Based on Operator Requirements

- **Problem:** The CBRNE threat to the Homeland is continuously evolving/changing with little advanced notice.

- **Solution:** As threats evolve and new operational capability gaps become known, it is expected one or more new programs will be initiated by the Rapid Capabilities Team to quickly and effectively meet emerging operational gaps and requirements.

- **Justification:** Funding included in the FY 2021 President's Budget for this research initiative will be used to quickly addess operational capability gaps identified by DHS Operational Components, State and Local First Responders, and/or intelligence sources.

- **Impact:** Completion of this project will reduce operational capability gaps and/or mature technology to support larger acquisition programs.

Type of Research
Developmental

Technology Readiness Level
TRL 6-7

Transition Plans
Transition will vary based upon the type of activity. It is likely transition will be CBRNE detection hardware to support operational gaps, but results of operational evaluations could also transition to support requirements generation.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
N/A	N/A	N/A	N/A
FY 2020			
New starts to address critical operational gaps that require a rapid response	FY2020 Q3	FY2020 Q4	6-7
FY 2021			
New starts to address critical operational gaps that require a rapid response	FY 2021 Q1	FY 2021 Q4	6-7

Handheld Chemical Detection Pilot

- **Problem:** The diversity of chemical hazards encountered by DHS Operational Components and State and Local First Responders is wide ranging based on chemical type, quantities, packaging, purity, and threat. There are many different technologies available with strengths and weaknesses to mitigate threats, but the technologies have not been assessed as to how they improve operator safety and promote mission success.

- **Solution:** The Handheld Chemical Detection Pilot Team will procure and deploy one or more models of portable, handheld, chemical detection systems to select DHS Operational Components to evaluate the operational utility of these devices, as well as the Components' ability to integrate the new capability into existing CONOPS. The goal of this Pilot is to identify end users' opinions of any potential challenges with the utilization of the provided detectors or the performance of the Concept of Operations (CONOPS) and Standard Operating Procedures (SOPs) in conjunction with the handheld, chemical detectors.

- **Justification:** There is no funding in the FY 2021 President's Budget for this research initiative.

- **Impact:** Completion of this project will inform the utility of the different types of technologies based on detection method, size of detectors, ease of use, etc. The assessment results will inform requirements for a larger acquisition effort.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
Technology assessment data will transition to requirements for future program of records to meet operational needs.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Gather operational performance and CONOPs improvement data from operational components	FY 2019 Q4	FY 2020 Q3	7
FY 2020			
Continue Pilot with additional types of hardware/detection technology to gather operational performance and CONOPs improvement data from operational components.	FY 2019 Q4	FY 2020 Q3	7
FY 2021			
N/A	N/A	N/A	N/A

Project ARCHER

- **Problem:** US Border Patrol has a requirement to move away from agent-borne equipment to support autonomous detection and identification technologies for their radiological/nuclear (R/N) detection mission at Point of Enty Checkpoints.

- **Solution:** Developed and deployed R/N sensors to United States Border Patrol (USBP) Point of Entry Checkpoints to explore the ability to increase the effectiveness and efficiency of R/N detection and identification operations by USBP. ARCHER includes an operational test period of 1 year to assess ARCHER's ability to fill USBP operational gaps. Results will inform formal requirements and ultimately an acquisition program for additional USBP Checkpoints.

- **Justification:** There is no funding in the FY 2021 President's Budget for this research initiative.

- **Impact:** Completion of this project will inform formal requirement to expand autononmous detection and identification capabilities to additional USBP Checkpoints.

Type of Research
Developmental

Technology Readiness Level
TRL 7

Transition Plans
Operational learning will be transitioned to USBP and CWMD Requirements teams to assist in requirements generation. Once those requirements are validated, they CWMD Acquisition Team will manage procurement activities.

