

USACE CIVIL WORKS ASSET MANAGEMENT

Peter Dodgion
Asset Management Program Manager
USACE Headquarters



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ASSET MANAGEMENT: HUH?

Managing Assets

Asset Management

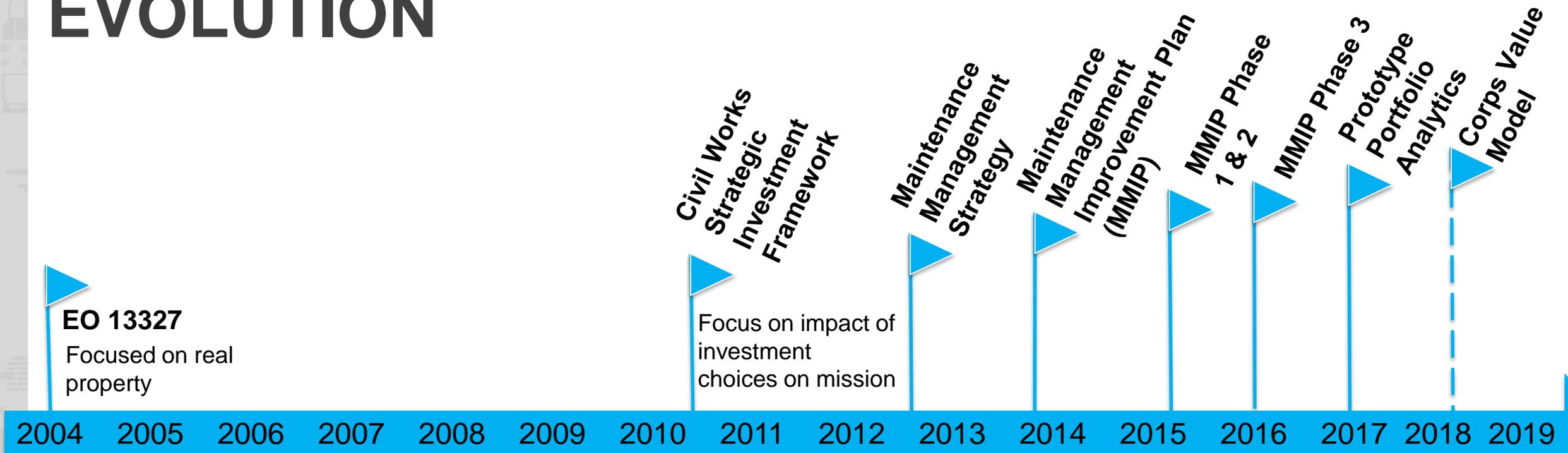
<p>Your colleagues are focused on:</p> <ul style="list-style-type: none"> • Asset data, location and condition assessment • Current KPIs • Department budget 	<p>Your colleagues are focused on:</p> <ul style="list-style-type: none"> • Information supported decisions (strategic context and related to customer needs) • Strategies to select and exploit assets over their lifecycles to support business aims • Collaboration across departments to optimise resources allocated and activities
<p>Your stakeholders are focused on:</p> <ul style="list-style-type: none"> • Costs • Current performance • Response to failures / maintaining function 	<p>Your stakeholders are focused on:</p> <ul style="list-style-type: none"> • Triple bottom line and value • Clarity of purpose of the organization • Focus on impact of activities on organization's objectives
<p>Your top management is focused on:</p> <ul style="list-style-type: none"> • Short term gain / loss • Departmental / individual performance • Savings, especially OPEX 	<p>Your top management is focused on:</p> <ul style="list-style-type: none"> • Long term value for the organization • Developing competence and capability across workforce • Business risks understood and mitigated
<p>Your suppliers are focused on:</p> <ul style="list-style-type: none"> • Short term contracts and performance • Service level agreements are focused on contract specifications 	<p>Your suppliers are focused on:</p> <ul style="list-style-type: none"> • Long term contracts and/or partnering relationships in support of client value and objectives • Understanding client strategy and needs in 5-10 years



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EVOLUTION



2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

AM Vision Developed (PAS 55 AM applied to Civil Works)

More than real property:
Multi-purpose, multi-asset operating projects

Operational Risk Assessment (Inland NAV)

Operational Condition Assessment

Program Management Plan (PgMP)

Investment Optimization & Decision Quality Improvements



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U.S. ARMY

Cross-functional integration

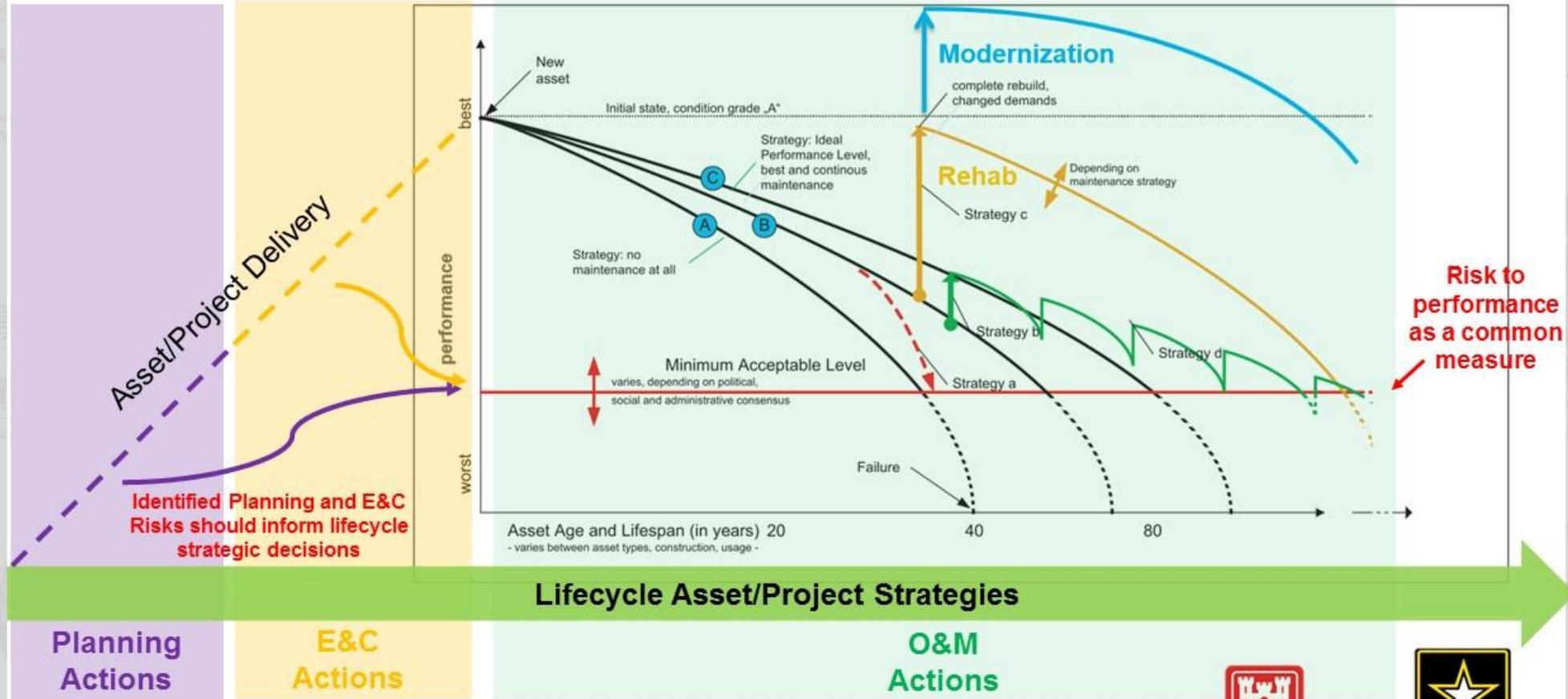
Asset Information Standards

Maintenance Management

Investment Criteria Transparency

Investment Planning

LIFECYCLE PORTFOLIO MANAGEMENT ACTIONS



Planning Actions

E&C Actions

O&M Actions



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CURRENT AM GUIDANCE

DCW Policy Memo

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-6000

CECW-CO DEC 11 2014

MEMORANDUM FOR DISTRIBUTION
SUBJECT: Policy Directive for USACE Civil Works Asset Management

1. Reference:
a. USACE Civil Works Asset Management Program Management Plan, December 2014.

2. USACE Civil Works Asset Management (CWAM) has been charged with developing the necessary tools and processes to provide a consistent, repeatable, and transparent means of producing asset-based, risk-informed strategic investments for USACE Civil Works Operations and Maintenance. These tools and processes have evolved to the point where they can begin to be implemented into the current business processes of USACE Civil Works. In some cases, as with Operational Condition Assessments, these tools and processes are already implemented and in use.

