



Navy Facility Investment Model (FIM)

Ms. Sandra Dunn, CNIC N4/NAVFAC HQ Facility Readiness Program Manager

Mr. Gopal Narayan, Executive Vice President, R&K Solutions Inc.

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Agenda

- ***Introduction***
- ***Model Overview***
- ***Selected Use Cases***
- ***Verification Study***
- ***Questions/Discussion***

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Introduction: What is FIM

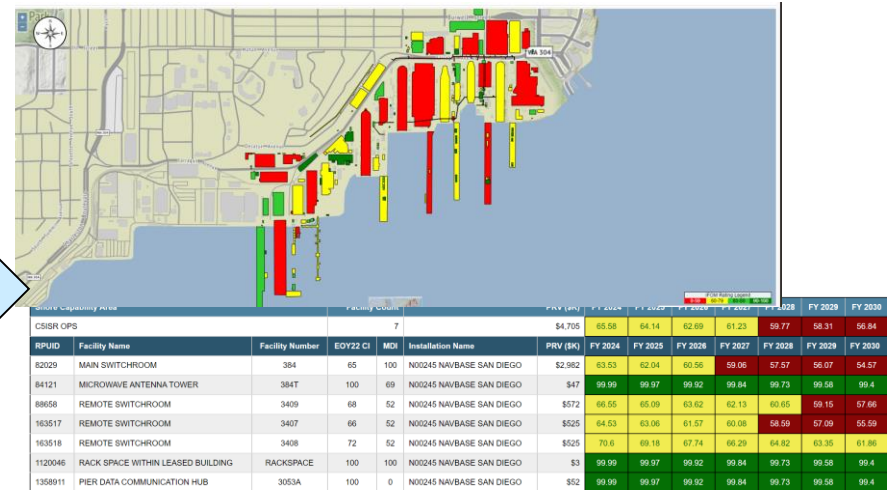
- **Predictive model that captures the impact of all forms of facility investment on future facility condition.**
- **Enable forecasts both at the facility-level and at the portfolio level for any customized group of Navy facilities.**
- **Implemented in web application as part of the Navv FRES suite of applications**

Funding Levels & Business Rules

Select from Sustainment, Restoration, and Demolition below to define and review funding levels and applicable business rules.

Sustainment Funding

Shore CFT	Scenario Funding (\$K)											
	2024 %	2024 \$ (K)	FSM Total \$ (K)	2025 %	2025 \$ (K)	FSM Total \$ (K)	2026 %	2026 \$ (K)	FSM Total \$ (K)	2027 %	2027 \$ (K)	FSM Total \$ (K)
1	100	0	\$0	100	0	\$0	100	0	\$0	100	0	\$0
2	80	111	\$139	80	126	\$157	80	128	\$160	80	131	\$164
3	80	3,163	\$3,954	80	3,698	\$4,622	80	3,775	\$4,719	80	3,855	\$4,818
4	80	0	\$0	80	0	\$0	80	0	\$0	80	0	\$0
5	80	12,938	\$16,172	80	13,935	\$17,419	80	14,227	\$17,784	80	14,526	\$18,158
6	80	0	\$0	80	0	\$0	80	0	\$0	80	0	\$0
7	80	28,640	\$35,800	80	33,862	\$42,327	80	34,572	\$43,215	80	35,299	\$44,124



FSRM Investments

Forecast



FIM Primary Objectives

- ***Predictive model that captures the impact of all forms of facility investment on future facility condition.***
- ***Enable forecasts both at the facility-level and at the portfolio level for any customized group of Navy facilities.***
- ***Implement consistent investment strategy across the FSRM portfolio, and metrics for whether the forecast is consistent with investment priorities of Navy Senior Leadership.***
- ***Conduct verification/validation study to ensure model forecasts are realistic, and can be used as a credible basis for budgeting.***



Model Overview

• **Sustainment**

- *Model degradation using approach from NAVFAC NNDM Task Force.*
- *Degradation depends on % of underfunding but is independent of the source of sustainment requirement.*

• **Restoration**

- *Prioritizes investment per OPNAV Targeted Facilities Investment Strategy (TFIS)*

• **Divestment**

- *Identifies candidates for divestment in a manner consistent with TFIS.*
- *Evaluate viability of demolition as disposal mechanism.*