Project Schedule

Research and Development Description	Planned Start Date	Planned Completion	TRL
FY 2019			
Develop and Install R/N detection capability at USBP Checkpoint	FY 2019 Q1	FY 2020 Q1	7
FY 2020			
Conduct Operational Demo of R/N detection capability at USBP Checkpoint	FY 2020 Q1	FY 2021 Q1	7
FY 2021			
N/A	N/A	N/A	N/A

Department of Homeland Security
Countering Weapons of Mass Destruction Office
Federal Assistance

Fiscal Year 2021
Congressional Justification

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Federal Assistance
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Training, Exercises, and Readiness	-	-	$9,110	-	-	$14,470	-	-	$14,470	-	-	-
Securing the Cities	-	-	$30,000	-	-	$24,640	-	-	$13,640	-	-	($11,000)
Biological Support	-	-	$25,553	-	-	$25,553	-	-	$30,553	-	-	$5,000
Total	**-**	**-**	**$64,663**	**-**	**-**	**$64,663**	**-**	**-**	**$58,663**	**-**	**-**	**($6,000)**
Subtotal Discretionary - Appropriation	-	-	$64,663	-	-	$64,663	-	-	$58,663	-	-	($6,000)

The Department of Homeland Security Countering Weapons of Mass Destruction (CWMD) Office exists to protect the American people and the homeland from the dangers posed by hostile state and non-state actors who would acquire and use nuclear, chemical, radiological, or biological materials in the form of weapons of mass destruction (WMD) to harm Americans or U.S. interests. The CWMD Office performs its mission through its prevention and detection.

The CWMD Office supports the frontline operations of DHS and its partners. This office addresses critical vulnerabilities to help local communities prepare and build capacity in detecting, identifying, responding to, and mitigating nuclear, chemical, radiological, and biological threats and incidents. With the Federal Assistance Appropriation and mission, CWMD aligns operational programs and activities across the WMD threat space and allows for consistent and persistent engagement. Our established partnerships with local jurisdictions, DHS operating Components, and international operators further the enhanced global detection architecture and information sharing. These actions protect against an attack toward the people, territory, or U.S. interests.

Federal Assistance
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$64,663**	**$64,663**	**$58,663**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$37,781	$39,017	-
Rescissions to Current Year/Budget Year	($17,200)	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$85,244**	**$103,680**	**$58,663**
Collections – Reimbursable Resources	-	-	-
Collections – Other Sources	$25	-	-
Total Budget Resources	**$85,269**	**$103,680**	**$58,663**
Obligations (Actual/Estimates/Projections)	$46,217	$103,680	$58,663
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

*FY 2019 Carryover funds reflect FY 2018 and prior which were appropriated to the Domestic Nuclear Detection Office (DNDO).

Federal Assistance
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$64,663**
FY 2020 Enacted	-	-	**$64,663**
FY 2021 Base Budget	-	-	**$64,663**
FY 2021 Current Services	-	-	**$64,663**
BioWatch Cooperative Agreements Full Year funding	-	-	$5,000
Total, Program Increases	-	-	**$5,000**
Securing the Cities Program Decrease	-	-	($11,000)
Total, Program Decreases	-	-	**($11,000)**
FY 2021 Request	-	-	**$58,663**
FY 2020 To FY 2021 Change	-	-	**($6,000)**

Federal Assistance
Justification of Program Changes

Program Changes	FY 2021 President's Budget		
(Dollars in Thousands)	**Positions**	**FTE**	**Amount**
Program Change 1 - BioWatch Cooperative Agreements Full Year funding	-	-	$5,000
Biological Support	-	-	$5,000
Program Change 2 - Securing the Cities Program Decrease	-	-	($11,000)
Securing the Cities	-	-	($11,000)
Total Program Changes	-	-	($6,000)

Program Change 1: BioWatch Cooperative Agreements Full Year Funding:

Description: The FY 2021 request includes an increase of $5.0M to BioWatch Cooperative Agreements. The base for this program is $25.6M.