3. As the suite of CWAM tools and processes mature and become available, they shall be implemented and used in their intended fashion across all business lines as a fundamental part of transforming Civil Works. The four focus areas where tools and processes have been or are being developed are Maintenance Management, Operational Condition Assessments (OCAs), Operational Risk Assessments (ORAs), and Asset Management Portfolio Analytics (AMPA). Each of these four focus areas may have a number of tools and processes that may be applicable to various business lines.

4. The enclosed completed Asset Management Program Management Plan describes the overall strategic approach to forward, the documents associated with the program, schedule, cost, and specific interactions. Existing examples include the Maintenance Management Improvement Plan, policy and guidance for conducting OCAs, the development of ORAs tools and processes, and AMPA. The CWAM team will make a comprehensive plan that covers the overall implementation schedule and necessary resources for each business line, asset type, tool, or process.

5. All districts and Major Commands shall begin the implementation in the FY17 budget build for the business lines, operations reporting remaining maintenance work components, and develop work packages for navigation operations using the appropriate OCAs and ORAs.

CW AM PgMP

PROGRAM MANAGEMENT PLAN (PgMP) For Civil Works Asset Management

2014 - 2017



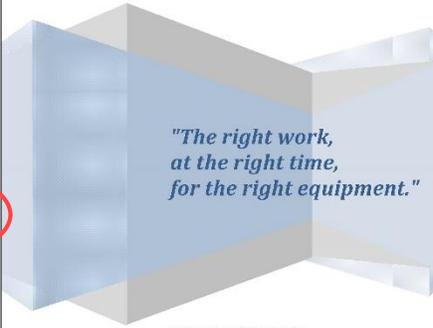
MM Guidance

May 2013



US Army Corps of Engineers
BUILDING STRONG

Maintenance Management Improvement Plan



USACE Asset Management



US Army Corps of Engineers
Directorate of Civil Works

OCA Guidance

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

CECW-OP
Circular No. 11-2-218

EC 11-2-218
[Date]

U.S. ARMY CORPS OF ENGINEERS
POLICY FOR OPERATIONAL CONDITION ASSESSMENTS OF USACE ASSETS

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Annual Budget Guidance

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D. C. 20314-1000

CECW-HP
Circular No. 11-2-216

EC 11-2-216
EXPIRES 31 March 2019

Army Programs
U.S. ARMY CORPS OF ENGINEERS
CIVIL WORKS DIRECT PROGRAM DEVELOPMENT POLICY GUIDANCE
FISCAL YEAR 2020

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Great. So.....



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Phase 1 & 2 - Asset Visibility

- Assets
- *Classifications*
- *Asset Criticality*

Phase 3 – Work Orders and Work Flow

- Planned & Actual dates and costs
- Failure Reporting
- Create Work Flow

Phase 4 – Material Management Strategy

7 tasks identified
Partner with ULA

Phase 5 – PMMP (Project Maintenance Mgmt Plan)

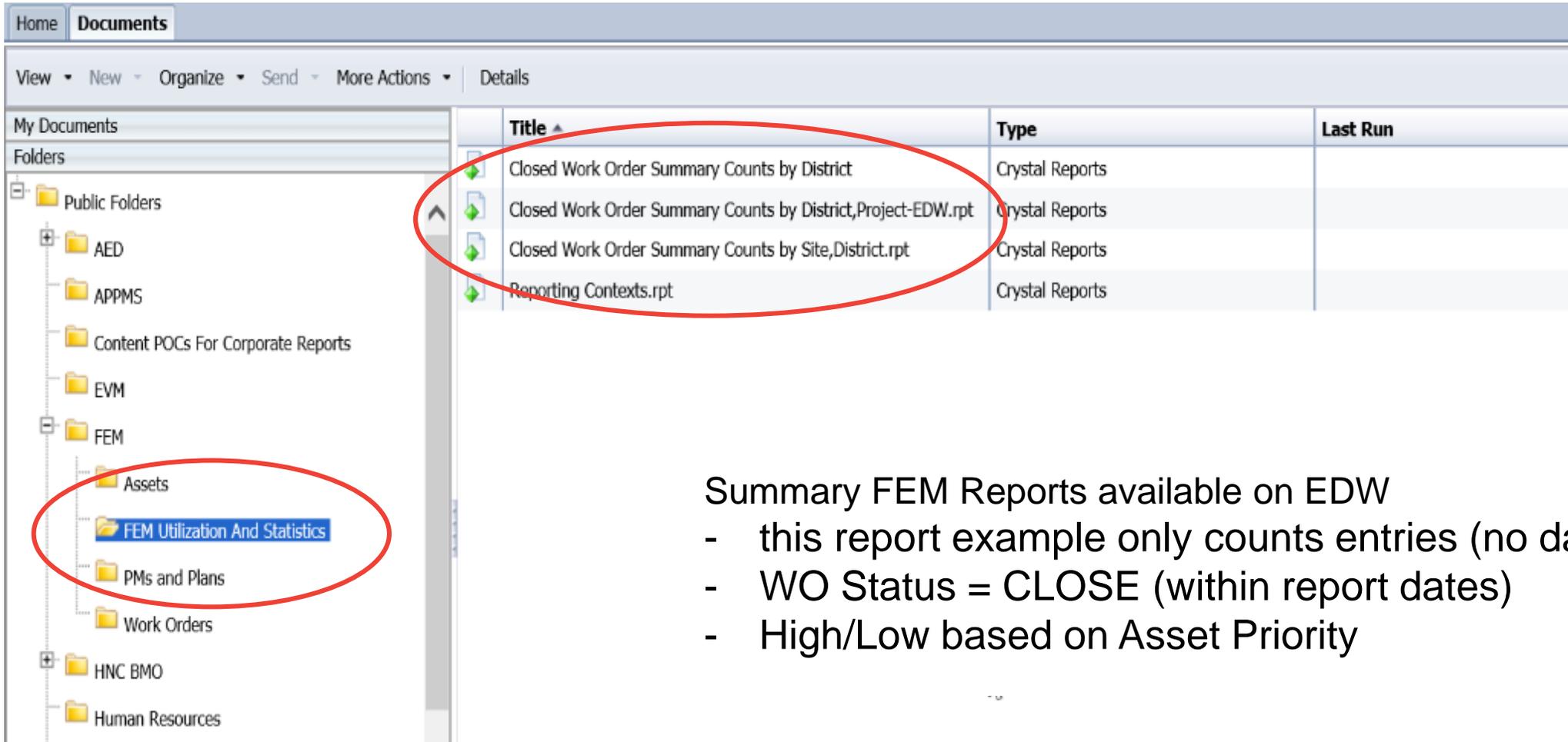
- Annual Preventive Maintenance resources
- Determine Common O&M budget packages



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MAINTENANCE MANAGEMENT – EDW REPORTS



The screenshot shows a file explorer window with a 'Documents' tab. On the left, a folder tree is visible under 'My Documents'. The 'FEM' folder is expanded, and 'FEM Utilization And Statistics' is highlighted. On the right, a table lists reports with columns for 'Title', 'Type', and 'Last Run'. A red circle highlights the first three rows of the table.