• **Goal Seeking**

- *Allows FIM uses to obtain a rough estimate of additional restoration funding require to reach portfolio-level average CI goals, while accounting for degradation.*



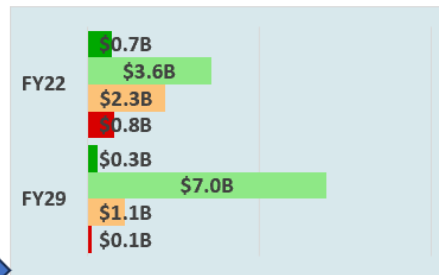
Targeted Facility Investment Strategy (TFIS)

- TFIS represents the CNO's priorities for facility investment.
- Current version implements a MDI-based matrix that uses critical/essential subsystem level condition for buildings and facility-level CI for other facilities.
- Draft version being reviewed by OPNAV N41 (below) takes a more granular approach to incorporate richer datasets, including the Navy's Shore CFT tiering, as well as requirements for specialized structures.

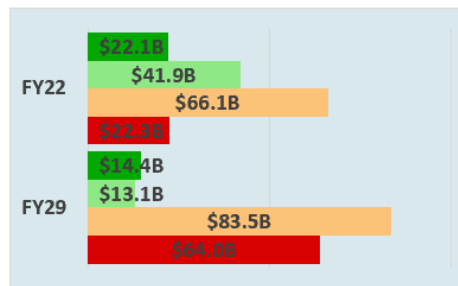
TFIS v2.0 (Draft)

LOE	Mission-Critical, Non-Buildings		Requirements in Buildings (Critical or Non-Critical)				Other:	
	Specialized Structures	UTILITIES	AB-SHELL/SKIN < 75 CI	D-SYSTEMS < 85 CI	C-INTERIORS < 80 CI	CI Not Met	Pkg/Rds/Stormwtr Req'ts	OTHER MISC.
1	Always Targeted Area Not Subject to CI							Miscellaneous requirements should be de-prioritized and minimized
2								
3								
4								
5			Area B					
7			Area C Buildings Systems and Interiors Area (Subject to CI)					
TBD								

Targeted Improvements



Targeted Facilities



Other Facilities

Use Cases: Optimizing Investment Mix

- **FIM analysis supported CAPE Tasker to identify trade-offs between Sustainment (ST) and Restoration/Modernization (RM) funding.**
- **Analysis revealed the importance of defining “optimal” in quantifiable terms since different ST/RM funding mixes optimize the condition of different parts of the facility portfolio.**