Justification: BioWatch is the Nation's only deployed bio detection system and protects over 30 major metropolitan areas from a biological attack. Federally managed and locally operated, BioWatch uses Federal Assistance funds to support daily sample collection in all jurisdictions as well as analysis in seven BioWatch laboratories. This increase in funding will provide a full year of continuous bio detection operations in all jurisdictions. The Biological Support PPA funding levels in FY 2019 and FY 2020 required reduced periods of performance to maintain daily operations across all jurisdictions. These operations included the collection, screening, and analysis of air samples, and the reporting of biothreat agent results to all appropriate authorities. The approach that reduced the periods of performance of the awards is not viable in FY 2021 or beyond to maintain 24/7/365 operations.

Performance: At the requested funding level, BioWatch can maintain continuous biodetection operations in all jurisdictions.

Program Change 2: Securing the Cities Decrease:

Description: The FY 2021 request includes a decrease of $11.0M to the Securing the Cities program (STC). The base for this program is $24.6M.

Justification: The *Countering Weapons of Mass Destruction Act of 2018* established the Securing the Cities program to enhance the ability of the United States to detect and prevent terrorist attacks and other high-consequence events utilizing nuclear or other radiological materials that pose a risk to homeland security in high-risk urban areas. In support of this mission, CWMD provides detection equipment, training, exercise support, operational and technical subject matter expertise, and programmatic support through a cooperative agreement grant process with eligible regions. At the requested funding level, CWMD will continue support for six STC cities that entered the program in FY 2020. CWMD will defer sustainment for legacy cities. Sustainment activities include assistance, training, and exercises to maintain proficiency in the detection mission area and recapitalizing aging equipment.

Performance: Securing the Cities Program funding provides the implementation of this Congressionally mandated program to decrease risk to the high-risk urban area partners. The reduction in the overall capacity and capability of each STC region to detect, analyze, report, and interdict radiological and nuclear materials could pose a challenge to the high-risk urban areas, by reducing the amount of equipment, training, and exercises available to State, territorial, tribal, and local partners who rely on the program funding for these purposes. The mitigation approach for decreasing funding to this program is to closely monitor expenditures of grant funds to ensure award recipients are expending program dollars as specified in the cooperative agreement. Funding at this reduced level may result in a reduced amount of equipment, training, and exercises in FY 2021 for State, territorial, tribal, and local partners who rely on the program funds to complete their missions.

Federal Assistance
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Training, Exercises, and Readiness	$9,110	$14,470	$14,470	-
Securing the Cities	$30,000	$24,640	$13,640	($11,000)
Biological Support	$25,553	$25,553	$30,553	$5,000
Total	**$64,663**	**$64,663**	**$58,663**	**($6,000)**
Discretionary - Appropriation	$64,663	$64,663	$58,663	($6,000)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$223	$205	$237	$32
25.1 Advisory and Assistance Services	$12,867	$18,800	$18,575	($225)
25.3 Other Goods and Services from Federal Sources	-	-	$95	$95
25.7 Operation and Maintenance of Equipment	-	-	$125	$125
31.0 Equipment	$14,676	$16,105	$7,078	($9,027)
41.0 Grants, Subsidies, and Contributions	$36,897	$29,553	$32,553	$3,000
Total - Non Pay Object Classes	**$64,663**	**$64,663**	**$58,663**	**($6,000)**

Training, Exercises, and Readiness – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
(Dollars in Thousands)	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Training, Exercises, and Readiness	-	-	$9,110	-	-	$14,470	-	-	$14,470	-	-	-
Total	**-**	**-**	**$9,110**	**-**	**-**	**$14,470**	**-**	**-**	**$14,470**	**-**	**-**	**-**
Subtotal Discretionary - Appropriation	-	-	$9,110	-	-	$14,470	-	-	$14,470	-	-	-

PPA Description
Training, Exercises, and Readiness programs provide support to local jurisdiction and DHS operating components to reduce the risk of a successful deployment of a weapon of mass destruction and the movement of materials into major metropolitan areas and regions. This includes readiness programs and activities that provide mission-related training, exercises, field support, and capability enhancement for local jurisdictions and DHS component personnel to support preparedness for chemical, biological, radiological, and nuclear events. This PPA consists of three (3) separate programs: 1) Training and Exercises, 2) Mobile Detection Deployment Project (MDDP), and 3) Information Coordination.