Title	Type	Last Run
Closed Work Order Summary Counts by District	Crystal Reports	
Closed Work Order Summary Counts by District,Project-EDW.rpt	Crystal Reports	
Closed Work Order Summary Counts by Site,District.rpt	Crystal Reports	
Reporting Contexts.rpt	Crystal Reports	

Summary FEM Reports available on EDW

- this report example only counts entries (no data QA)
- WO Status = CLOSE (within report dates)
- High/Low based on Asset Priority



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UPDATE THE MAINTENANCE MANAGEMENT STRATEGY

TASK CATEGORY		A. Reliability engineering	B. Failure Data	C. FEM Data Consistency	D. FEM PM	E. KPIs & Metrics	F. MM Communications	G. Quality Assurance	H. Budget planning	I. Reporting	J. Return on investment	K. Scheduling	Total
GOAL / TIMEFRAME													
1-2 year		6	1	1	2		2			2		4	27
1	World class planned maintenance (>80%)	6	1									4	11
2	100% accountability for prioritization of the work that was performed or not performed			1									1
3	Anyone can access real-time, standard, and consistent maintenance data			1					1				2
4	Corporate knowledge of risk for senior leaders (project level/system level)			1						1			1
5	Defined and formalized communication						2						2
3-5 year			1	5	6	3	1	3		1	4		43
1	World class planned maintenance (>80%)		3	1	4			1					9
2	100% accountability for prioritization of the work that was performed or not performed			1									1
3	Anyone can access real-time, standard, and consistent maintenance data			2					1				3
4	Corporate knowledge of risk for senior leaders (project level/system level)		7			3							10
5	Defined and formalized communication				2	1	2						5
6	High fidelity of the cost of maintaining critical assets			1		1							1
7	Connect maintenance investments with reliability									4			4
6-20 year				5			3	1	5	1			15
1	World class planned maintenance (>80%)			4			1	1					6
2	100% accountability for prioritization of the work that was performed or not performed						2						2
3	Anyone can access real-time, standard, and consistent maintenance data			1					1				2
5	Defined and formalized communication							5					5
Total		6	1	2	6	3	1	6	4	5	4	4	85



APPENDIX C – 1-2 YEAR GOALS, TASKS, AND ACTIONS BY CATEGORY

APPENDIX D – 3-5 YEAR GOALS, TASKS, AND ACTIONS BY CATEGORY

APPENDIX E – 6-20 YEAR GOALS, TASKS, AND ACTIONS BY CATEGORY

OPERATIONAL CONDITION ASSESSMENT

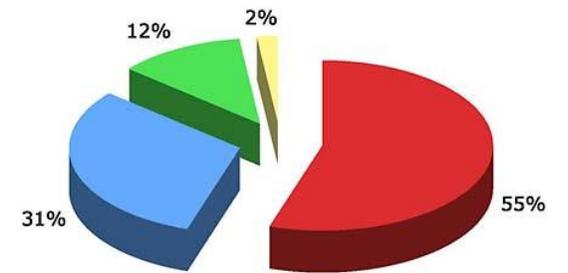


Rating	Descriptor	Definition
A	9 Excellent	Component was recently put into service and shows no signs of wear.
A-		
B	7 Good	Component performs its intended function. Any deficiencies are normal wear and not actively progressing at a greater rate than normal wear.
B-		
C	5 Fair	Component has a deficiency that is beginning ¹ to affect its performance, operational procedures, and/or maintenance requirements. <i>AND/OR</i> Component is beginning to show a greater rate of change in degradation that has the potential to cause a functional failure.
C-		
D	3 Poor	Component has a deficiency that increasingly ² or moderately ³ affects its performance, operational procedures, and/or maintenance requirements. <i>AND/OR</i> Component has a clear mode of failure due to an advanced state of degradation likely with an accelerating trend.
D-		
F	1 Failing	Component has a deficiency that substantially ⁴ affects its performance, operational procedures, and/or maintenance requirements and is approaching complete failure. <i>AND/OR</i> Component is clearly in the final stages of degradation trending toward complete failure (imminent failure).
CF	0 Completely Failed	Component is completely failed and does not perform its intended function. <i>AND/OR</i> Component is red-tagged.

Minus OCA Rating Definition

The minus OCA ratings (A-, B-, C-, and D-) are for components that meet the definition of a particular C rating but may be showing initial signs of the next lower OCA rating.

*See [Table 2] for commentary and key definitions associated with this rating scale. Further iterations supporting tool will include a rating of "U" for unknown.



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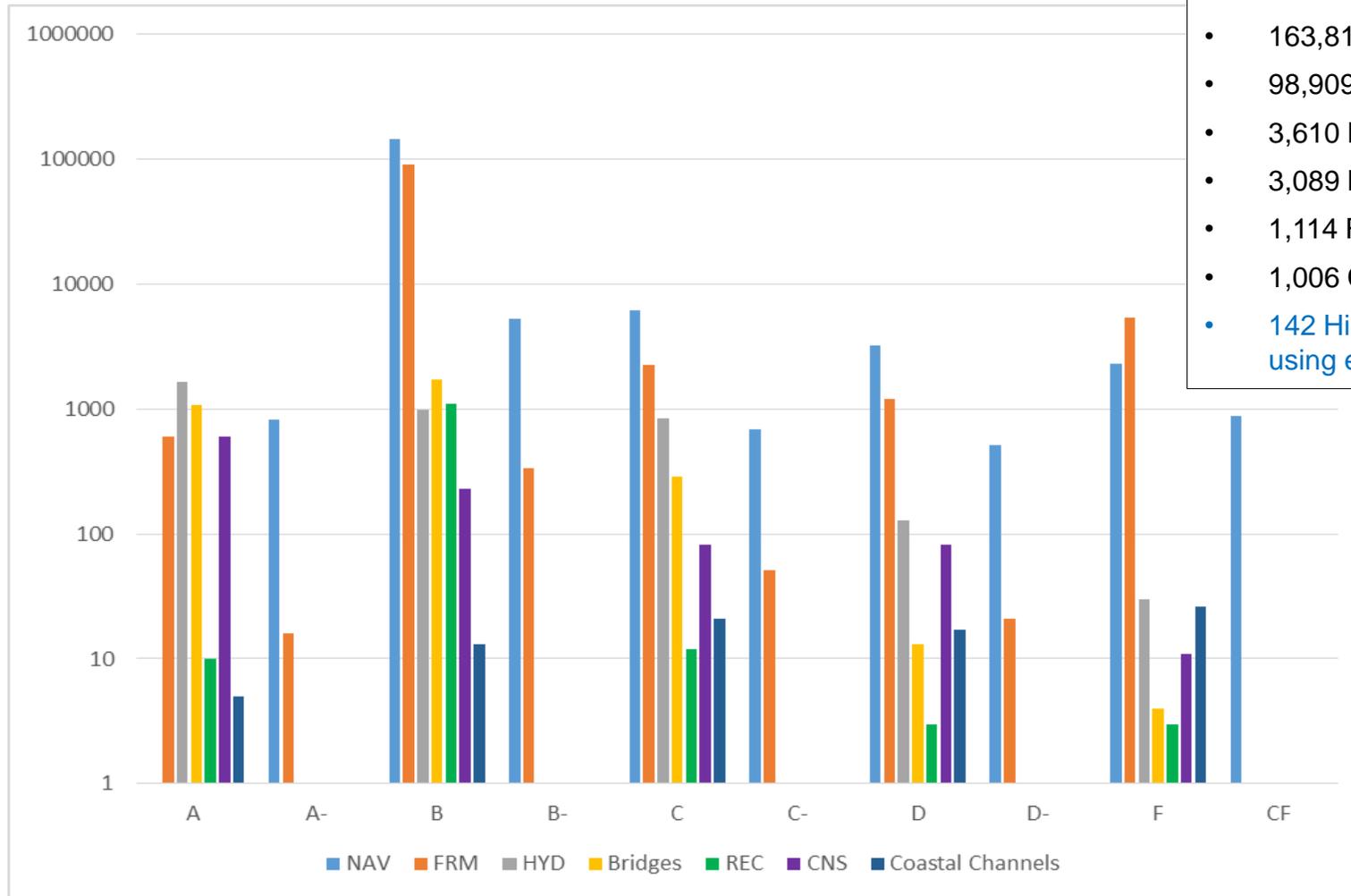


U.S. ARMY

3Q FY18 CONDITION ASSESSMENT STATUS

271,622 rated and reviewed components:

- 163,811 NAV L&D (100% complete using OCA)
- 98,909 FRM (~60% complete using OCA)
- 3,610 HYD (100% complete using hydroAMP)
- 3,089 Bridges (100% complete using CEBIS)
- 1,114 REC (~5% complete, just started using new OCA process)
- 1,006 CNS (Coastal Nav Structures, 100% complete using OCA)
- 142 High/Medium Use Coastal Nav Projects (99% complete using eHydro)



Vertical scale is logarithmic



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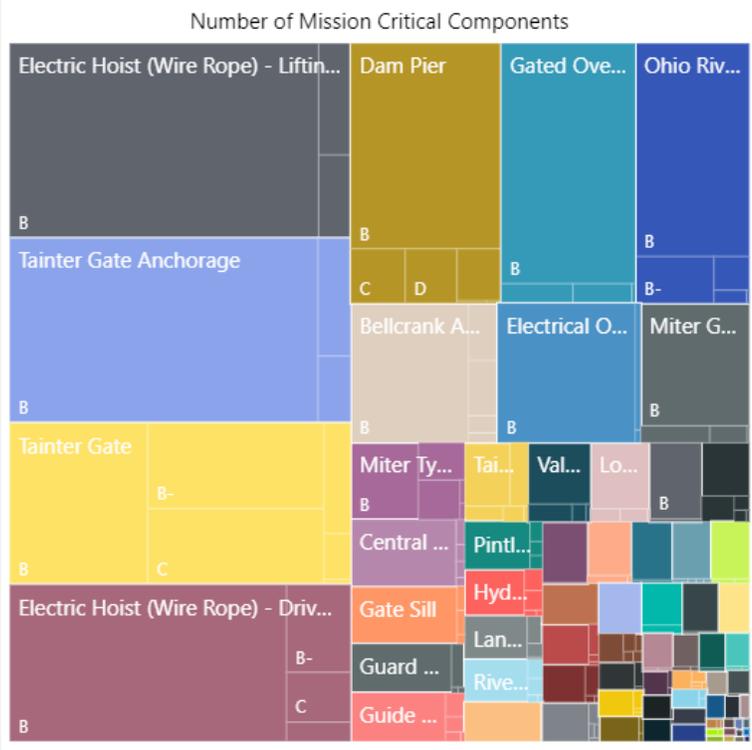


Mission Critical Component Analysis – Condition Ratings

Reset Filters

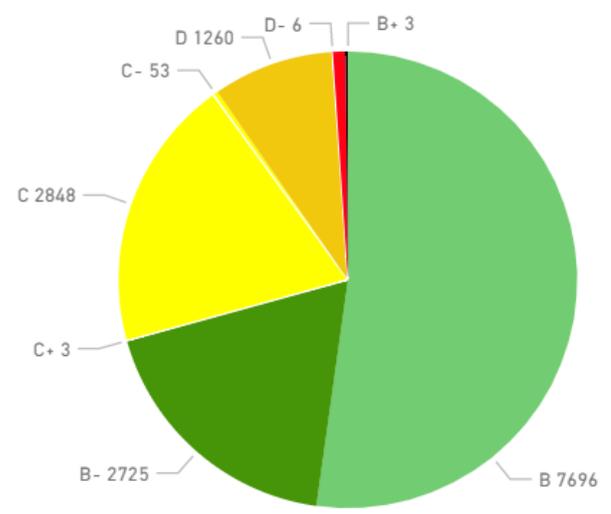
- Division: SWD
- District: Little Rock Tulsa
- Project Site Name: Montgomery Point Lock and Dam Norrell Lock Num. 2 & Mills Dam Joe Hardin Emmett Sanders

Components Condition: All



Components by Condition

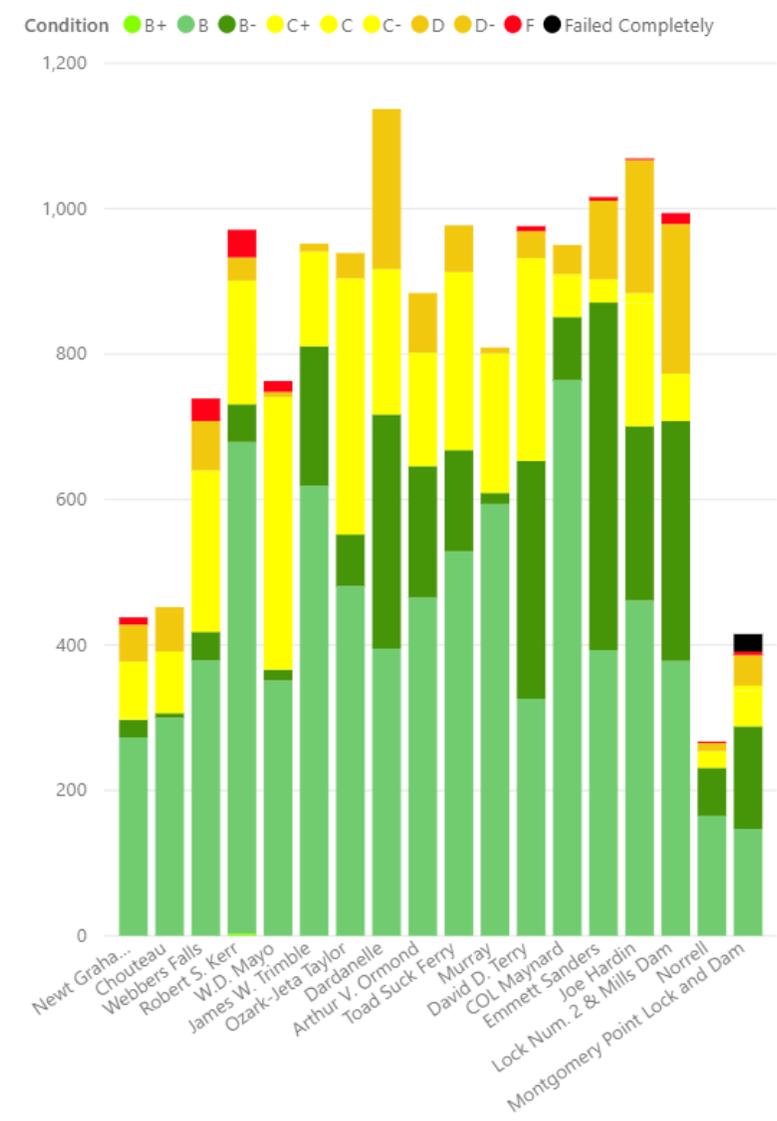
Condition: B+ (light green), B (medium green), B- (dark green), C+ (yellow), C (light yellow), C- (pale yellow), D (orange), D- (light orange), F (red), Failed Completely (black)