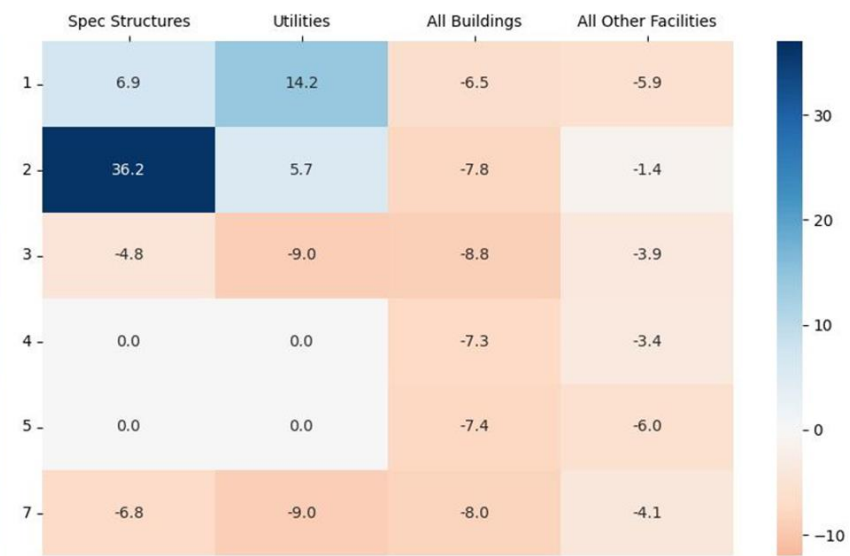
Increased RM + Decreased ST



Area of Risk

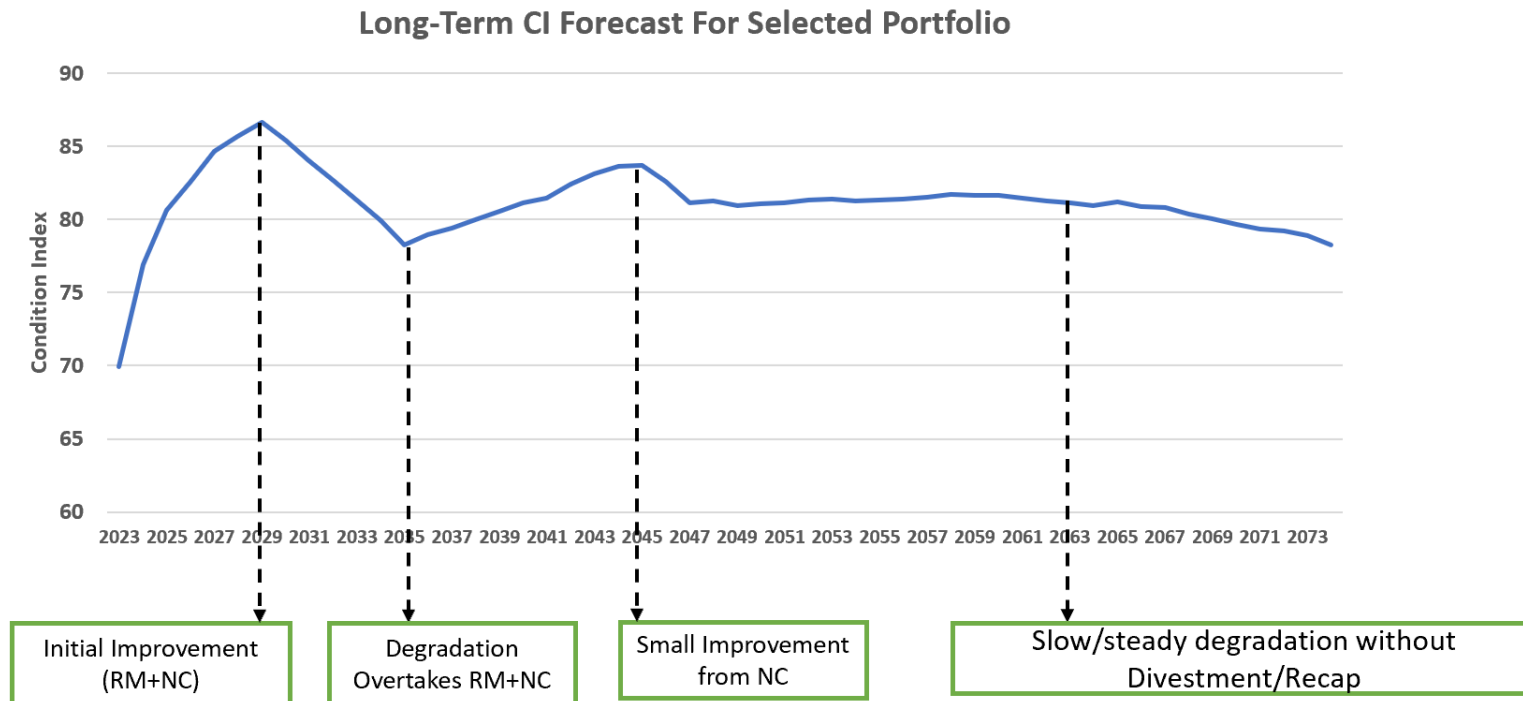
Area of Benefit

Decreased RM + Increased ST



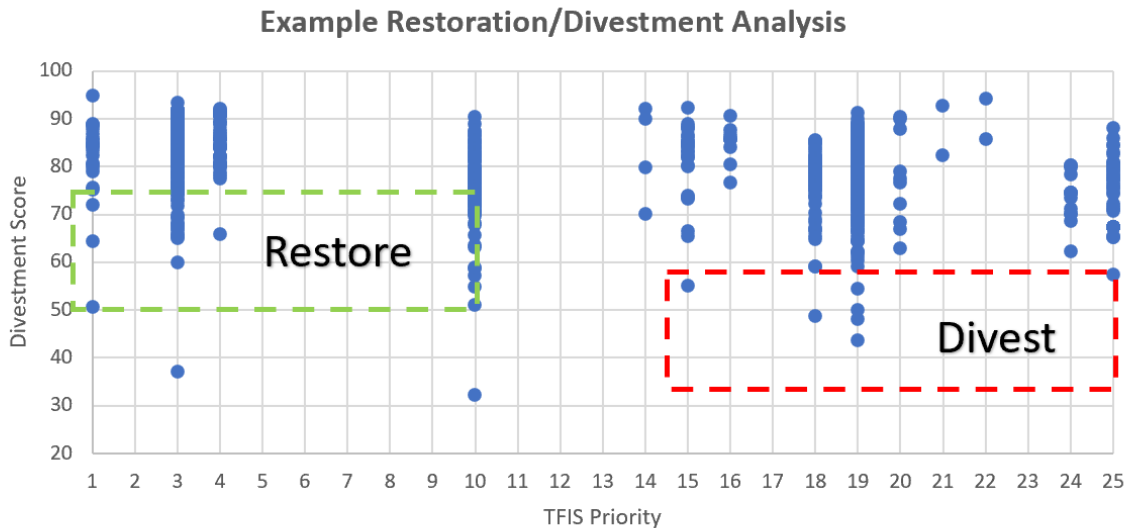
Use Cases: Long Term Forecasting

- **FIM analysis supported SIOP effort by supplying very long-range forecasting for shipyard condition under different investment scenarios.**
- **Sample analysis (shown below) highlights the variation in the average condition of the portfolio in the very long range, even under relatively constant levels of funding.**



Use Cases: Divestment Strategy

- **FIM currently developing Divestment analysis to support CNIC N4, in a manner consistent with the TFIS priorities.**
- **Divestment analysis intended to provide an objective basis for facilities that will be good candidates for demolition or other disposal methods, to be used as a starting point for subjective review.**