Training and Exercises: The CWMD Office's training mission enhances detection and ensures operators with countering weapons of mass destruction responsibilities receive high quality, standards-based training delivered in both classroom and field settings. Training establishes procedures and processes for an integrated program within CWMD and with partner CBRN agencies, which may include grants, contracts, or interagency agreements for external training. CWMD maintains a standards-based radiological curriculum, supports current institutions for course delivery and is proactive in the capture of the latest facilitation methods. The program works to implement training standards, both internal to CWMD and with external agencies. This training allows partner agencies to evaluate the effectiveness of their detection capabilities in an actual operating environment outside of the classroom environment. Exercises complement training and aid support to Federal and local responders and operators to, develop, conduct, and report exercise results. This process helps CWMD identify gaps and improve CWMD capability across DHS and the US Government. Exercises seek to validate and enhance capabilities and systems essential to counter threats of terrorism by use of weapons of mass destruction. This is accomplished by providing a range of support service expertise to operational partners and stakeholders. The program regularly updates mission-specific exercise materials, to include a variety of templates, tools, and planning guidance for direct use by the CWMD Office's exercise planners, stakeholders, and partners. These proven exercise practices are all in accordance with the Homeland Security Exercise and Evaluation Program (HSEEP) methodology and are also applicable for exercise requirements not associated with the HSEEP methodology. The level of direct support provided for the planning, design, execution, and evaluation of exercises is dependent upon the stakeholder's level of knowledge and experience in conducting the CWMD mission, as well as the availability of resources to the requesting stakeholder. Support requests received by

the Exercise and Training program requires direct facilitation of the training and exercise event beginning with planning to providing results from the evaluation. The results gage the effectiveness of classroom training and exercises, promote readiness, maximizes capabilities of operators, and enhances the performance of the CWMD mission.

Mobile Detection Deployment Project (MDDP): The MDDP includes six trailer-based units that are maintained at various sites across the United States and are outfitted with detection equipment. Mobile Detection Deployment Units (MDDU) are complementary detection assets designed to augment Federal and local operator detection and reporting capabilities. MDDUs may be deployed to temporarily augment local jurisdiction steady-state capabilities, in support of large-scale public gatherings, in response to intelligence-driven requirements, and/or for multi-agency training and exercise activities. Requests to deploy a MDDU by Federal and local agencies are evaluated based on an assessment of the event's risk and on the readiness of the region to incorporate the MDDU into their operations. MDDUs may deploy as a complete unit or partial equipment may be shipped to a deployment location to meet specific needs of the requesting agency. By shipping equipment only instead of deploying a full MDDU packaged each deployment uses fewer resources allowing the project to meet the increased demand for MDDU support. This package can be accompanied by one or more subject-matter experts to provide training, operational recommendations, and equipment technical support. This agile model will allow the project to support additional requests for the capability.

Information Coordination and Continuity: The CWMD Information Coordination and Continuity program builds operational information integration across the countering weapons of mass destruction mission areas, provides executive support, situational awareness, and operational readiness. This includes scalable coordination needed to support the Department's information sharing requirements and serves as a critical touch point for the Department as it coordinates and shares relevant WMD information, alerts, and incident notifications. Resources requested for Information Coordination provides for contractor staffing to provision the development, execution, and maintenance of a CWMD common operating picture 24/7/365, which includes a watch at the Department of Homeland Security's National Operations Center (NOC). This capability builds, supports, and enables the CWMD Office to have a forward leaning and agile staff, capable of supporting the mission and maintaining situational awareness under degraded operational conditions. Work performed under this project also supports the CWMD Office's Continuity and Resilience Programs, which include continuity of operations and continuity of government.