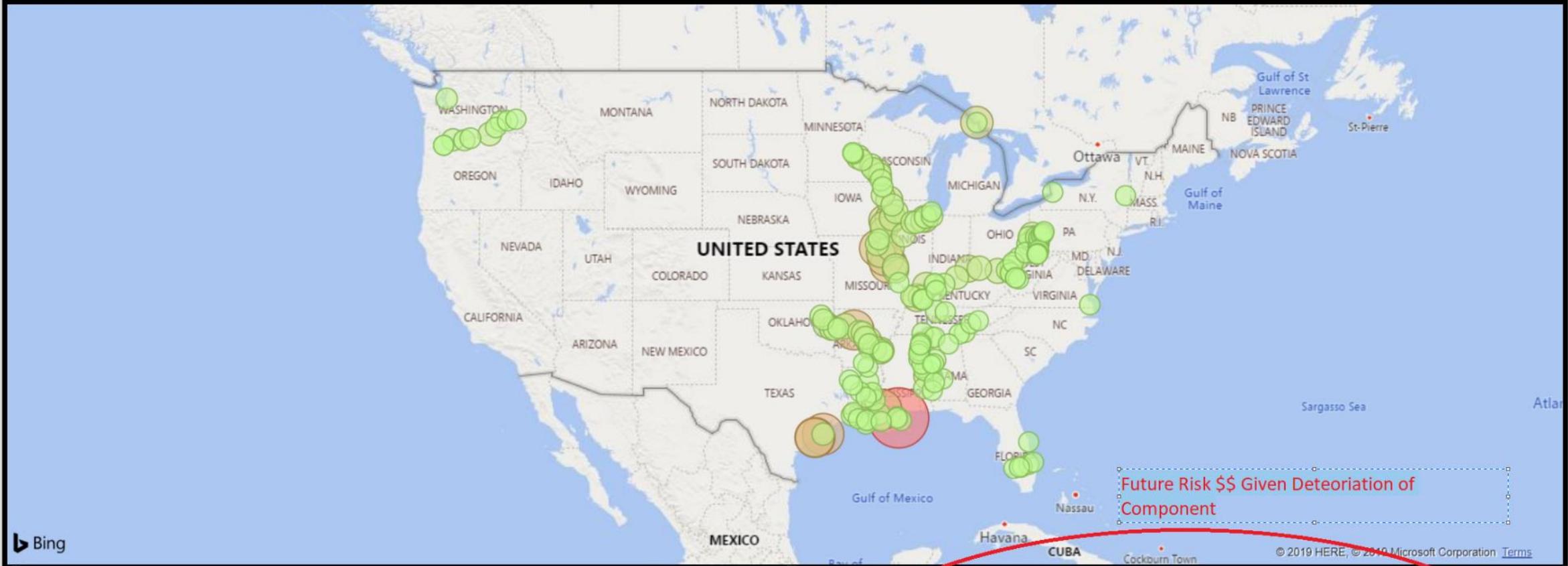


Total # of Selected Components:

14,749

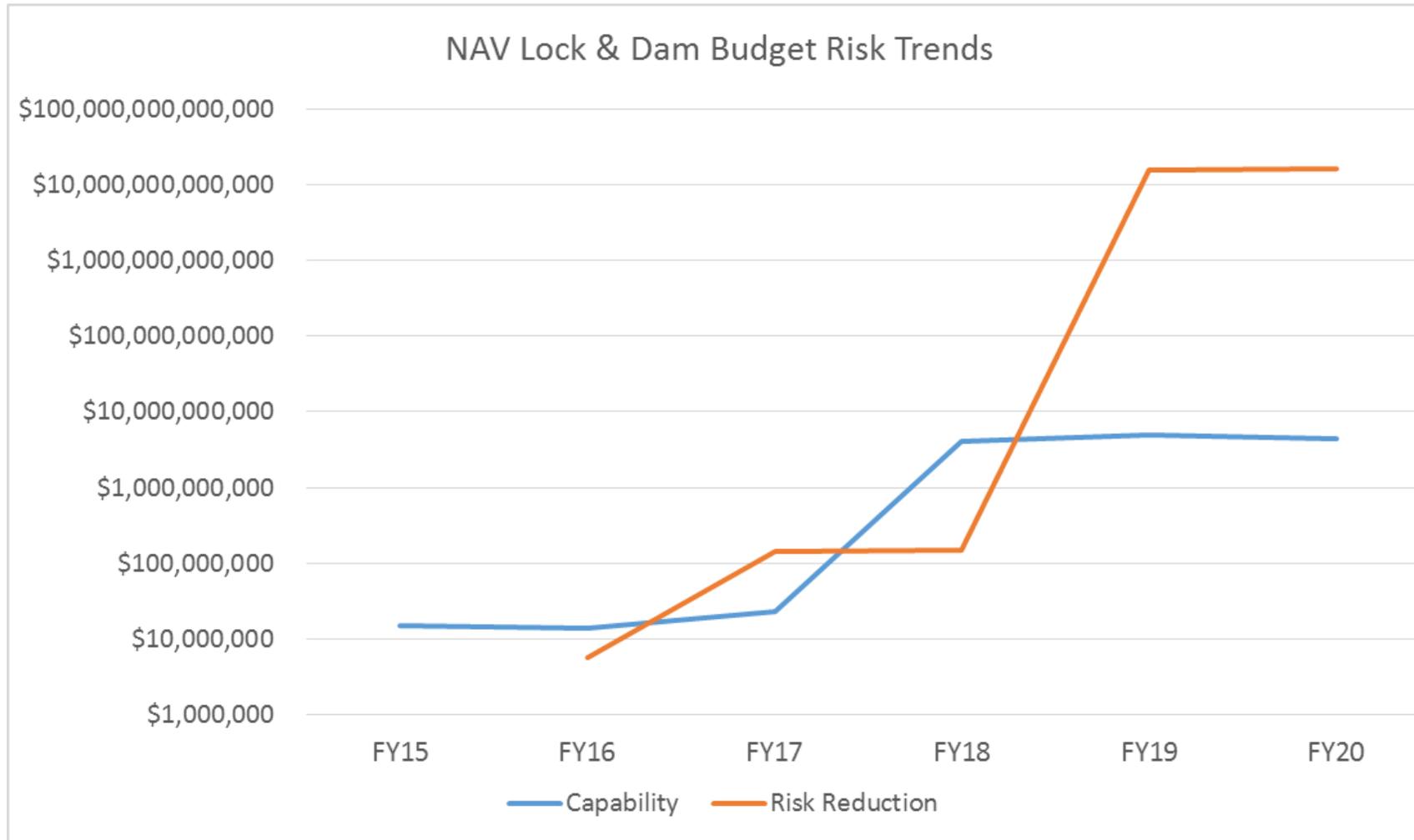
Number of Mission Critical Components meeting SelectionCriteria by Project





Type	HighLevelSystemTypeName	SystemName	systemgroupName	Component typeName	RiskRepairBuyDownYear10	RiskRepairBuyDownYear15	RiskRepairBuyDownYear20
	Lock Structure	Lock Walls and Other Lock Structures	Guide Wall Upstream Primary	Structural	48,461,201.43	62,114,991.34	71,528,888.10
	Dam Structures	Dam Piers	Dam Pier	Foundation Pressure Relief System	58,288,678.70	82,920,380.86	105,631,120.13
	Dam Structures	Dam Spillway Sections	Gated Overflow Spillway	oundation Drainage System	47,768,023.93	64,016,234.31	75,794,540.03
	Dam Structures	Dam Spillway Sections	Gated Overflow Spillway	Structure	47,768,023.93	64,016,234.31	75,794,540.03
	Lock Structure	Lock Walls and Other Lock Structures	Guide Wall Downstream Primary	oundation System	41,801,817.57	53,579,347.18	61,699,616.25
	Lock Structure	Lock Walls and Other Lock Structures	Guide Wall Downstream Primary	Stability	41,801,817.57	53,579,347.18	61,699,616.25
	Lock Structure	Lock Walls and Other Lock Structures	Guide Wall Downstream Primary	Foundation System	37,932,486.21	48,619,843.98	55,988,470.81
	Lock Structure	Lock Walls and Other Lock Structures	Guide Wall Downstream Primary	Stability	37,932,486.21	48,619,843.98	55,988,470.81
	Lock Structure	Lock Walls and Other Lock Structures	Guide Wall Downstream Primary	Structural	37,932,486.21	48,619,843.98	55,988,470.81
					6,091,521,753.45	7,969,252,272.74	9,357,314,831.63