- **Leverages NAVFAC research into costs of demolition and assessment of disposal value.**

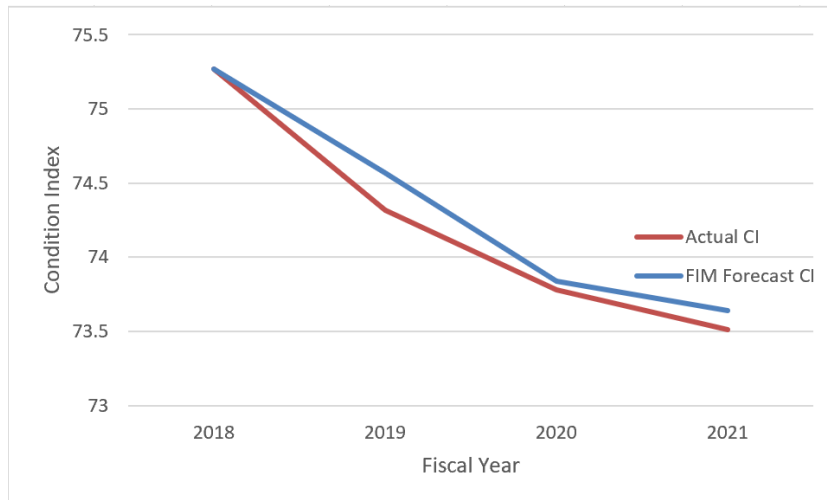


Economic
Viability Analysis
of Demolition vs
Other Disposal
Methods

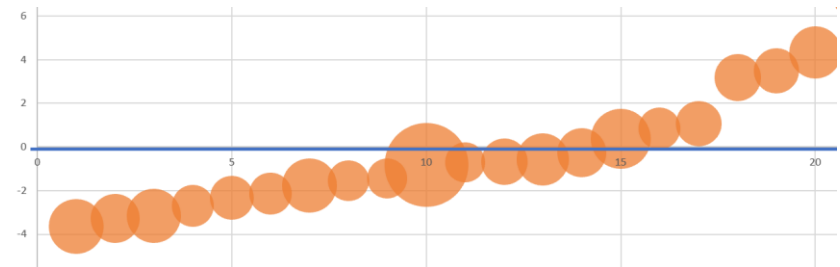
Verification Study (Early Results)

- **Current conducting Verification Validation and Accreditation (VV&A) study in order to obtain OPNAV N81 accreditation.**
- **Study involves a retrospective analysis based on verification of a 3-year forecast starting with FY18, in order to determine if the FIM's forecasts verify both at the portfolio and at the installation level.**
- **Early results show that the FIM forecasts verify very closely at the total Navy level, while there are outliers at the installation level.**

Navy-wide Verification



Installation-level Verification





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QUESTIONS/DISCUSSION



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