Training, Exercises, and Readiness – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$9,110**	**$14,470**	**$14,470**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$17,780	$3,837	-
Rescissions to Current Year/Budget Year	($17,145)	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	-	-	-
Supplementals	-	-	-
Total Budget Authority	**$9,745**	**$18,307**	**$14,470**
Collections – Reimbursable Resources	-	-	-
Collections – Other Sources	$25	-	-
Total Budget Resources	**$9,770**	**$18,307**	**$14,470**
Obligations (Actual/Estimates/Projections)	$5,901	$18,307	$14,470
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

*FY 2019 Carryover funds reflect FY 2018 and prior which were appropriated to the Domestic Nuclear Detection Office (DNDO).

Training, Exercises, and Readiness – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$9,110**
FY 2020 Enacted	-	-	**$14,470**
FY 2021 Base Budget	-	-	**$14,470**
FY 2021 Current Services	-	-	**$14,470**
FY 2021 Request	-	-	**$14,470**
FY 2020 To FY 2021 Change	-	-	-

Training, Exercises, and Readiness – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Training, Exercises, and Readiness	$9,110	$14,470	$14,470	-
Total	**$9,110**	**$14,470**	**$14,470**	**-**
Discretionary - Appropriation	$9,110	$14,470	$14,470	-

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$143	$125	$130	$5
25.1 Advisory and Assistance Services	$8,967	$14,345	$14,120	($225)
25.3 Other Goods and Services from Federal Sources	-	-	$95	$95
25.7 Operation and Maintenance of Equipment	-	-	$125	$125
Total - Non Pay Object Classes	**$9,110**	**$14,470**	**$14,470**	**-**

Non Pay Cost Drivers

Non Pay Cost Drivers *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Mobile Detection Deployment Program	$5,324	$6,734	$6,759	$25
Training and Exercises	$3,786	$5,278	$5,253	($25)
Information Coordination and Continuity[1]	-	$2,458	$2,458	-
Total – Non Pay Cost Drivers	**$9,110**	**$14,470**	**$14,470**	**-**

1.   Information Coordination and Continuity was under O&S Readiness for FY 2019.

Explanation of Non Pay Cost Drivers

Mobile Detection Deployment Program: MDDP cost drivers include both the initial costs for InterAgency Agreements with USCG, TSA, and CBP for storage of the fleet. In addition, cost drivers cover reach back for spectral analysis, detection equipment operations and maintenance, advisory and assistance services, support contractors, as well as the costs for upgrade of MDDU fleet. The requested funding ensures the MDDP capability can provide domestic law enforcement and first responder organizations with the resources necessary to conduct the full spectrum of radiological and nuclear detection (i.e., primary screening, secondary screening, and reach back procedures). The MDDP Heavy Duty Emergency Response Vehicle (MDOV) package will provide necessary CBRN detection equipment, mobile telecommunications, training, operations support, and power generation required for the on-site management of detection support activities.

Training and Exercises: Provides training and exercise support to DHS Component personnel and FSLTT regional operators to advance CWMD mission priorities. Funding supports training and exercises for CWMD programs such as Securing the Cities, BioWatch, Chemical Defense activities, and operational partners such as USCG, CBP, TSA, FBI, DOE, and SLTT capabilities and personnel.

Training develops materials and provides training for FSLTT personnel supporting Securing the Cities, BioWatch, Chemical Defense, and other CWMD Program Offices. This funding supports provisioning of curricula development, materials, radiological sources, training devices, and equipment needed to train FSLTT operators using chemical, biological, and radiological detection equipment. Training support will also continue to be provided to State and local bomb technicians in coordination with the FBI Stabilization Team Program. CWMD will begin an effort to develop advance training for local leaders to enhance decision making skills during chemical, biological, radiological, and nuclear (CBRN) operations. CWMD funds and assists with exercise planning and coordination activities, exercise execution, and after-action reporting and follow-up. Exercises will continue to lead the CWMD sponsored Sterling Armor Series to support interagency efforts to identify and implement lessons learned and corrective actions following conduct of National Level Exercise 2020 (NLE 20). In addition, exercises advance mission priorities identified by CWMD and DHS leadership. Exercise support will also continue for all active Securing the Cities projects.