Risk Informed NAV L&D Budget Trends



Vertical scale is logarithmic

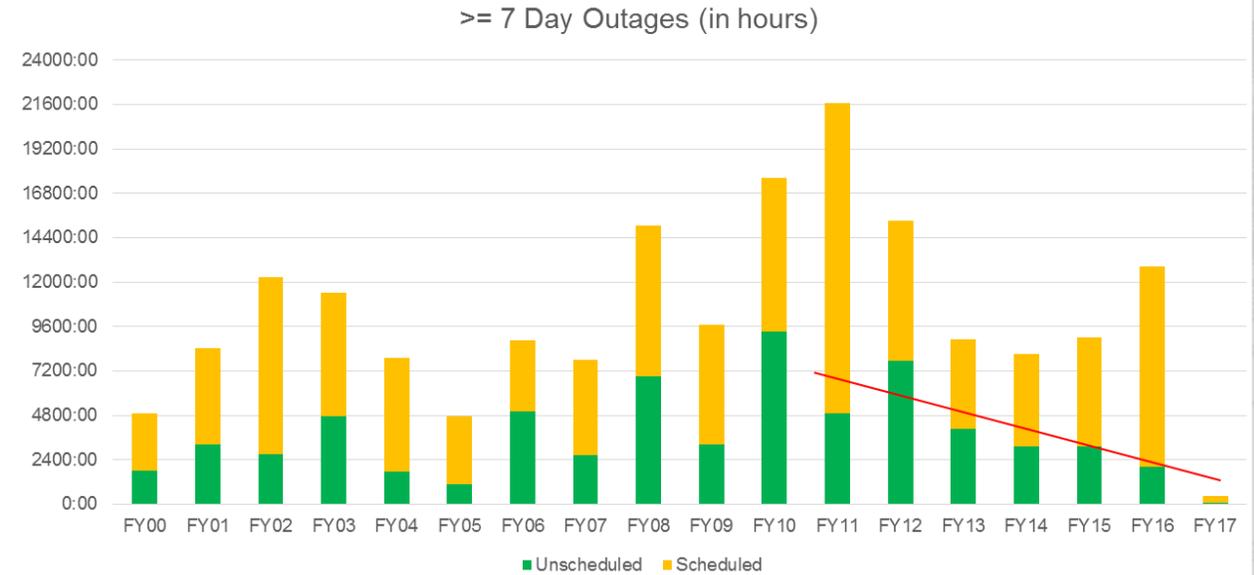
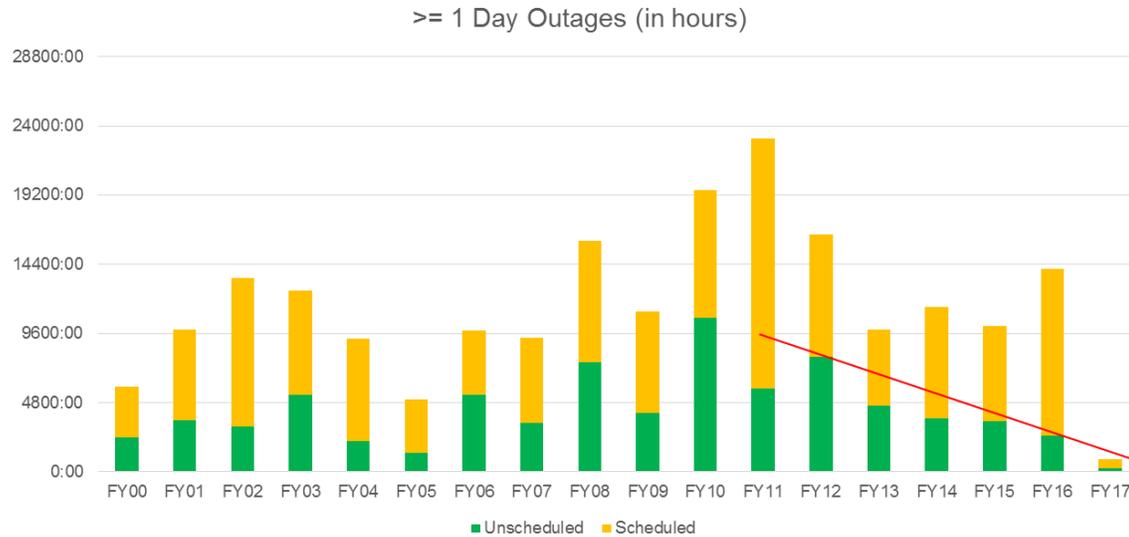


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Risk Informed NAV Trends

LOCK CLOSURES UNSCHEDULED AND SCHEDULED MECHANICAL UNAVAILABLE HOURS



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		Budget through Execution Data				Business Process	
EDW	FEM	Asset				FEM Work Order # entered into CWIFD.	
	OCA	Asset Condition				Current Asset Condition residing in OCA tool will be manually entered in CWIFD. The anticipated condition as a result of requested will also be entered in CWIFD.	
	CWIFD	Work Package ID			Work Package ID	Work Package ID	Current Asset Condition residing in OCA tool will be manually entered in CWIFD. The anticipated condition as a result of requested will also be entered in CWIFD.
	P2	P2 Activity		P2 Activity	P2 Activity	The CWIFD Work Package ID # associated with the P2 Activity will be manually entered into P2. There can be multiple P2 Activities associated with an individual Work Package ID. The sum of the funding for the individual activities shall not exceed the appropriated funding associated with that Work Package ID without following an established process for reallocation of funds .	
	CEFMS	Parent Funded Work Item			The P2-CEFMS interface will establish one Funded Parent Work Item per Activity		
		Child Funding/Ordering Work Items		Child Work Item	Child Funding and Ordering Work Items , and associated permissions, will be established in CEFMS sufficient to ensure proper controls are in place throughout the execution of the funded Work.		
	FEM	FEM Work Order	CEFMS	Charges by Org		The CEFMS database is the official USACE record for all obligations and expenditures. As such, CEFMS data will be the foundation for ensuring the appropriated funds were executed for the intended purpose. CEFMS provides both on-site and off-site costs by Organization by resource code which will enable a review of costs associated with labor , contracts, supplies & materials, etc.	
Work Performed		Labor Hours		Expense by Resource Code			
Labor Hours		Supplies & Materials		ALL FEM WORK ORDERS ARE REQUIRED TO HAVE A VALID CEFMS WORK ITEM. FEM is the data source that will be used to validate the execution of on-site maintenance work associated with a funded work package. FEM data will be cross-referenced against CEFMS financial data to ensure FEM and CEFMS records are consistent.			

Line-of-Sight: Budget Development through Execution (UCP Action 2d2)
Intended Benefit -> Funding Request -> Funding Outcome -> Benefit Outcome



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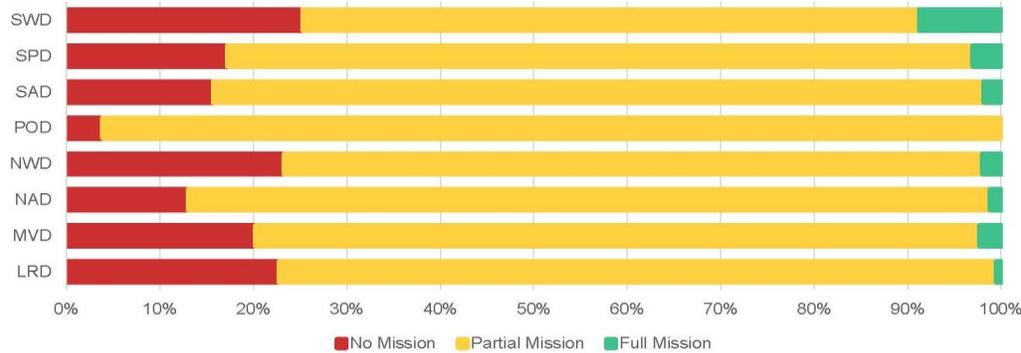


SUMMARY FY19 O&M 20/20 DATA

2.3 Level of Performance by MSC

The following graphic and table break down the Levels of Performance for the O&M FY19 President's Budget by Major Subordinate Command (MSC).

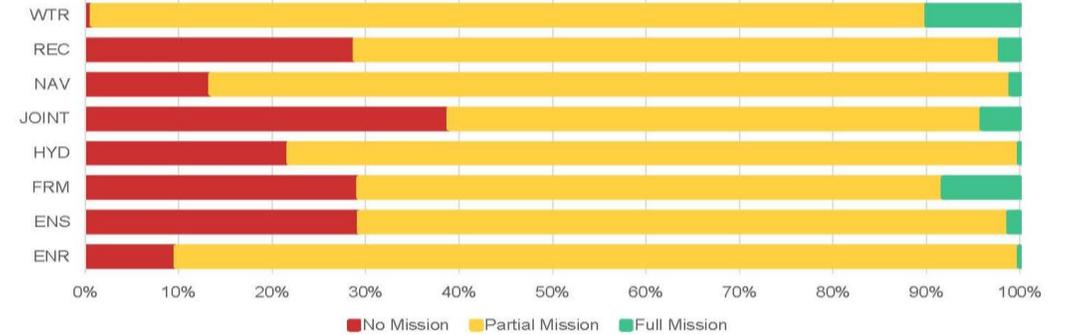
LEVEL OF PERFORMANCE			
LEVEL OF PERFORMANCE	NO MISSION	PARTIAL MISSION	FULL MISSION
NO MISSION	0%	0%	0%
PARTIAL MISSION	0%	0%	0%
FULL MISSION	0%	0%	0%



2.4 Level of Performance by Business Line

The following graphic and table break down the Levels of Performance for the O&M FY19 President's Budget by business line.