Information Coordination and Continuity: Information Coordination and Continuity costs drivers provide funding for contracted staffing for the CWMD watch desk and contracted briefing staff to develop, populate, incrementally improve, and maintain the WMD common operating picture. Staffing for both the watch desk and the briefing staff requires appropriately cleared personnel with considerable experience, training, education, and

expertise within the CBRN mission sets. There is a relatively small pool of personnel who meet these requirements and or possess the appropriate security clearances. Personnel meeting these qualifications typically fall within the professional services schedule as subject matter experts, technical experts, and technical editors. This funding supports the development, execution, and maintenance of the common operating picture, hosted within a DHS program of record information system, and represents CWMD's direct support to frontline operations across the homeland security enterprise. In the event of a national emergency, as exercised during NLE 20, the contracted staff also supports the CWMD Incident Command Cell and the Continuity and Resilience Programs. This support allows CWMD to maintain the common operating picture and to exercise contingency plans for the continuity of operations and the continuity of government.

Securing the Cities – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Securing the Cities	-	-	$30,000	-	-	$24,640	-	-	$13,640	-	-	($11,000)
Total	**-**	**-**	**$30,000**	**-**	**-**	**$24,640**	**-**	**-**	**$13,640**	**-**	**-**	**($11,000)**
Subtotal Discretionary - Appropriation	-	-	$30,000	-	-	$24,640	-	-	$13,640	-	-	($11,000)

PPA Description

Securing the Cities: Using the authorities of the Securing the Cities program, the CWMD Office enhances the ability of the United States to detect and prevent terrorist attacks and other high-consequence events utilizing nuclear or other radiological materials that pose a risk to homeland security in high-risk urban areas (as used in Section 2003 of the Homeland Security Act of 2002, as amended). STC is a critical aspect of the CWMD Office's strategy utilizing a defense in depth posture that attempts to maximize detection opportunities from the initial entry or assembly point to the intended target area. STC includes regionally located program offices, equipment procurement, developing and integrating the STC partner programs into a national detection structure, and guiding the development of contingency operations and standard operating procedures. The CWMD Office also provides training and exercise products and equipment via cooperative agreements or grants to ensure that weapons- or material-detection is integrated into day-to-day operations.

Although major metropolitan areas will remain the ideal targets for adversaries attempting to employ nuclear or radiological weapons against the United States, adversaries must traverse air, land, and/or sea pathways to reach the target area. These pathways may extend hundreds to thousands of miles from the potential target. STC will provide dedicated Federal Assistance funds and/or equipment via cooperative agreements with the designated jurisdictions. The CWMD Office will use Readiness funds, as appropriate, to support STC program implementations with development of training programs and instruction. The intent is to better protect population centers by shifting focus from the adversary's potential targets to include the threat pathways into and within the high-risk urban areas' broader region. To ensure maximum efficiency, quick response, and compliance with our statutory obligation to detect and prevent terrorist attacks, CWMD has aligned its designation process of high risk jurisdictions that are also in proximity to FBI Stabilization Level 5 Programs.

Securing the Cities – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$30,000**	**$24,640**	**$13,640**
Carryover and/or Recoveries (Actual/Estimates/Projections)	$20,001	$33,104	-
Rescissions to Current Year/Budget Year	($55)	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	($2,555)	-	-
Supplementals	-	-	-
Total Budget Authority	**$47,391**	**$57,744**	**$13,640**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$47,391**	**$57,744**	**$13,640**
Obligations (Actual/Estimates/Projections)	$14,284	$57,744	$13,640
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

*FY 2019 Carryover funds reflect FY 2018 which were appropriated to the Domestic Nuclear Detection Office (DNDO).

Securing the Cities – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$30,000**
FY 2020 Enacted	-	-	**$24,640**
FY 2021 Base Budget	-	-	**$24,640**
FY 2021 Current Services	-	-	**$24,640**
Securing the Cities Program Decrease	-	-	($11,000)
Total, Program Decreases	-	-	**($11,000)**
FY 2021 Request	-	-	**$13,640**
FY 2020 To FY 2021 Change	-	-	**($11,000)**

Securing the Cities – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Securing the Cities	$30,000	$24,640	$13,640	($11,000)
Total	**$30,000**	**$24,640**	**$13,640**	**($11,000)**
Discretionary - Appropriation	$30,000	$24,640	$13,640	($11,000)

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
21.0 Travel and Transportation of Persons	$80	$80	$107	$27
25.1 Advisory and Assistance Services	$3,900	$4,455	$4,455	-
31.0 Equipment	$14,676	$16,105	$7,078	($9,027)
41.0 Grants, Subsidies, and Contributions	$11,344	$4,000	$2,000	($2,000)
Total - Non Pay Object Classes	**$30,000**	**$24,640**	**$13,640**	**($11,000)**

Non Pay Cost Drivers

Non Pay Cost Drivers *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Equipment[1]	$20,000	$16,640	$4,440	($12,200)
Regional Program Management	$6,500	$6,000	$6,000	-
Backfill and Overtime	$2,850	$1,500	$2,700	$1,200
Other	$650	$500	$500	-
Total – Non Pay Cost Drivers	**$30,000**	**$24,640**	**$13,640**	**($11,000)**

1.   Equipment was provided to the Cities as Grants (OC 41) in FY 2019 but equipment will be purchased by DHS and granted to the cities in FY 2020 and FY 2021 under OC 31.

Explanation of Non Pay Cost Drivers
Equipment: This funding supports new equipment procurement as well as operations and maintenance of fielded assets. In FY 2021 CWMD will procure, operate, and maintain equipment for the six new regions. The decrease in funding for FY 2021 will defer the equipment replenishment for the legacy STC regions in sustainment.

Regional Program Management: Each region receives cooperative agreement funds to pay for one full-time program manager and a limited number of part-time staff to support the regional program. In addition, CWMD will continue limited funding for program management staff for legacy cities to support sustainment and management of programs.

Backfill and Overtime: This funding supports State and local participation in regional training, exercise, and other regional program development activities. This funding will be provided directly to STC cities via cooperative agreement.

Other: CWMD requires support contractor to develop and administer the STC program. CWMD will also have other costs with program administration, such as contracts to support wireless networks for STC regions.

Biological Support – PPA
Budget Comparison and Adjustments
Comparison of Budget Authority and Request

Organization *(Dollars in Thousands)*	FY 2019 Enacted			FY 2020 Enacted			FY 2021 President's Budget			FY 2020 to FY 2021 Total Changes		
	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount	Pos.	FTE	Amount
Biological Support	-	-	$25,553	-	-	$25,553	-	-	$30,553	-	-	$5,000
Total	**-**	**-**	**$25,553**	**-**	**-**	**$25,553**	**-**	**-**	**$30,553**	**-**	**-**	**$5,000**
Subtotal Discretionary - Appropriation	-	-	$25,553	-	-	$25,553	-	-	$30,553	-	-	$5,000

PPA Level I Description

The Biological Support program primarily supports the CWMD Office's efforts to safeguard against biological threats under the BioWatch Program. These activities are designed to provide early warning and characterization of biological events of national significance and provide local jurisdictions and fielded DHS component personnel with support and guidance needed to effectively address biological threats. The Federal Assistance appropriation provides resources to support biodetection field operations in both steady-state and surge operational postures.