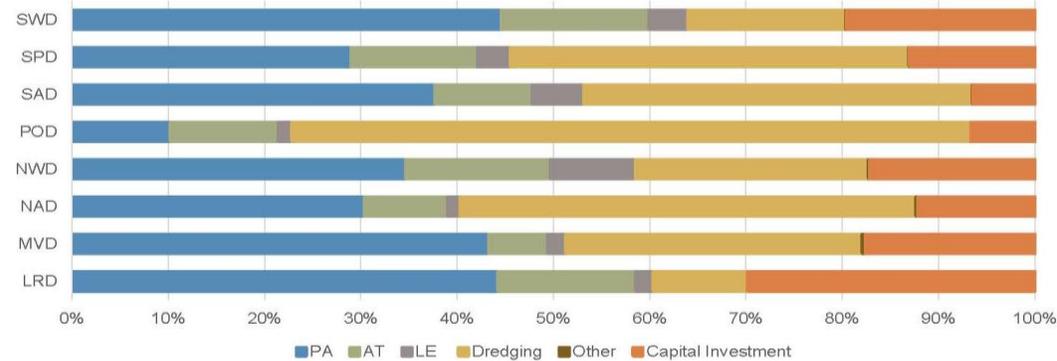
LEVEL OF PERFORMANCE			
LEVEL OF PERFORMANCE	NO MISSION	PARTIAL MISSION	FULL MISSION
NO MISSION	0%	0%	0%
PARTIAL MISSION	0%	0%	0%
FULL MISSION	0%	0%	0%



2.9 MSC Funding Bucket Comparison

The following graphic and table break down the MSC's O&M FY19 President's Budget by funding bucket.

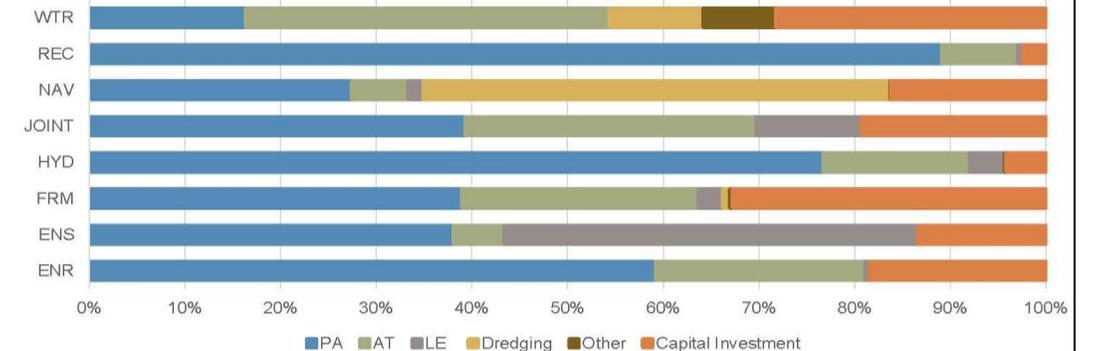
FUNDING BUCKETS						
FUNDING BUCKET	PA	AT	LE	Dredging	Other	Capital Investment
PA	0%	0%	0%	0%	0%	0%
AT	0%	0%	0%	0%	0%	0%
LE	0%	0%	0%	0%	0%	0%
Dredging	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	0%
Capital Investment	0%	0%	0%	0%	0%	0%



2.10 Business Line Funding Bucket Comparison

The following graphic and table break down the business line's O&M FY19 President's Budget by funding bucket.

FUNDING BUCKETS						
FUNDING BUCKET	PA	AT	LE	Dredging	Other	Capital Investment
PA	0%	0%	0%	0%	0%	0%
AT	0%	0%	0%	0%	0%	0%
LE	0%	0%	0%	0%	0%	0%
Dredging	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	0%
Capital Investment	0%	0%	0%	0%	0%	0%



SUMMARY FY19 O&M 20/20 DATA

2.7 Funding Buckets by MSC

The following graphics and table break down the funding buckets for the O&M FY19 President's Budget by MSC.

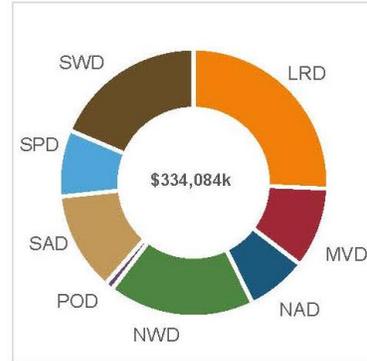
FUNDING BUCKETS

PROGRAMMATIC	ADMIN AND TECH	LEGAL AND ENVIRONMENTAL	DREDGING	OTHER COMMONLY PERFORMED SW	CAPITAL INVESTMENT
SWD	SWD	SWD	SWD	SWD	SWD
SPD	SPD	SPD	SPD	SPD	SPD
SAD	SAD	SAD	SAD	SAD	SAD
POD	POD	POD	POD	POD	POD
NWD	NWD	NWD	NWD	NWD	NWD
NAD	NAD	NAD	NAD	NAD	NAD
MVD	MVD	MVD	MVD	MVD	MVD
LRD	LRD	LRD	LRD	LRD	LRD

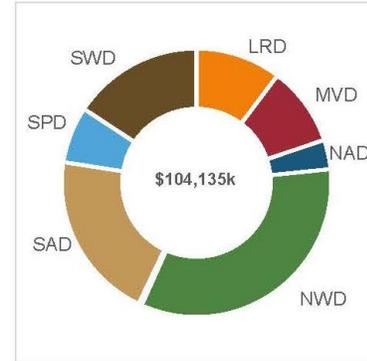
Programmatic



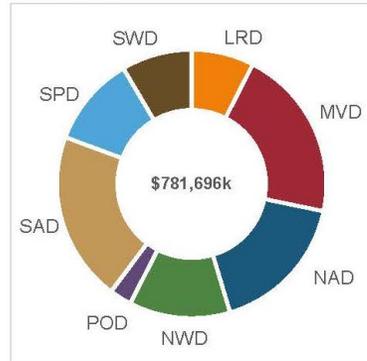
Admin and Tech



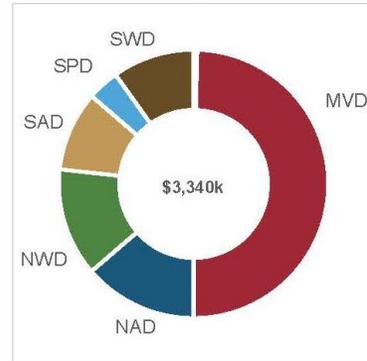
Legal and Environmental



Dredging



Other Commonly Performed SW



Capital Investment



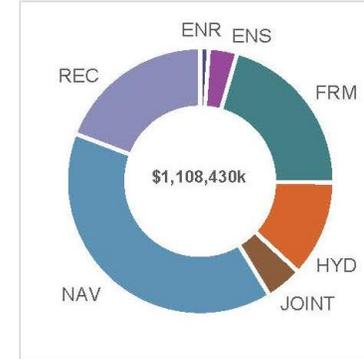
2.8 Funding Buckets by Business Line

The following graphics and table break down the funding buckets for the O&M FY19 President's Budget by business line.

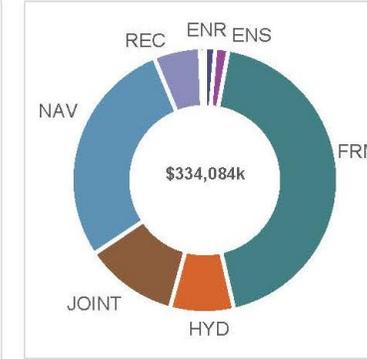
FUNDING BUCKETS

PROGRAMMATIC	ADMIN AND TECH	LEGAL AND ENVIRONMENTAL	DREDGING	OTHER COMMONLY PERFORMED SW	CAPITAL INVESTMENT
ENR	ENR	ENR	ENR	ENR	ENR
ENS	ENS	ENS	ENS	ENS	ENS
REC	REC	REC	REC	REC	REC
NAV	NAV	NAV	NAV	NAV	NAV
FRM	FRM	FRM	FRM	FRM	FRM
WTR	WTR	WTR	WTR	WTR	WTR
JOINT	JOINT	JOINT	JOINT	JOINT	JOINT
HYD	HYD	HYD	HYD	HYD	HYD

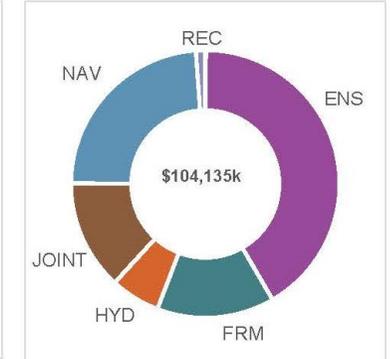
Programmatic



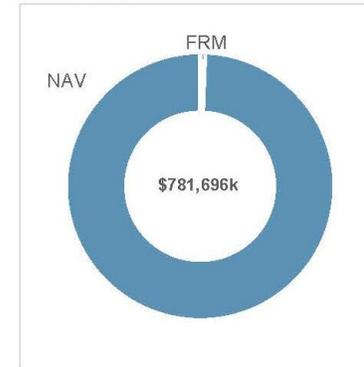
Admin and Tech



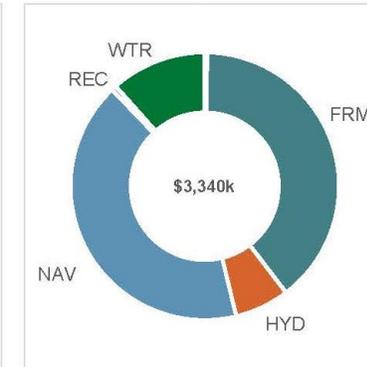
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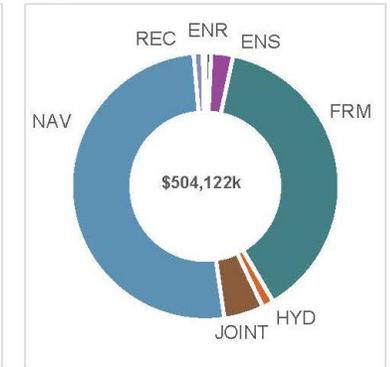
Dredging



Other Commonly Performed SW



Capital Investment



US Army Corps of Engineers®



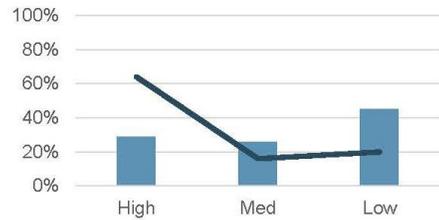
U.S. ARMY

SUMMARY FY19 O&M 20/20 DATA

2.11 Performance Parameters by Business Line

These charts show the percentage of projects in the high, medium, and low groups based on project attributes detailed in the Organize-Prioritize Tool. These charts also show the FY19 funding percentage in the high/medium/low groups compared to the total for the business line. Note: Water Supply and Ecosystem Restoration do not have high/medium/low groups.

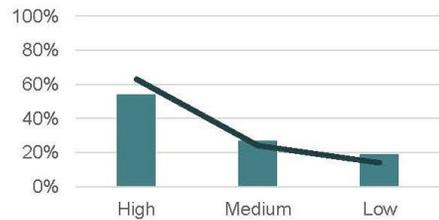
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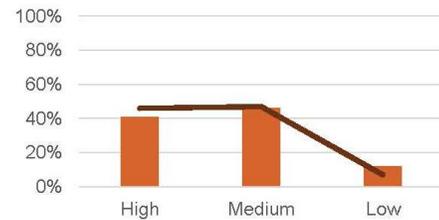
Key

■ = Project Counts
 — = Funding Percent

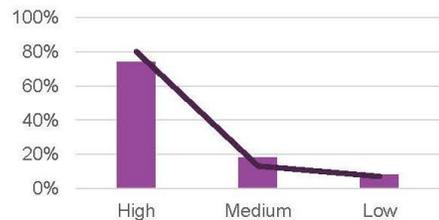
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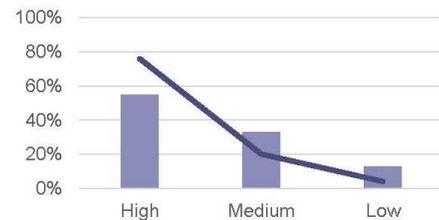
HYD



ENS

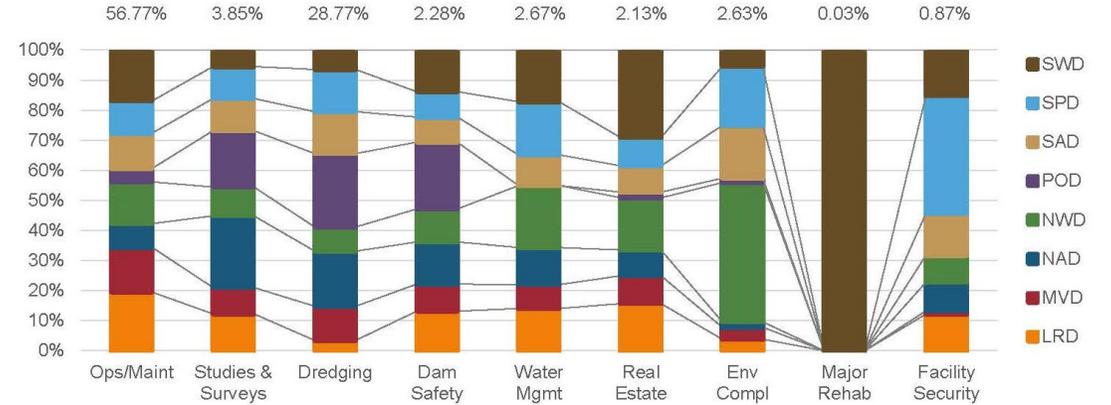


REC

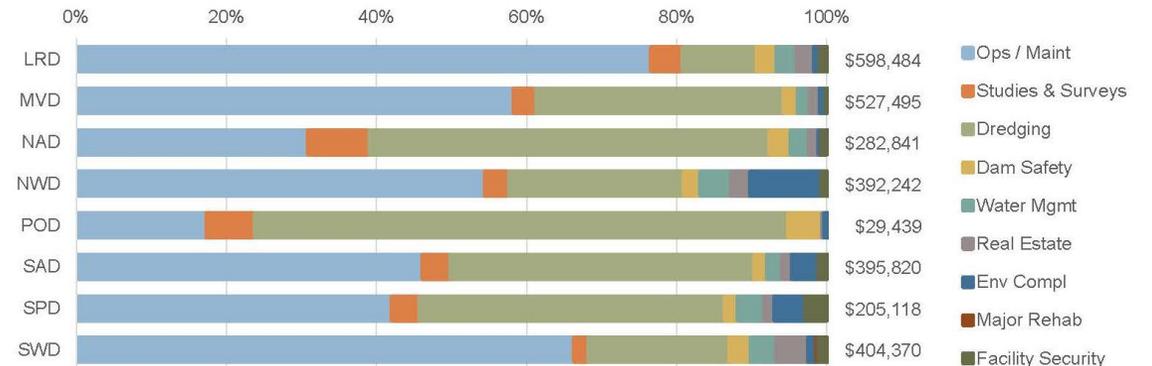


3.2 Activity Cost by MSC

Percent of O&M FY19 President's Budget shown by activity



Percent of O&M FY19 President's Budget shown by MSC



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