Bio-Detection Operations: The CWMD Office's bio-detection capability informs local jurisdictions, international operators, and DHS operating component personnel decision-making on high consequence biological threats. The program supports bio-detection systems, supplements operational coordination of DHS biological defense activities, and supports preparedness for biological and chemical events to help communities build capabilities to prepare, respond, and recover. Field Operations provides subject matter expertise, biological detection capability, and situational awareness to operational State, local, tribal, and territorial officials and stakeholders. In FY 2019 and FY 2020, the programs used cooperative agreements with State and local jurisdictions to operate and maintain bio-detection capabilities for nine months to include personnel and supplies for the collection and delivery of detection unit samples to laboratories, maintenance of the detection equipment, some laboratory personnel, and coverage of additional resources required as needed for special events in operational jurisdictions. In FY 2021, CWMD is requesting sufficient funding to maintain these same operations for a 12-month period. The CWMD Office collaborates continually with operational partners, to ensure that detection capabilities provide the greatest level of protection possible to the public through multiple layers of defense.

Biological Support also provides State or local EMS, public health, or similar services in an overtime capacity with entities already badged into the Federal facility at the air port of entry for a rapid response (12-24hr) to support DHS biodetection surge operations that address emerging threats. This capability also ensures DHS law enforcement resources remain focused exclusively on their primary responsibilities.

Biological Support – PPA
Budget Authority and Obligations

Budget Authority *(Dollars in Thousands)*	FY 2019	FY 2020	FY 2021
Enacted/Request	**$25,553**	**$25,553**	**$30,553**
Carryover and/or Recoveries (Actual/Estimates/Projections)	-	$2,076	-
Rescissions to Current Year/Budget Year	-	-	-
Net Sequestered Resources	-	-	-
Reprogrammings/Transfers	$2,555	-	-
Supplementals	-	-	-
Total Budget Authority	**$28,108**	**$27,629**	**$30,553**
Collections – Reimbursable Resources	-	-	-
Total Budget Resources	**$28,108**	**$27,629**	**$30,553**
Obligations (Actual/Estimates/Projections)	$26,032	$27,629	$30,553
Personnel: Positions and FTE			
Enacted/Request Positions	-	-	-
Enacted/Request FTE	-	-	-
Onboard and Actual FTE; Includes Collections - Reimbursable Resources			
Onboard (Actual/Estimates/Projections)	-	-	-
FTE (Actual/Estimates/Projections)	-	-	-

Biological Support – PPA
Summary of Budget Changes

Budget Formulation Activity *(Dollars in Thousands)*	Positions	FTE	Amount
FY 2019 Enacted	-	-	**$25,553**
FY 2020 Enacted	-	-	**$25,553**
FY 2021 Base Budget	-	-	**$25,553**
FY 2021 Current Services	-	-	**$25,553**
BioWatch Cooperative Agreements Full Year funding	-	-	$5,000
Total, Program Increases	-	-	**$5,000**
FY 2021 Request	-	-	**$30,553**
FY 2020 To FY 2021 Change	-	-	**$5,000**

Biological Support – PPA
Non Pay Budget Exhibits
Non Pay Summary

Organization *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Biological Support	$25,553	$25,553	$30,553	$5,000
Total	**$25,553**	**$25,553**	**$30,553**	**$5,000**
Discretionary - Appropriation	$25,553	$25,553	$30,553	$5,000

Non Pay by Object Class

Non-Pay Object Classes *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Change
41.0 Grants, Subsidies, and Contributions	$25,553	$25,553	$30,553	$5,000
Total - Non Pay Object Classes	**$25,553**	**$25,553**	**$30,553**	**$5,000**

Non Pay Cost Drivers

Non Pay Cost Drivers *(Dollars in Thousands)*	FY 2019 Enacted	FY 2020 Enacted	FY 2021 President's Budget	FY 2020 to FY 2021 Total Changes
Cooperative Agreements	$25,553	$25,553	$30,553	$5,000
Total – Non Pay Cost Drivers	**$25,553**	**$25,553**	**$30,553**	**$5,000**

Explanation of Non Pay Cost Drivers

Cooperative Agreements: The program uses cooperative agreements with State and local jurisdictions to operate and maintain bio-detection capabilities to include personnel and supplies for the collection and delivery of detection unit samples to laboratories, maintenance of the detection equipment, some laboratory personnel, and coverage of additional resources required as needed for special events in operational jurisdictions. This funding supports 12 months of field operation.